

The eCatalogue 2024

Cutting tools and clamping technology

CERATIZIT is a high-technology engineering group specialised in cutting tools and hard material solutions.

Tooling a Sustainable Future

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CERATIZIT GROUP

Tooling a Sustainable Future

CERATIZIT: Your specialist in sustainable cutting tools and hard material solutions.

Are you looking for a reliable partner for your tooling and machining needs? Then look no further! CERATIZIT is much more than just a supplier of tools. Our experts are also on hand to advise you with their extensive industry knowledge and decades of experience.

Is an optimised carbon footprint just as important to you as efficient production processes? With the Product Carbon Footprint (PCF) classification system for our innovative carbide solutions, you can choose the best sustainable product for you. Good for the environment, good for your production line.

For more than 100 years, CERATIZIT has been a pioneer in developing exceptional hard material solutions for machining and protection against wear. We can therefore guarantee our customers the highest levels of quality and access to the latest developments in the carbide sector – all-round cutting tools expertise from a single source.





The e-catalogue

This catalogue contains our unique range of tools on the market. Our Toolfinder, located at the beginning of every tool chapter, helps you quickly find the ideal tool, setting you on the right course to increased efficiency in machining.

To our video tutorial

To our video tutorial Navigate to the right tool even faster, save favourites and easily find them again - these are just a few of the convenient features our e-catalogue offers to simplify your search for tool and workpiece clamping solutions. Watch our video tutorial to find out how to get the most out of our e-catalogue.



Solid drilling and bore machining

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2 Solid carbide drilling
3 Indexable insert drilling
4 Reaming and Countersinking
5 Spindle Tooling

Threading

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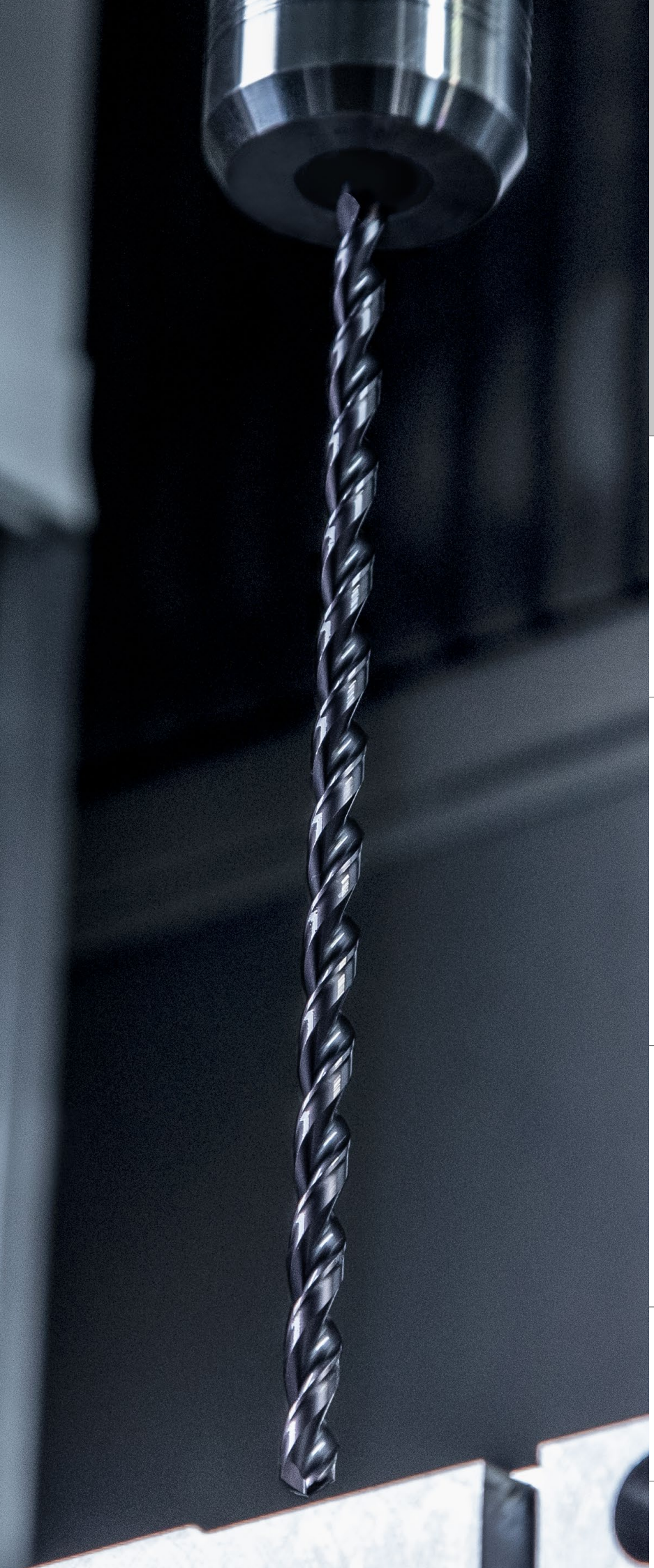

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WNT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Symbol explanation

Shank


Plain cylindrical shank


Cylindrical shank with lateral driving face „Weldon“


Morse taper



Version


Int. coolant supply


self-centering

● = **Main Application**

○ = Extended application

Toolfinder

	Tool type	Cutting material/ Coating	Description	DIN 1897	DIN 338	DIN 340	Series 1	series 2	series 3
				3xD	5xD	10xD	> 10xD		
Steel – Universal	VX	HSS-E TiN	▲ Universal high-performance drill ▲ Shank DIN 1835A ▲ self centering	9	15				
	UNI	HSS-E-PM TiN	▲ Wear-resistant due to HSS-E-PM and TiN coating ▲ Universal high-performance drill	10–14	16–21				
	UNI	HSS-E TiN	▲ As for Type VX ▲ Without standard shank to DIN 1835 A ▲ Available as a set	10–14	16–21	24–26			
	N	HSS vap.	▲ stable twist drill ▲ also suitable for portable drills ▲ available in set	10–14	16–21				
	WT	HSS-E vap.	▲ for high alloy steel and special alloys (Hastelloy, Inconel, Nimonic)	10–14					
	WT	HSS-E TiN	▲ as Type WT HSS-E vap. ▲ higher wear resistance due to coating	10–14					
	WTL	HSS-E F.-nit	▲ special flute profile with large chip gullet ▲ nitrided cutting edge giving increased wear protection to cutting corners and guide lands		16–21	24–26			
	WTL	HSS-E TiN	▲ as WTL HSS-E, but higher v_c and wear resistance due to coating ▲ suitable for steel and cast iron		16–21				
	WTL	HSS-E TiAlN	▲ Special flute profile with large chip spaces ▲ Higher wear resistance due to TiAlN coating				27	28	28
	WTL	HSS F.-nit	▲ special flute profile with large chip gullet ▲ nitrided cutting edge giving increased wear protection to cutting corners and guide lands				27	28	28
	WTL	HSS TiN	▲ as WTL HSS, but higher v_c and wear resistance due to coating			24–26			
	WNX	HSS-E	▲ Wide chip flutes for long-chipping materials ▲ Self-centring	10–14					
	NC	HSS TiAlN	▲ suitable for use with drill bushes ▲ very good chip evacuation with thro' coolant ▲ higher v_c and wear resistance due to coating			23			
Stainless steel	VA	HSS-E	▲ Specialist for stainless and acid-resistant materials ▲ special geometry	10–14	16–21				
Non-ferrous metals	W	HSS	▲ Specialist for non-ferrous metals		16–21				
	WTW	HSS	▲ for non-ferrous metals to 500 N/mm² ▲ for deep holes			24–26			

HSS Drills Overview

	Tool type	Cutting material | Coating	Point angle SIG	Diameter in mm DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non metal materials O		coated ■	uncoated □	WNT \ Performance
3xD without thro' coolant															
	VX	HSS-E TiN	118°	2–20	●	●	●	○	○		○		■		9
	UNI	HSS-E-PM TiN	130°	1–14	●		●	○	○	○	○		■		10–14
	UNI	HSS-E TiN	118°	1–14	●	●	●	○	○		○		■		10–14
	N	HSS vap.	118°	0,4–20	○		●	○			○		■		10–14
	VA	HSS-E	130°	1–12	○	●		●	○					□	10–14
	WNX	HSS-E	130°	1–20	●		●	○	○	○	○			□	10–14
	WT	HSS-E vap.	130°	0,4–25	●	●	●	○	○	○			■		10–14
	WT	HSS-E TiN	130°	1–20	●	●	●	○	●	○			■		10–14
5xD without thro' coolant															
	VX	HSS-E TiN	118°	2–20	●	●	●	○	○		○		■		15
	UNI	HSS-E-PM TiN	130°	1–14	●		●	○	○	○	○		■		16–21
	UNI	HSS-E TiN	118°	0,9–14	●	●	●	○	○		○		■		16–21
	N	HSS vap.	118°	0,2–20	○		●	○			○		■		16–21
	VA	HSS-E	130°	1–12	○	●		●	○					□	16–21
	W	HSS	130°	0,20–20				●						□	16–21
	WTL	HSS-E F-nit.	130°	1–16	●	○	●	●	○	○	○		■		16–21
	WTL	HSS-E TiN	130°	1–16	●	○	●	○	○	○	○		■		16–21
up to 10xD without thro' coolant															
	UNI	HSS-E TiN	118°	1–14	●	●	●	○	○		○		■		24–26
	WTL	HSS-E F-nit.	130°	1–12	●	○	●	●	○	○	○		■		24–26
	WTL	HSS TiN	130°	1–14	○		●	○			○		■		24–26
	WTW	HSS	130°	1–14				●						□	24–26

HSS Drills Overview

	Tool type	Cutting material | Coating	Point angle SIG	Diameter in mm DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non metal materials O		coated ■	uncoated □	WNT \ Performance
up to 10xD with thro' coolant															
	NC	HSS TiAlN	130°	3–13	○	○	●	○			○		■		23
over 10xD without thro' coolant															
	WTL	HSS F-nit. Series 1	130°	2–13	●		●	●			○		■		27
	WTL	HSS F-nit. series 2	130°	2–13	●		●	●			○		■		28
	WTL	HSS F-nit. series 3	130°	2,5–13	●		●	●			○		■		28
	WTL	HSS-E TiAlN Series 1	130°	3–10,2	●		●	●			○		■		27
	WTL	HSS-E TiAlN series 2	130°	3–12	●		●	●			○		■		28
	WTL	HSS-E TiAlN series 3	130°	4–10	●		●	●			○		■		28
Mini-drill															
	N	HSS-E-PM	118°	0,15–1,45	●	○	●	●	○		○			□	29
Twist Drill Sets															
	N	HSS vap.	118°	1–10	○		●	○			○		■		22
	UNI	HSS-E TiN	118°	1–10	●	●	●	○	○		○		■		22
NC Spot Drill															
	NC-A	HSS	90°	3–20	●	○	●	○	○		○			□	33–35
	NC-A	HSS TiN	90°	3–20	●	○	●	○	○		○		■		33+34
	NC-A	HSS	120°	3–20	●	○	●	○	○		○			□	33+34
	NC-A	HSS TiN	120°	3–20	●	○	●	○	○		○		■		33+34
Centre drills															
	ZB	HSS	118°	0,5–6,3	●	○	●	○	○		○	DIN 333 – Form A/B/R		□	35–37
	ZB	HSS TiN	118°	0,5–6,3	●	○	●	○	○		○	DIN 333 – Form A	■		36
	ZB	HSS-E	118°	0,5–6,3	●	○	●	○	○		○	DIN 333 – Form A		□	36

HSS Drills Overview

	Tool type	Cutting material | Coating	Point angle SIG	Diameter in mm DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non metal materials O		coated ■	uncoated □	WNT \ Performance
Stepped drills															
	SB	HSS vap.	118°	2,5–10,2	●	○	●	○	○		○	Countersinking angle 90°	■		39
	SB	HSS	118°	2,5–10,2	●	○	●	○	○		○	Countersinking angle 90°		□	39
	SB	HSS vap.	118°	3,2–10,5	●	○	●	○	○		○	Countersinking angle 90°	■		39
	SB	HSS	118°	3,2–10,5	●	○	●	○	○		○	Countersinking angle 90°		□	39
	SB	HSS vap.	118°	3,4–11	●	○	●	○	○		○	Countersinking angle 180°	■		40
	SB	HSS	118°	3,4–11	●	○	●	○	○		○	Countersinking angle 180°		□	40
	SB	HSS vap.	118°	3,3–17,5	●	○	●	○	○		○	Countersinking angle 60°	■		42
Drills with Morse taper															
3xD															
	WT	HSS-E vap.	130°	13–30	●	●	●	○	○	○			■		29
5xD															
	N	HSS vap.	118°	10–55	○		●	○			○		■		30
	WTL	HSS-E F.-nit/vap.	130°	10–27	●	○	●	●	○	○	○		■		30
10xD															
	N	HSS vap.	118°	10–50	○		●	○			○		■		31
	WTL	HSS-E F.-nit/vap.	130°	10–25	●	○	●	●	○	○	○		■		31
above 10xD															
	WTL	HSS F.-nit/vap. Series 1	130°	10–30	●			●	●		○		■		32
	WTL	HSS F.-nit/vap. series 2	130°	10–30	●		●	●			○		■		32
Core drills															
	N	HSS vap.	120°	12–30	●	○	●	○	○		○	3 Edges	■		38
Stepped drills															
	SB	HSS vap.	118°	6,6–17,5	●	○	●	○	○		○	Countersinking angle 180°	■		41

High-performance twist drills similar to DIN 1897, extra-short

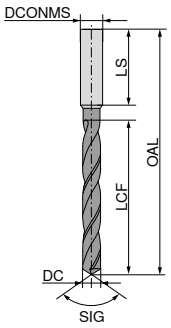
- ▲ Shank to DIN 1835 A
- ▲ Special point thinning
- ▲ Very good centering behaviour
- ▲ 4 facet
- ▲ Highest Performance

≤ 3xD



VX

TiN





SIG 118°
HSS-E

10 122 ...

DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	£ T2	
2.00	44	12	3	28	12.55	020
2.10	44	12	3	28	14.21	021
2.20	45	13	3	28	15.32	022
2.30	45	13	3	28	15.32	023
2.40	46	14	3	28	16.03	024
2.50	46	14	3	28	14.01	025
2.60	46	14	3	28	16.03	026
2.70	48	16	3	28	16.58	027
2.80	48	16	3	28	16.58	028
2.90	48	16	3	28	16.58	029
3.00	48	16	3	28	15.32	030
3.10	50	18	4	28	15.32	031
3.20	50	18	4	28	15.32	032
3.30	50	18	4	28	15.32	033
3.40	52	20	4	28	15.32	034
3.50	52	20	4	28	14.56	035
3.60	52	20	4	28	16.27	036
3.70	52	20	4	28	16.58	037
3.80	54	22	4	28	16.24	038
3.90	54	22	4	28	16.58	039
4.00	54	22	4	28	13.48	040
4.10	66	22	6	36	13.48	041
4.20	66	22	6	36	14.21	042
4.30	68	24	6	36	14.94	043
4.40	68	24	6	36	16.96	044
4.50	68	24	6	36	14.01	045
4.60	68	24	6	36	17.71	046
4.70	68	24	6	36	18.06	047
4.80	70	26	6	36	18.06	048
4.90	70	26	6	36	18.06	049
5.00	70	26	6	36	15.32	050
5.10	70	26	6	36	17.71	051
5.20	70	26	6	36	18.25	052
5.30	70	26	6	36	18.45	053
5.40	72	28	6	36	20.47	054
5.50	72	28	6	36	16.24	055
5.55	72	28	6	36	20.47	555
5.60	72	28	6	36	20.47	056
5.70	72	28	6	36	20.47	057
5.80	72	28	6	36	20.47	058
5.90	72	28	6	36	20.47	059
6.00	72	28	6	36	17.15	060
6.10	75	31	8	36	26.56	061
6.20	75	31	8	36	26.56	062
6.30	75	31	8	36	31.71	063
6.40	75	31	8	36	27.54	064
6.50	75	31	8	36	20.12	065
6.60	75	31	8	36	32.28	066
6.70	75	31	8	36	32.28	067
6.80	78	34	8	36	35.31	068
6.90	78	34	8	36	34.84	069
7.00	78	34	8	36	26.56	070
7.10	78	34	8	36	39.06	071

10 122 ...

DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	£ T2	
7.20	78	34	8	36	39.67	072
7.30	78	34	8	36	39.67	073
7.40	78	34	8	36	39.67	074
7.45	78	34	8	36	39.67	745
7.50	78	34	8	36	28.02	075
7.60	81	37	8	36	40.26	076
7.70	81	37	8	36	43.33	077
7.80	81	37	8	36	43.33	078
7.90	81	37	8	36	43.33	079
8.00	81	37	8	36	28.76	080
8.10	87	37	10	40	49.17	081
8.20	87	37	10	40	49.17	082
8.30	87	37	10	40	49.17	083
8.40	87	37	10	40	49.17	084
8.50	87	37	10	40	32.62	085
8.60	91	40	10	40	51.09	086
8.70	91	40	10	40	51.09	087
8.80	91	40	10	40	51.09	088
8.90	91	40	10	40	51.09	089
9.00	91	40	10	40	35.59	090
9.10	91	40	10	40	64.05	091
9.20	91	40	10	40	64.05	092
9.30	91	40	10	40	64.05	093
9.35	91	40	10	40	64.05	935
9.40	91	40	10	40	64.05	094
9.50	91	40	10	40	44.48	095
9.60	93	43	10	40	47.99	096
9.70	93	43	10	40	47.99	097
9.80	93	43	10	40	47.99	098
9.90	93	43	10	40	47.99	099
10.00	93	43	10	40	42.79	100
10.20	100	43	12	45	63.32	102
10.30	100	43	12	45	64.42	103
10.50	100	43	12	45	61.50	105
10.70	104	47	12	45	67.23	107
10.80	104	47	12	45	64.63	108
11.00	104	47	12	45	61.50	110
11.10	104	47	12	45	60.16	111
11.50	104	47	12	45	64.05	115
11.70	104	47	12	45	72.01	117
11.80	104	47	12	45	75.19	118
11.90	108	51	12	45	95.09	119
12.00	108	51	12	45	73.56	120
12.10	111	51	16	48	53.57	121
12.30	111	51	16	48	98.05	123
12.50	111	51	16	48	75.77	125
12.70	111	51	16	48	168.10	127
12.80	111	51	16	48	79.82	128
13.00	111	51	16	48	81.44	130
13.50	114	54	16	48	121.95	135
14.00	114	54	16	48	121.95	140
14.50	116	56	16	48	156.18	145
15.00	116	56	16	48	147.07	150
15.50	118	58	16	48	159.06	155
16.00	118	58	16	48	153.66	160
16.50	126	60	20	50	238.22	165
17.00	126	60	20	50	238.22	170
17.50	128	62	20	50	238.22	175
18.00	128	62	20	50	238.22	180
18.50	130	64	20	50	238.22	185
19.00	130	64	20	50	238.22	190
19.50	132	66	20	50	238.22	195
20.00	132	66	20	50	211.89	200

P	●
M	●
K	●
N	○
S	○
H	
O	○

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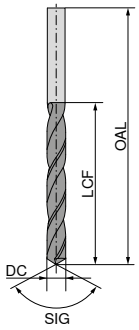
High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD



	UNI	UNI	N	VA	WNX	WT	WT
	TiN	TiN	vap.			vap.	TiN
							
	SIG 130°	SIG 118°	SIG 118°	SIG 130°	SIG 130°	SIG 130°	SIG 130°
	HSS-E-PM	HSS-E	HSS	HSS-E	HSS-E	HSS-E	HSS-E
	10 113 ...	**10 107 ...**	**10 105 ...**	**10 130 ...**	**10 106 ...**	**10 109 ...**	**10 110 ...**

DC h8 mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
0.40		19	2.5					5.90	004 [1]					10.26	00400 [1]		
0.50		20	3.0					4.79	005 [1]					7.41	00500 [1]		
0.55		21	3.5											17.48	00550 [1]		
0.60		21	3.5					5.72	006 [1]					9.12	00600 [1]		
0.65		22	4.0											9.66	00650 [1]		
0.70		23	4.5					5.36	007 [1]					8.36	00700 [1]		
0.75		23	4.5											8.77	00750 [1]		
0.80		24	5.0					4.26	008 [1]					7.24	00800 [1]		
0.85		24	5.0											8.13	00850 [1]		
0.90		25	5.5					4.26	009 [1]					7.24	00900 [1]		
0.95		25	5.5											8.13	00950 [1]		
1.00		26	6.0	10.06	010 [2]	6.44	010 [2]	2.43	010 [1]	6.83	010	3.65	010	5.16	01000 [1]	6.66	010
1.05		26	6.0											6.85	01050 [1]		
1.10		28	7.0	10.06	011 [2]	6.44	011 [2]	2.58	011 [1]	6.65	011	3.98	011	4.98	01100 [1]	7.02	011
1.15		28	7.0											5.52	01150 [1]		
1.20		30	8.0	10.30	012 [2]	6.09	012 [2]	2.58	012 [1]	6.27	012	3.98	012	4.79	01200 [1]	6.66	012
1.25		30	8.0											5.52	01250 [1]		
1.30		30	8.0	10.77	013 [2]	6.44	013 [2]	2.58	013 [1]	6.65	013	3.89	013	4.98	01300 [1]	7.02	013
1.35		32	9.0											5.52	01350 [1]		
1.40		32	9.0	9.92	014 [2]	6.27	014 [2]	2.58	014 [1]	6.65	014	3.89	014	4.98	01400 [1]	7.02	014
1.45		32	9.0											5.52	01450 [1]		
1.50		32	9.0	9.33	015 [2]	5.84	015 [2]	2.22	015 [1]	5.90	015	3.65	015	4.64	01500 [1]	6.66	015
1.55		34	10.0											7.24	01550 [1]		
1.60		34	10.0	9.79	016 [2]	5.84	016 [2]	2.43	016 [1]	5.90	016	3.89	016	4.43	01600 [1]	6.66	016
1.65		34	10.0											5.88	01650 [1]		
1.70		34	10.0	9.92	017 [2]	5.52	017 [2]	2.43	017 [1]	5.72	017	3.89	017	4.43	01700 [1]	6.27	017
1.75		36	11.0											5.36	01750 [1]		
1.80		36	11.0	9.79	018 [2]	5.84	018 [2]	2.58	018 [1]	5.90	018	3.89	018	4.64	01800 [1]	6.66	018
1.83		36	11.0											6.85	01830 [1]		
1.85		36	11.0											5.13	01850 [1]		
1.90		36	11.0	9.79	019 [2]	5.84	019 [2]	2.43	019 [1]	5.90	019	3.89	019	4.64	01900 [1]	6.66	019
1.95		38	12.0											7.78	01950 [1]		
2.00		38	12.0	8.21	020 [2]	5.13	020 [2]	1.69	020 [1]	5.16	020	3.25	020	3.89	02000 [1]	5.84	020
2.05		38	12.0											7.24	02050 [1]		
2.10		38	12.0	10.06	021 [2]	5.52	021 [2]	2.22	021 [1]	5.72	021	3.65	021	4.43	02100 [1]	6.27	021
2.15		40	13.0											6.66	02150 [1]		
2.20		40	13.0	10.06	022 [2]	6.09	022 [2]	2.22	022 [1]	6.27	022	3.65	022	4.98	02200 [1]	6.66	022
2.25		40	13.0											5.36	02250 [1]		
2.30		40	13.0	8.47	023 [2]	5.90	023 [2]	2.43	023 [1]	6.27	023	3.89	023	4.79	02300 [1]	6.66	023
2.35		40	13.0											7.41	02350 [1]		
2.38	3/32	43	14.0	9.28	238 [2]	5.90	238 [2]										
2.40		43	14.0	10.09	024 [2]	6.09	024 [2]	2.43	024	6.44	024	3.89	024	4.95	02400	7.02	024
2.45		43	14.0											5.88	02450		
2.50		43	14.0	8.82	025 [2]	5.52	025 [2]	1.84	025	5.54	025	3.65	025	4.43	02500	6.09	025
2.55		43	14.0											7.41	02550		
2.60		43	14.0	10.44	026 [2]	6.09	026 [2]	2.43	026	6.44	026	3.89	026	4.95	02600	7.02	026
2.65		43	14.0											7.41	02650		
2.70		46	16.0	11.05	027 [2]	6.44	027 [2]	2.43	027	6.65	027	3.89	027	5.13	02700	7.41	027

P	●	●	○	○	●	●	●
M		●		●		●	●
K	●	●	●		●	●	●
N	○	○	○	●	○	○	○
S	○	○		○	○	○	●
H	○				○	○	○
O	○	○	○		○		

1) uncoated
2) self-centering

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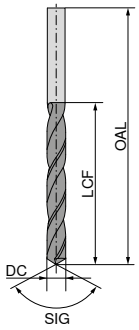
Continued on next page

High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD



UNI	UNI	N	VA	WNX	WT	WT
TiN	TiN	vap.			vap.	TiN



SIG 130° HSS-E-PM	SIG 118° HSS-E	SIG 118° HSS	SIG 130° HSS-E	SIG 130° HSS-E	SIG 130° HSS-E	SIG 130° HSS-E
10 113 ...	**10 107 ...**	**10 105 ...**	**10 130 ...**	**10 106 ...**	**10 109 ...**	**10 110 ...**

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
2.75		46	16.0											7.41	02750		
2.78	7/64	46	16.0	10.73	278 [2]	6.44	278 [2]										
2.80		46	16.0	10.30	028 [2]	6.44	028 [2]	2.43	028	6.65	028	3.98	028	5.13	02800	7.41	028
2.85		46	16.0											7.41	02850		
2.90		46	16.0	10.94	029 [2]	6.44	029 [2]	2.43	029	6.65	029	4.37	029	5.13	02900	7.41	029
2.95		46	16.0											5.36	02950		
3.00		46	16.0	9.28	030 [2]	5.84	030 [2]	1.84	030	5.90	030	3.89	030	4.64	03000	6.27	030
3.05		49	18.0											5.54	03050		
3.10		49	18.0	9.92	031 [2]	6.27	031 [2]	2.43	031	6.65	031	4.54	031	5.13	03100	7.24	031
3.15		49	18.0											8.13	03150		
3.17	1/8	49	18.0	9.79	317 [2]	6.09	317 [2]										
3.20		49	18.0	9.33	032 [2]	5.90	032 [2]	2.22	032	6.44	032	3.89	032	4.95	03200	6.85	032
3.25		49	18.0											5.84	03250		
3.30		49	18.0	9.33	033 [2]	6.44	033 [2]	2.43	033	6.83	033	3.98	033	5.16	03300	7.41	033
3.35		49	18.0											7.41	03350		
3.40		52	20.0	10.77	034 [2]	6.66	034 [2]	2.80	034	6.83	034	4.77	034	5.16	03400	7.41	034
3.45		52	20.0											5.84	03450		
3.50		52	20.0	9.33	035 [2]	6.44	035 [2]	2.22	035	6.83	035	4.54	035	5.16	03500	6.66	035
3.55		52	20.0											5.88	03550		
3.57	9/64	52	20.0	10.59	357 [2]	6.66	357 [2]										
3.60		52	20.0	12.41	036 [2]	6.66	036 [2]	2.80	036	6.83	036	4.77	036	5.16	03600	7.41	036
3.70		52	20.0	10.73	037 [2]	7.01	037 [2]	2.80	037	7.37	037	4.77	037	5.54	03700	8.02	037
3.75		52	20.0											5.88	03750		
3.80		55	22.0	11.44	038 [2]	6.85	038 [2]	2.80	038	7.20	038	4.95	038	5.36	03800	7.41	038
3.85		55	22.0											9.12	03850		
3.90		55	22.0	12.97	039 [2]	7.75	039 [2]	2.80	039			4.95	039	5.54	03900	8.02	039
3.95		55	22.0											9.12	03950		
3.97	5/32	55	22.0	11.69	397 [2]	7.37	397 [2]										
4.00		55	22.0	10.59	040 [2]	6.85	040 [2]	2.22	040	7.20	040	4.95	040	5.52	04000	6.85	040
4.05		55	22.0											6.44	04050		
4.10		55	22.0	12.15	041 [2]	7.24	041 [2]	2.58	041	7.57	041	5.13	041	5.84	04100	7.41	041
4.15		55	22.0											9.12	04150		
4.20		55	22.0	10.59	042 [2]	7.01	042 [2]	2.58	042	7.37	042	4.54	042	5.54	04200	7.41	042
4.25		55	22.0											9.89	04250		
4.30		58	24.0	12.06	043 [2]	7.41	043 [2]	3.71	043	7.75	043	5.13	043	6.09	04300	8.36	043
4.35		58	24.0											9.89	04350		
4.37	11/64	58	24.0	16.21	437 [2]	9.89	437 [2]										
4.40		58	24.0	12.97	044 [2]	8.36	044 [2]	3.71	044			5.13	044	6.09	04400	8.56	044
4.45		58	24.0											10.08	04450		
4.50		58	24.0	12.06	045 [2]	7.41	045 [2]	2.58	045	7.75	045	5.13	045	5.88	04500	7.02	045
4.55		58	24.0											9.89	04550		
4.60		58	24.0	12.15	046 [2]	8.13	046 [2]	3.89	046	8.48	046	5.31	046	6.44	04600	9.30	046
4.65		58	24.0											9.12	04650	9.66	465
4.70		58	24.0	13.51	047 [2]	8.56	047 [2]	3.89	047	8.85	047	5.52	047	6.66	04700	9.66	047
4.75		58	24.0											9.12	04750		
4.76	3/16	62	26.0	13.51	476 [2]	8.56	476 [2]										
4.80		62	26.0	13.77	048 [2]	8.68	048 [2]	3.89	048	9.22	048	5.84	048	7.02	04800	9.66	048
4.85		62	26.0											8.13	04850		

P	●	●	○	○	●	●	●
M		●		●		●	●
K	●	●	●		●	●	●
N	○	○	○	●	○	○	○
S	○	○		○	○	○	●
H	○				○	○	○
O	○	○	○		○		

1) uncoated
2) self-centering

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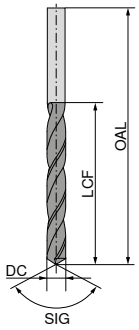
High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD



UNI	UNI	N	VA	WNX	WT	WT
TiN	TiN	vap.			vap.	TiN



SIG 130° HSS-E-PM	SIG 118° HSS-E	SIG 118° HSS	SIG 130° HSS-E	SIG 130° HSS-E	SIG 130° HSS-E	SIG 130° HSS-E
10 113 ...	**10 107 ...**	**10 105 ...**	**10 130 ...**	**10 106 ...**	**10 109 ...**	**10 110 ...**

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
4.90		62	26.0	13.87	**049** [2]	9.60	**049** [2]	3.89	**049**	9.94	**049**	6.09	**049**	7.75	**04900**	9.66	**049**
4.95		62	26.0											11.62	**04950**		
5.00		62	26.0	11.69	**050** [2]	7.57	**050** [2]	2.80	**050**	8.31	**050**	5.52	**050**	6.27	**05000**	7.78	**050**
5.05		62	26.0											13.49	**05050**		
5.10		62	26.0	12.86	**051** [2]	10.13	**051** [2]	3.89	**051**	10.90	**051**						
5.16	13/64	62	26.0	15.33	**516** [2]	13.11	**516** [2]										
5.20		62	26.0	13.87	**052** [2]	12.55	**052** [2]	3.89	**052**	13.28	**052**	6.27	**052**	9.89	**05200**	9.66	**052**
5.25		62	26.0											11.56	**05250**		
5.30		62	26.0	15.70	**053** [2]	13.28	**053** [2]	3.89	**053**	14.21	**053**	6.44	**053**	11.05	**05300**	10.08	**053**
5.40		66	28.0	15.39	**054** [2]	13.11	**054** [2]	4.43	**054**								
5.50		66	28.0	13.15	**055** [2]	9.79	**055** [2]	3.34	**055**	10.50	**055**	6.66	**055**	8.02	**05500**	8.36	**055**
5.55		66	28.0											21.04	**05550**	10.65	**555**
5.56	7/32	66	28.0	14.41	**556** [2]	10.90	**556** [2]										
5.60		66	28.0	15.70	**056** [2]	16.03	**056** [2]	4.43	**056**	16.96	**056**	7.02	**056**	13.12	**05600**	10.65	**056**
5.70		66	28.0	16.83	**057** [2]	16.24	**057** [2]	4.43	**057**	17.35	**057**	7.24	**057**	13.55	**05700**	10.65	**057**
5.75		66	28.0											15.55	**05750**		
5.80		66	28.0	16.08	**058** [2]	17.15	**058** [2]	4.43	**058**	18.06	**058**	7.24	**058**	13.49	**05800**	10.65	**058**
5.85		66	28.0											22.64	**05850**		
5.90		66	28.0	17.75	**059** [2]	17.35	**059** [2]	4.43	**059**	18.25	**059**	7.41	**059**	14.04	**05900**	11.01	**059**
5.95	15/64	66	28.0	26.89	**595** [2]	19.02	**595** [2]							14.27	**05950**		
6.00		66	28.0	14.17	**060** [2]	9.79	**060** [2]	3.34	**060**	10.50	**060**	6.66	**060**	8.02	**06000**	9.12	**060**
6.05		70	31.0											22.64	**06050**		
6.10		70	31.0	16.64	**061** [2]	18.45	**061** [2]	4.79	**061**								
6.20		70	31.0	16.64	**062** [2]	18.80	**062** [2]	4.79	**062**								
6.30		70	31.0	19.06	**063** [2]	20.47	**063** [2]	4.79	**063**								
6.35	1/4	70	31.0	17.50	**635** [2]	20.29	**635** [2]										
6.40		70	31.0	17.65	**064** [2]	20.82	**064** [2]	4.98	**064**							14.91	**064**
6.50		70	31.0	16.64	**065** [2]	11.43	**065** [2]	3.89	**065**	12.18	**065**	7.78	**065**	9.30	**06500**	10.65	**065**
6.55		70	31.0											22.98	**06550**		
6.60		70	31.0	18.34	**066** [2]	21.56	**066** [2]	4.98	**066**	22.88	**066**						
6.65		70	31.0											24.49	**06650**		
6.70		70	31.0	20.22	**067** [2]	21.96	**067** [2]	5.36	**067**	23.60	**067**						
6.75		74	34.0	24.87	**675** [2]	16.80	**675** [2]										
6.80		74	34.0	20.26	**068** [2]	22.49	**068** [2]	6.09	**068**	24.16	**068**	9.66	**068**	18.79	**06800**	15.55	**068**
6.90		74	34.0	20.01	**069** [2]	22.67	**069** [2]	6.65	**069**	24.35	**069**						
7.00		74	34.0	18.56	**070** [2]	13.11	**070** [2]	4.98	**070**	14.01	**070**	8.56	**070**	10.45	**07000**	12.89	**070**
7.10		74	34.0	22.48	**071** [2]	23.60	**071** [2]	6.83	**071**								
7.14	9/32	74	34.0	29.84	**714** [2]	24.16	**714** [2]										
7.20		74	34.0	23.14	**072** [2]	23.81	**072** [2]	6.83	**072**	25.62	**072**	12.36	**072**	20.14	**07200**	17.48	**072**
7.25		74	34.0											20.49	**07250**		
7.30		74	34.0	24.87	**073** [2]	23.96	**073** [2]	7.20	**073**								
7.40		74	34.0	23.29	**074** [2]	23.81	**074** [2]	7.57	**074**			14.04	**074**	20.73	**07400**	17.67	**074**
7.50		74	34.0	19.35	**075** [2]	14.94	**075** [2]	5.36	**075**	16.03	**075**	9.30	**075**	12.36	**07500**	13.49	**075**
7.60		79	37.0	30.21	**076** [2]	22.30	**076** [2]	8.48	**076**			13.55	**076**	22.08	**07600**	19.18	**076**
7.70		79	37.0	32.74	**077** [2]	27.66	**077** [2]	8.48	**077**	29.31	**077**	13.70	**077**	22.03	**07700**	19.18	**077**
7.75		79	37.0											27.71	**07750**		
7.80		79	37.0	24.96	**078** [2]	26.72	**078** [2]	8.48	**078**			13.70	**078**	23.24	**07800**	19.18	**078**
7.90		79	37.0	34.94	**079** [2]	29.31	**079** [2]	8.68	**079**	30.98	**079**	13.12	**079**	23.15	**07900**	19.18	**079**

P	●	●	○	○	●	●	●
M		●		●		●	●
K	●	●	●		●	●	●
N	○	○	○	●	○	○	○
S	○	○		○	○	○	●
H	○				○	○	○
O	○	○	○		○		

1) uncoated
2) self-centering

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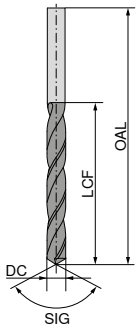
High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD



UNI	UNI	N	VA	WNX	WT	WT
TiN	TiN	vap.			vap.	TiN



SIG 130° HSS-E-PM	SIG 118° HSS-E	SIG 118° HSS	SIG 130° HSS-E	SIG 130° HSS-E	SIG 130° HSS-E	SIG 130° HSS-E
10 113 ...	**10 107 ...**	**10 105 ...**	**10 130 ...**	**10 106 ...**	**10 109 ...**	**10 110 ...**

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
7.94	5/16	79	37.0	23.95	**794** [2]	15.12	**794** [2]								
8.00		79	37.0	23.14	**080** [2]	14.43	**080** [2]	5.54	**080**	14.77	**080**	9.66	**080**	11.62	**08000**	13.88	**080**
8.05		79	37.0											37.24	**08050**		
8.10		79	37.0	29.54	**081** [2]	30.07	**081** [2]	9.22	**081**								
8.15		79	37.0											37.24	**08150**		
8.20		79	37.0	30.76	**082** [2]	31.37	**082** [2]	9.60	**082**							19.18	**082**
8.30		79	37.0	32.26	**083** [2]	33.73	**083** [2]	9.94	**083**								
8.40		79	37.0	30.94	**084** [2]	34.66	**084** [2]	10.13	**084**	36.86	**084**	15.39	**084**	28.31	**08400**	20.14	**084**
8.50		79	37.0	26.89	**085** [2]	17.15	**085** [2]	7.57	**085**	18.06	**085**	11.62	**085**	13.70	**08500**	16.69	**085**
8.55		84	40.0											42.16	**08550**		
8.60		84	40.0			20.60	**086** [2]	10.13	**086**	37.97	**086**						
8.70		84	40.0			23.71	**087** [2]	10.34	**087**	39.06	**087**					20.72	**087**
8.73	11/32	84	40.0	42.52	**873** [2]	27.16	**873** [2]										
8.80		84	40.0	33.74	**088** [2]	22.30	**088** [2]	10.50	**088**			18.59	**088**	31.37	**08800**	20.72	**088**
8.90		84	40.0			29.33	**089** [2]	10.90	**089**								
9.00		84	40.0	27.28	**090** [2]	18.06	**090** [2]	7.20	**090**	19.34	**090**	11.18	**090**	14.43	**09000**	16.93	**090**
9.10		84	40.0			24.70	**091** [2]	12.18	**091**								
9.20		84	40.0			24.88	**092** [2]	13.28	**092**	44.43	**092**	20.49	**092**	34.00	**09200**	27.12	**092**
9.30		84	40.0	30.94	**093** [2]	43.87	**093** [2]	13.48	**093**	46.85	**093**	14.43	**093**	36.21	**09300**	27.12	**093**
9.40		84	40.0			28.85	**094** [2]	13.84	**094**			14.43	**094**	35.87	**09400**	27.12	**094**
9.50		84	40.0	30.21	**095** [2]	19.34	**095** [2]	11.43	**095**	20.82	**095**	13.70	**095**	15.78	**09500**	22.03	**095**
9.60		89	43.0			30.17	**096** [2]	14.56	**096**			22.08	**096**	35.87	**09600**	27.54	**096**
9.65		89	43.0											42.18	**09650**		
9.70		89	43.0			29.33	**097** [2]	14.77	**097**			22.08	**097**	36.64	**09700**	27.54	**097**
9.75		89	43.0											51.79	**09750**		
9.80		89	43.0	35.99	**098** [2]	45.17	**098** [2]	15.48	**098**	48.30	**098**	22.03	**098**	37.24	**09800**	29.46	**098**
9.90		89	43.0			31.34	**099** [2]	15.48	**099**			22.58	**099**	38.33	**09900**	29.46	**099**
10.00		89	43.0	29.75	**100** [2]	22.49	**100** [2]	8.68	**100**	24.16	**100**	12.36	**100**	18.79	**10000**	20.72	**100**
10.10		89	43.0			30.17	**101** [2]	17.15	**101**								
10.20		89	43.0	37.65	**102** [2]	35.75	**102** [2]	14.77	**102**	37.97	**102**	22.08	**102**	28.87	**10200**	29.25	**102**
10.30		89	43.0			28.02	**103** [2]	18.25	**103**					47.22	**10300**		
10.40		89	43.0			32.80	**104** [2]	19.02	**104**								
10.50		89	43.0	35.70	**105** [2]	38.72	**105** [2]	15.48	**105**	41.28	**105**	18.05	**105**	32.32	**10500**	27.87	**105**
10.60		95	47.0					23.81	**106**								
10.70		95	47.0					23.81	**107**					56.32	**10700**		
10.80		95	47.0					24.35	**108**							62.14	**108**
10.90		95	47.0					24.35	**109**								
11.00		95	47.0	39.68	**110** [2]	41.28	**110** [2]	15.48	**110**	43.87	**110**	21.28	**110**	34.00	**11000**	27.87	**110**
11.10		95	47.0					24.35	**111**								
11.11	7/16	95	47.0	46.59	**111** [2]	48.66	**111** [2]										
11.20		95	47.0					25.62	**112**					66.37	**11200**		
11.30		95	47.0					26.00	**113**					68.73	**11300**		
11.40		95	47.0					26.00	**114**					69.30	**11400**		
11.50		95	47.0	45.73	**115** [2]	46.85	**115** [2]	16.43	**115**	49.79	**115**	27.87	**115**	38.92	**11500**	29.06	**115**
11.60		95	47.0					26.00	**116**								
11.70		95	47.0					26.00	**117**	93.62	**117**			69.30	**11700**		
11.75		95	47.0											76.84	**11750**		
11.80		95	47.0					26.36	**118**			35.05	**118**	69.30	**11800**	34.84	**118**

P	●	●	○	○	●	●	●
M		●		●		●	●
K	●	●	●		●	●	●
N	○	○	○	●	○	○	○
S	○	○		○	○	○	●
H	○				○	○	○
O	○	○	○		○		

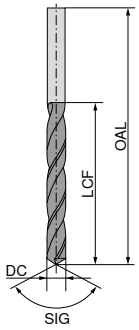
1) uncoated
2) self-centering

→ v_c Page 44+45

Continued on next page

High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD



	UNI	UNI	N	VA	WNX	WT	WT
	TiN	TiN	vap.			vap.	TiN
							
	SIG 130°	SIG 118°	SIG 118°	SIG 130°	SIG 130°	SIG 130°	SIG 130°
	HSS-E-PM	HSS-E	HSS	HSS-E	HSS-E	HSS-E	HSS-E
	10 113 ...	**10 107 ...**	**10 105 ...**	**10 130 ...**	**10 106 ...**	**10 109 ...**	**10 110 ...**

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
11.90		102	51.0					26.36	119						
12.00		102	51.0	44.75	120 2)	55.10	120 2)	19.73	120	58.64	120	27.87	120	45.86	12000	33.24	120
12.10		102	51.0					27.85	121								
12.20		102	51.0					27.85	122								
12.30		102	51.0	75.83	123 2)	51.25	123 2)	28.20	123			35.05	123	54.20	12300	51.09	123
12.40		102	51.0					28.20	124								
12.50		102	51.0	49.10	125 2)	55.49	125 2)	20.82	125			28.45	125	45.97	12500	34.84	125
12.60		102	51.0					28.76	126								
12.70		102	51.0	62.67	127 2)	42.34	127 2)	27.47	127					47.27	12700		
12.80		102	51.0					29.85	128			42.79	128	71.04	12800	64.38	128
12.90		102	51.0					30.80	129								
13.00		102	51.0	49.10	130 2)	55.49	130 2)	21.23	130			31.75	130	48.57	13000	35.12	130
13.20		102	51.0					31.71	132								
13.30		107	54.0					32.62	133								
13.50		107	54.0	52.15	135 2)	55.49	135 2)	24.35	135			39.31	135	53.61	13500	38.38	135
13.80		107	54.0					33.38	138			51.10	138				
14.00		107	54.0	65.10	140 2)	58.96	140 2)	24.69	140			35.87	140	53.61	14000	40.26	140
14.50		111	56.0					27.47	145			46.44	145	67.35	14500	41.24	145
14.75		111	56.0					42.06	147								
15.00		111	56.0					26.72	150			43.17	150	64.05	15000	42.61	150
15.25		115	58.0					44.43	152								
15.50		115	58.0					29.50	155			65.43	155	80.12	15500	55.56	155
15.75		115	58.0													58.66	157
16.00		115	58.0					29.85	160			51.86	160	65.70	16000	54.79	160
16.50		119	60.0					35.21	165			52.23	165	107.99	16500	80.67	165
17.00		119	60.0					36.15	170			53.80	170	92.09	17000	79.57	170
17.50		123	62.0					37.81	175			54.97	175	109.16	17500	74.42	175
17.75		123	62.0													90.18	177
18.00		123	62.0					38.17	180			54.31	180	102.18	18000	87.07	180
18.50		127	64.0					41.66	185					130.45	18500	97.55	185
19.00		127	64.0					43.87	190			56.18	190	109.16	19000	95.57	190
19.50		131	66.0					46.44	195					127.14	19500	107.22	195
20.00		131	66.0					46.44	200			59.23	200	109.17	20000	102.56	200
20.50		136	68.0											154.05	20500		
21.00		136	68.0											147.85	21000		
21.50		141	70.0											158.50	21500		
22.00		141	70.0											160.05	22000		
23.00		146	72.0											171.82	23000		
24.00		151	75.0											189.08	24000		
25.00		151	75.0											216.37	25000		

P	●	●	○	○	●	●	●
M		●		●		●	●
K	●	●	●		●	●	●
N	○	○	○	●	○	○	○
S	○	○		○	○	○	●
H	○				○	○	○
O	○	○	○		○		

1) uncoated
2) self-centering

→ v_c Page 44+45

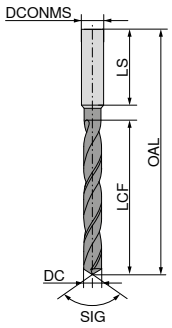
High-performance twist drill similar to DIN 338, short

- With shank to DIN 1835 A
- Special point thinning
- 4 facet
- Highest Performance
- Very good centering behaviour

≤ 5xD

VX

TiN





SIG 118°
HSS-E

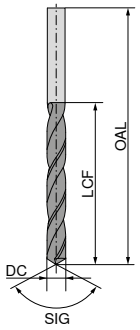
DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	10 124 ... £ T2	
2.00	56	24	3	28	16.27	020
2.10	56	24	3	28	18.62	021
2.20	59	27	3	28	18.62	022
2.30	59	27	3	28	18.62	023
2.40	62	30	3	28	18.62	024
2.50	62	30	3	28	18.62	025
2.60	62	30	3	28	18.62	026
2.70	65	33	3	28	18.62	027
2.80	65	33	3	28	18.62	028
2.90	65	33	3	28	18.62	029
3.00	65	33	3	28	17.71	030
3.10	68	36	4	28	20.29	031
3.20	68	36	4	28	20.29	032
3.30	68	36	4	28	20.29	033
3.40	71	39	4	28	20.29	034
3.50	71	39	4	28	20.29	035
3.60	71	39	4	28	22.58	036
3.70	71	39	4	28	22.58	037
3.80	75	43	4	28	22.58	038
3.90	75	43	4	28	22.58	039
4.00	75	43	4	28	22.58	040
4.10	87	43	6	36	26.17	041
4.20	87	43	6	36	27.66	042
4.30	91	47	6	36	26.17	043
4.40	91	47	6	36	26.17	044
4.50	91	47	6	36	26.17	045
4.60	91	47	6	36	29.69	046
4.65	91	47	6	36	29.69	465
4.70	91	47	6	36	29.69	047
4.80	96	52	6	36	29.69	048
4.90	96	52	6	36	29.69	049
5.00	96	52	6	36	32.28	050
5.10	96	52	6	36	32.28	051
5.20	96	52	6	36	32.28	052
5.30	96	52	6	36	35.61	053
5.40	101	57	6	36	35.61	054
5.50	101	57	6	36	32.28	055
5.55	101	57	6	36	37.04	555
5.60	101	57	6	36	37.04	056
5.70	101	57	6	36	37.04	057
5.80	101	57	6	36	37.04	058
5.90	101	57	6	36	37.04	059
6.00	101	57	6	36	35.21	060
6.10	107	63	8	36	43.49	061
6.20	107	63	8	36	43.49	062
6.30	107	63	8	36	43.49	063
6.40	107	63	8	36	43.49	064
6.50	107	63	8	36	43.49	065
6.60	107	63	8	36	46.65	066
6.70	107	63	8	36	46.65	067
6.80	113	69	8	36	46.65	068
6.90	113	69	8	36	46.65	069
7.00	113	69	8	36	46.65	070
7.10	113	69	8	36	48.56	071
7.20	113	69	8	36	48.56	072
7.30	113	69	8	36	48.56	073
7.40	113	69	8	36	48.56	074
7.50	113	69	8	36	48.56	075
7.55	119	75	8	36	48.50	755
7.60	119	75	8	36	48.50	076
7.70	119	75	8	36	48.50	077
7.80	119	75	8	36	48.50	078
7.90	119	75	8	36	48.50	079
8.00	119	75	8	36	48.50	080
8.10	125	75	10	40	54.31	081
8.20	125	75	10	40	54.31	082
8.30	125	75	10	40	54.31	083
8.40	125	75	10	40	54.31	084
8.50	125	75	10	40	54.77	085
8.60	131	81	10	40	50.53	086
8.70	131	81	10	40	50.53	087
8.80	131	81	10	40	50.53	088
8.90	131	81	10	40	50.53	089
9.00	131	81	10	40	50.53	090
9.10	131	81	10	40	54.31	091
9.20	131	81	10	40	54.31	092
9.30	131	81	10	40	54.31	093
9.40	131	81	10	40	54.31	094
9.50	131	81	10	40	54.31	095
9.55	137	87	10	40	59.23	955
9.60	137	87	10	40	59.23	096
9.70	137	87	10	40	59.23	097
9.80	137	87	10	40	59.23	098
9.90	137	87	10	40	59.23	099
10.00	137	87	10	40	59.23	100
10.10	144	87	12	45	75.10	101
10.20	144	87	12	45	75.10	102
10.30	144	87	12	45	75.10	103
10.40	144	87	12	45	75.10	104
10.50	144	87	12	45	75.10	105
10.70	151	94	12	45	82.47	107
10.80	151	94	12	45	82.47	108
11.00	151	94	12	45	69.51	110
11.20	151	94	12	45	74.42	112
11.30	151	94	12	45	74.42	113
11.40	151	94	12	45	74.42	114
11.50	151	94	12	45	74.42	115
11.60	151	94	12	45	82.05	116
11.70	151	94	12	45	82.05	117
11.80	151	94	12	45	82.05	118
11.90	158	101	12	45	82.05	119
12.00	158	101	12	45	82.05	120
12.20	161	101	16	48	94.27	122
12.30	161	101	16	48	94.27	123
12.50	161	101	16	48	94.27	125
12.70	161	101	16	48	99.29	127
12.80	161	101	16	48	99.29	128
13.00	161	101	16	48	109.52	130
13.50	166	106	16	48	142.02	135
14.00	166	106	16	48	142.02	140
14.50	169	109	16	48	181.71	145
15.00	169	109	16	48	170.69	150
15.50	172	112	16	48	184.99	155
16.00	172	112	16	48	178.61	160
16.50	181	115	20	50	276.90	165
17.00	181	115	20	50	276.90	170
17.50	184	118	20	50	276.90	175
18.00	184	118	20	50	276.90	180
18.50	188	122	20	50	276.90	185
19.00	188	122	20	50	276.90	190
19.50	191	125	20	50	276.90	195
20.00	191	125	20	50	246.16	200

P	●
M	●
K	●
N	○
S	○
H	
O	○

→ v_c Page 46

Twist drill to DIN 338, short

≤ 5xD



	UNI	UNI	N	VA	W	WTL	WTL
	TiN	TiN	vap.			F.-nit	TiN
							
	SIG 130° HSS-E-PM	SIG 118° HSS-E	SIG 118° HSS	SIG 130° HSS-E	SIG 130° HSS	SIG 130° HSS-E	SIG 130° HSS-E
	10 173 ...	**10 171 ...**	**10 152 ...**	**10 175 ...**	**10 161 ...**	**10 168 ...**	**10 170 ...**

DC h8 mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
0.20		19	2.5					5.16	00200 [1]			11.05	00200				
0.25		19	3.0					4.98	00250 [1]			23.60	00250				
0.30		19	3.0					3.49	00300 [1]			12.36	00300				
0.35		19	4.0					3.49	00350 [1]			7.78	00350				
0.40		20	5.0					2.96	00400 [1]			6.44	00400				
0.45		20	5.0					3.16	00450 [1]			6.85	00450				
0.50		22	6.0					2.58	00500 [1]			4.95	00500				
0.55		24	7.0					3.71	00550 [1]			12.00	00550				
0.60		24	7.0					2.43	00600 [1]			5.31	00600				
0.65		26	8.0					3.49	00650 [1]			8.36	00650				
0.70		28	9.0					2.22	00700 [1]			4.77	00700				
0.75		28	9.0					2.58	00750 [1]			5.13	00750				
0.80		30	10.0					2.22	00800 [1]			4.37	00800				
0.85		30	10.0					2.43	00850 [1]			4.95	00850				
0.90		32	11.0			5.54	009 [2]	2.22	00900 [1]			3.98	00900				
0.95		32	11.0					2.43	00950 [1]			4.95	00950				
1.00		34	12.0	7.96	010 [2]	5.54	010 [2]	2.05	01000 [1]	5.31	010	4.37	01000	4.54	010 [1]	9.66	010
1.05		34	12.0					2.22	01050 [1]			4.77	01050				
1.10		36	14.0	8.62	011 [2]	5.54	011 [2]	2.05	01100 [1]	5.31	011	3.89	01100	4.95	011 [1]	10.45	011
1.15		36	14.0					2.22	01150 [1]			4.37	01150				
1.20		38	16.0	8.47	012 [2]	6.27	012 [2]	2.05	01200 [1]	5.88	012	3.89	01200	4.95	012 [1]	10.45	012
1.25		38	16.0			5.90	125 [2]	2.22	01250 [1]			4.37	01250				
1.30		38	16.0	8.62	013 [2]	5.90	013 [2]	2.05	01300 [1]	5.84	013	3.89	01300	4.77	013 [1]	10.26	013
1.35		40	18.0					2.22	01350 [1]			4.37	01350				
1.40		40	18.0	8.72	014 [2]	5.54	014 [2]	2.05	01400 [1]	5.31	014	3.89	01400	4.95	014 [1]	10.45	014
1.45		40	18.0			5.54	145 [2]	2.05	01450 [1]			4.37	01450			13.65	901
1.50		40	18.0	8.21	015 [2]	5.16	015 [2]	1.84	01500 [1]	4.95	015	3.89	01500	4.54	015 [1]	9.66	015
1.55		43	20.0			5.54	155 [2]	2.05	01550 [1]			4.37	01550			16.03	902
1.60		43	20.0	8.21	016 [2]	5.54	016 [2]	1.69	01600 [1]	5.31	016	3.40	01600	4.54	016 [1]	9.66	016
1.65		43	20.0			5.72	165 [2]	2.05	01650 [1]			4.37	01650			16.27	903
1.70		43	20.0	8.82	017 [2]	5.72	017 [2]	1.69	01700 [1]	5.52	017	3.65	01700	4.54	017 [1]	9.66	017
1.75		46	22.0					2.05	01750 [1]			4.37	01750				
1.80		46	22.0	8.72	018 [2]	5.54	018 [2]	1.69	01800 [1]	5.31	018	3.65	01800	4.54	018 [1]	9.66	018
1.85		46	22.0					1.84	01850 [1]			4.37	01850			11.18	904
1.90		46	22.0	8.72	019 [2]	5.72	019 [2]	1.69	01900 [1]	5.52	019	3.65	01900	4.54	019 [1]	9.66	019
1.95		49	24.0					1.84	01950 [1]			3.98	01950				
2.00		49	24.0	8.47	020 [2]	5.13	020 [2]	1.29	02000 [1]	4.54	020	2.86	02000	3.98	020 [1]	8.56	020
2.05		49	24.0					1.84	02050 [1]			3.89	02050			11.97	905
2.10		49	24.0	8.82	021 [2]	6.27	021 [2]	1.69	02100 [1]	5.88	021	3.40	02100	4.54	021 [1]	9.12	021
2.15		53	27.0					1.84	02150 [1]			3.89	02150				
2.20		53	27.0	9.28	022 [2]	6.27	022 [2]	1.69	02200 [1]	5.88	022	3.40	02200	4.54	022 [1]	9.12	022
2.25		53	27.0					1.84	02250 [1]			3.89	02250				
2.30		53	27.0	8.97	023 [2]	6.27	023 [2]	1.69	02300 [1]	5.88	023	3.40	02300	4.54	023 [1]	9.12	023
2.35		53	27.0					2.43	02350 [1]			4.54	02350				
2.38	3/32	57	30.0	8.97	238 [2]	6.27	238 [2]										
2.40		57	30.0	8.47	024 [2]	6.27	024 [2]	1.69	02400	5.88	024	3.40	02400	4.54	024	9.12	024

P				●		●		○		○					●		●
M						●				●					○		○
K				●		●		●							●		●
N				○		○		○		●		●			●		○
S				○		○				○					○		○
H				○											○		○
O				○		○		○							○		○

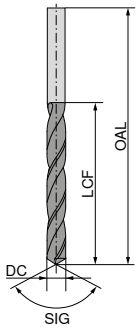
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



UNI	UNI	N	VA	W	WTL	WTL
TiN	TiN	vap.			F.-nit	TiN



SIG 130° HSS-E-PM	SIG 118° HSS-E	SIG 118° HSS	SIG 130° HSS-E	SIG 130° HSS	SIG 130° HSS-E	SIG 130° HSS-E
10 173 ...	**10 171 ...**	**10 152 ...**	**10 175 ...**	**10 161 ...**	**10 168 ...**	**10 170 ...**

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
2.45		57	30.0					2.22	02450			4.54	02450		
2.50		57	30.0	8.62	025 [2]	5.31	025 [2]	1.69	02500	4.95	025	3.04	02500	3.98	025	8.77	025
2.55		57	30.0			6.27	255 [2]	2.43	02550			5.31	02550				
2.60		57	30.0	8.97	026 [2]	6.27	026 [2]	1.69	02600	6.09	026	3.65	02600	4.54	026	9.12	026
2.65		57	30.0					2.58	02650			5.31	02650				
2.70		61	33.0	9.55	027 [2]	6.27	027 [2]	1.69	02700	6.09	027	3.65	02700	4.77	027	10.08	027
2.75		61	33.0					2.22	02750			5.13	02750				
2.78	7/64	61	33.0	11.64	278 [2]	7.41	278 [2]										
2.80		61	33.0	9.33	028 [2]	6.27	028 [2]	1.69	02800	6.09	028	3.98	02800	4.77	028	10.26	028
2.85		61	33.0					2.43	02850			6.27	02850				
2.90		61	33.0	9.55	029 [2]	6.44	029 [2]	1.69	02900	6.09	029	3.98	02900	4.77	029	10.26	029
2.95		61	33.0					2.22	02950			5.31	02950				
3.00		61	33.0	9.07	030 [2]	5.31	030 [2]	1.50	03000	4.95	030	3.25	03000	4.37	030	9.12	030
3.05		65	36.0					2.05	03050			4.54	03050				
3.10		65	36.0	10.09	031 [2]	6.44	031 [2]	1.84	03100	6.27	031	3.98	03100	4.77	031	10.08	031
3.15		65	36.0					2.05	03150			4.54	03150				
3.17	1/8	65	36.0	10.06	317 [2]	6.09	317 [2]										
3.20		65	36.0	9.92	032 [2]	5.84	032 [2]	1.84	03200	5.31	032	3.65	03200	4.95	032	10.45	032
3.25		65	36.0			6.65	325 [2]	2.05	03250			6.65	03250				
3.30		65	36.0	10.09	033 [2]	5.84	033 [2]	1.84	03300	5.31	033	3.65	03300	4.95	033	10.65	033
3.35		65	36.0					2.22	03350			4.54	03350				
3.40		70	39.0	10.77	034 [2]	6.83	034 [2]	1.84	03400	6.44	034	3.98	03400	5.52	034	11.78	034
3.45		70	39.0					2.22	03450			4.95	03450				
3.50		70	39.0	10.94	035 [2]	5.84	035 [2]	1.69	03500	5.31	035	3.89	03500	4.77	035	10.08	035
3.55		70	39.0					2.22	03550			4.95	03550				
3.57	9/64	70	39.0	10.94	357 [2]	7.01	357 [2]										
3.60		70	39.0	11.05	036 [2]	7.01	036 [2]	2.05	03600	6.85	036	3.98	03600	5.52	036	11.56	036
3.65		70	39.0					2.22	03650			4.77	03650				
3.70		70	39.0	11.05	037 [2]	7.01	037 [2]	2.05	03700	6.85	037	4.37	03700	5.52	037	11.78	037
3.75		70	39.0					2.22	03750			5.13	03750				
3.80		75	43.0	11.69	038 [2]	7.41	038 [2]	2.05	03800	6.85	038	4.54	03800	5.88	038	12.98	038
3.85		75	43.0					2.43	03850			5.13	03850				
3.90		75	43.0	11.97	039 [2]	7.75	039 [2]	2.22	03900	7.02	039	4.54	03900	6.27	039	13.55	039
3.95		75	43.0					2.43	03950			5.13	03950				
3.97	5/32	75	43.0	12.15	397 [2]	8.13	397 [2]										
4.00		75	43.0	11.44	040 [2]	6.09	040 [2]	1.69	04000	5.84	040	3.89	04000	5.13	040	11.05	040
4.05		75	43.0					2.58	04050			6.44	04050				
4.10		75	43.0	11.69	041 [2]	7.37	041 [2]	2.22	04100	7.02	041	4.54	04100	6.27	041	13.55	041
4.15		75	43.0					2.58	04150			6.44	04150				
4.20		75	43.0	11.69	042 [2]	7.37	042 [2]	2.05	04200	7.24	042	3.98	04200	5.84	042	12.55	042
4.25		75	43.0			7.78	425 [2]	2.58	04250			6.44	04250				
4.30		80	47.0	12.46	043 [2]	7.75	043 [2]	2.22	04300	7.24	043	5.52	04300	6.44	043	14.04	043
4.35		80	47.0					3.34	04350			7.78	04350				
4.37	11/64	80	47.0	12.60	437 [2]	8.31	437 [2]										
4.40		80	47.0	12.46	044 [2]	7.78	044 [2]	2.22	04400	7.41	044	5.52	04400	6.44	044	14.04	044
4.45		80	47.0					3.34	04450								

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S	○	○		○		○	○
H	○					○	○
O	○	○	○			○	○

1) uncoated
2) self-centering

→ v_c Page 46+47

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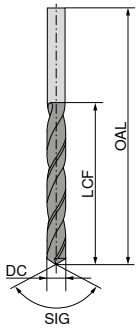
Twist drill to DIN 338, short

≤ 5xD



	UNI	UNI	N	VA	W	WTL	WTL
	TiN	TiN	vap.			F.-nit	TiN
							
	SIG 130°	SIG 118°	SIG 118°	SIG 130°	SIG 130°	SIG 130°	SIG 130°
	HSS-E-PM	HSS-E	HSS	HSS-E	HSS	HSS-E	HSS-E
	10 173 ...	10 171 ...	10 152 ...	10 175 ...	10 161 ...	10 168 ...	10 170 ...

DC h8 mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
4.50		80	47.0	12.15	045 2)	7.75	045 2)	2.22	04500	7.24	045	4.95	04500	6.09	045	12.55	045
4.55		80	47.0					3.34	04550			9.66	04550				
4.60		80	47.0	12.86	046 2)	8.31	046 2)	2.22	04600	7.75	046	5.52	04600	6.85	046	14.81	046
4.65		80	47.0			8.48	465 2)	3.34	04650			9.66	04650				
4.70		80	47.0	15.56	047 2)	8.56	047 2)	2.22	04700	7.78	047	5.52	04700	6.85	047	14.81	047
4.75		80	47.0					4.43	04750			7.75	04750				
4.76	3/16	86	52.0	13.15	476 2)	8.48	476 2)										
4.80		86	52.0	13.15	048 2)	8.31	048 2)	2.43	04800	7.78	048	5.52	04800	6.85	048	14.81	048
4.85		86	52.0					5.72	04850			9.66	04850				
4.90		86	52.0	13.37	049 2)	8.48	049 2)	2.43	04900	8.02	049	5.52	04900	7.02	049	15.00	049
4.95		86	52.0			8.48	495 2)	3.71	04950			9.66	04950				
5.00		86	52.0	13.48	050 2)	7.41	050 2)	2.05	05000	6.85	050	5.31	05000	6.27	050	13.49	050
5.05		86	52.0			8.48	505 2)	3.89	05050			11.18	05050				
5.10		86	52.0	13.48	051 2)	8.48	051 2)	4.43	05100	8.02	051	5.84	05100	7.02	051		
5.15		86	52.0					3.89	05150								
5.16	13/64	86	52.0	14.69	516 2)	9.30	516 2)										
5.20		86	52.0	13.87	052 2)	9.12	052 2)	2.58	05200	8.36	052	5.88	05200	7.24	052	16.27	052
5.25		86	52.0					3.89	05250			13.11	05250				
5.30		86	52.0	14.69	053 2)	9.12	053 2)	2.58	05300	8.36	053	5.88	05300				
5.35		93	57.0					4.64	05350								
5.40		93	57.0	18.01	054 2)	9.89	054 2)	2.96	05400			6.27	05400				
5.45		93	57.0					8.48	05450			7.78	05450				
5.50		93	57.0	15.51	055 2)	10.13	055 2)	2.80	05500	9.66	055	5.88	05500	7.24	055	15.78	055
5.55		93	57.0			11.56	555 2)	4.79	05550			7.78	05550				
5.56	7/32	93	57.0	18.25	556 2)	11.56	556 2)										
5.60		93	57.0	16.53	056 2)	10.08	056 2)	2.96	05600	9.30	056	6.85	05600	8.02	056	17.48	056
5.65		93	57.0					4.98	05650			10.65	05650				
5.70		93	57.0	16.32	057 2)	10.08	057 2)	2.96	05700	9.30	057	6.85	05700	8.02	057	17.48	057
5.75		93	57.0			10.08	575 2)	5.72	05750			10.45	05750				
5.80		93	57.0	16.32	058 2)	10.08	058 2)	2.96	05800	9.30	058	6.85	05800	8.02	058	17.67	058
5.85		93	57.0					4.98	05850			12.55	05850				
5.90		93	57.0	17.33	059 2)	10.08	059 2)	3.16	05900	9.30	059	6.85	05900	8.77	059	18.80	059
5.95	15/64	93	57.0	21.24	595 2)	12.89	595 2)	3.16	05950			6.85	05950				
6.00		93	57.0	15.70	060 2)	9.89	060 2)	2.80	06000	9.12	060	6.85	06000	8.02	060	18.59	060
6.05		101	63.0					5.36	06050			15.00	06050				
6.10		101	63.0	17.75	061 2)	11.18	061 2)	3.34	06100			6.85	06100				
6.15		101	63.0					5.36	06150			11.18	06150				
6.20		101	63.0	17.50	062 2)	11.18	062 2)	3.34	06200	10.45	062	6.85	06200			19.58	062
6.25		101	63.0					5.36	06250			11.83	06250				
6.30		101	63.0	19.31	063 2)	11.18	063 2)	3.34	06300			7.24	06300				
6.35	1/4	101	63.0	20.45	635 2)	11.97	635 2)	3.49	06350			7.02	06350				
6.40		101	63.0	20.48	064 2)	11.97	064 2)	3.49	06400			7.24	06400				
6.45		101	63.0					5.90	06450								
6.50		101	63.0	18.84	065 2)	11.05	065 2)	3.34	06500	10.26	065	7.02	06500	9.12	065	19.34	065
6.55		101	63.0					6.27	06550			15.55	06550				
6.60		101	63.0	20.73	066 2)	11.97	066 2)	3.49	06600			8.36	06600				

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N	○	○	○	●	●	●	○
S	○	○		○		○	○
H	○					○	○
O	○	○	○			○	○

1) uncoated
2) self-centering

→ v_c Page 46+47

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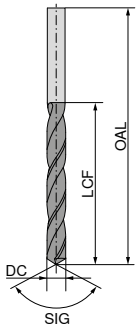
Twist drill to DIN 338, short

≤ 5xD



	UNI	UNI	N	VA	W	WTL	WTL
	TiN	TiN	vap.			F.-nit	TiN
							
	SIG 130° HSS-E-PM	SIG 118° HSS-E	SIG 118° HSS	SIG 130° HSS-E	SIG 130° HSS	SIG 130° HSS-E	SIG 130° HSS-E
	10 173 ...	10 171 ...	10 152 ...	10 175 ...	10 161 ...	10 168 ...	10 170 ...

DC $_{h8}$ mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
6.65		101	63.0					11.23	06650			21.96	06650				
6.70		101	63.0	20.69	067 2)	11.97	067 2)	3.71	06700			8.56	06700				
6.75		109	69.0	27.92	675 2)	16.42	675 2)	4.43	06750			13.11	06750				
6.80		109	69.0	21.24	068 2)	13.55	068 2)	4.43	06800	12.36	068	9.12	06800	10.65	068	23.24	068
6.85		109	69.0					6.83	06850			22.67	06850				
6.90		109	69.0	21.66	069 2)	13.55	069 2)	4.43	06900	12.36	069	9.12	06900				
6.95		109	69.0					7.01	06950			22.67	06950				
7.00		109	69.0	21.24	070 2)	11.56	070 2)	3.89	07000	10.65	070	8.02	07000	9.66	070	20.72	070
7.05		109	69.0					7.57	07050			12.98	07050				
7.10		109	69.0	24.45	071 2)	15.39	071 2)	4.43	07100			11.01	07100				
7.14	9/32	109	69.0	36.58	714 2)	22.98	714 2)										
7.15		109	69.0					13.11	07150								
7.20		109	69.0	24.41	072 2)	15.39	072 2)	4.64	07200	14.43	072	11.01	07200	14.91	072	32.83	072
7.25		109	69.0					12.55	07250			26.56	07250				
7.30		109	69.0	25.28	073 2)	15.39	073 2)	4.64	07300			11.01	07300				
7.35		109	69.0					7.57	07350								
7.40		109	69.0	24.69	074 2)	15.39	074 2)	4.79	07400	14.43	074	11.01	07400	14.91	074	32.32	074
7.45		109	69.0			12.36	745 2)	7.37	07450								
7.50		109	69.0	22.48	075 2)	12.36	075 2)	4.43	07500	11.62	075	9.30	07500	11.05	075	23.71	075
7.55		117	75.0					8.68	07550								
7.60		117	75.0	27.28	076 2)	18.06	076 2)	5.16	07600	17.48	076	12.20	07600	16.27	076	35.61	076
7.65		117	75.0					8.68	07650								
7.70		117	75.0	31.06	077 2)	18.59	077 2)	5.16	07700	17.48	077	12.20	07700	16.27	077	35.61	077
7.75		117	75.0					7.75	07750			21.04	07750				
7.80		117	75.0	26.68	078 2)	18.06	078 2)	5.16	07800	17.48	078	12.20	07800	16.27	078	35.61	078
7.85		117	75.0					8.68	07850								
7.90		117	75.0	31.92	079 2)	18.59	079 2)	5.16	07900	17.48	079	14.04	07900	16.27	079	35.61	079
7.94	5/16	117	75.0	28.60	794 2)	18.06	794 2)										
7.95		117	75.0					9.04	07950								
8.00		117	75.0	25.36	080 2)	15.00	080 2)	4.43	08000	13.88	080	10.26	08000	12.36	080	27.16	080
8.05		117	75.0					9.22	08050			26.91	08050				
8.10		117	75.0	27.79	081 2)	18.06	081 2)	5.36	08100			14.43	08100				
8.15		117	75.0					9.41	08150			26.91	08150				
8.20		117	75.0	27.28	082 2)	19.34	082 2)	5.36	08200			15.00	08200				
8.25		117	75.0					6.44	08250			21.84	08250				
8.30		117	75.0	30.31	083 2)	19.34	083 2)	5.90	08300			15.78	08300				
8.35		117	75.0					10.13	08350								
8.40		117	75.0	30.53	084 2)	20.29	084 2)	5.90	08400	19.34	084	15.78	08400	18.80	084	41.01	084
8.45		117	75.0					10.34	08450			36.69	08450				
8.50		117	75.0	26.11	085 2)	14.81	085 2)	5.72	08500	13.70	085	11.83	08500	14.04	085	30.98	085
8.55		125	81.0					12.00	08550			26.54	08550				
8.60		125	81.0			33.12	086 2)	6.44	08600	20.73	086	15.78	08600			46.07	086
8.65		125	81.0					21.39	08650								
8.70		125	81.0			33.12	087 2)	6.44	08700			17.48	08700				
8.73	11/32	125	81.0	28.30	873 2)	21.76	873 2)										
8.75		125	81.0					10.68	08750			25.26	08750				

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S				○		○				○				○	○
H				○										○	○
O				○		○		○						○	○

1) uncoated
2) self-centering

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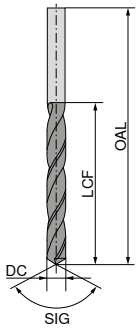
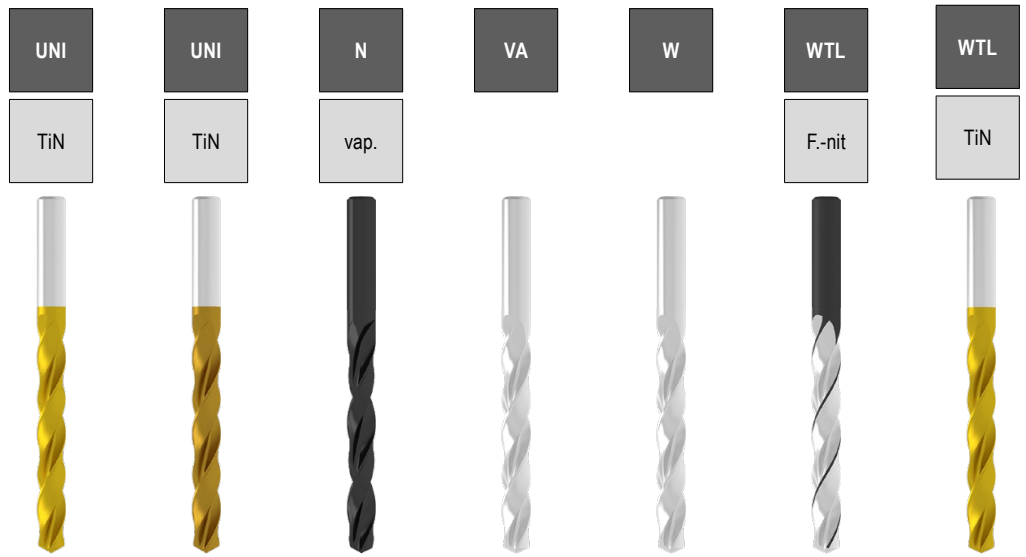
Twist drill to DIN 338, short

≤ 5xD





				SIG 130° HSS-E-PM		SIG 118° HSS-E		SIG 118° HSS		SIG 130° HSS-E		SIG 130° HSS		SIG 130° HSS-E		SIG 130° HSS-E	
				10 173 ...		10 171 ...		10 152 ...		10 175 ...		10 161 ...		10 168 ...		10 170 ...	
DC h8 mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
8.80		125	81.0	30.53	088 2)	23.05	088 2)	6.65	08800	22.03	088	17.48	08800	21.04	088	47.05	088
8.90		125	81.0			28.45	089 2)	6.83	08900			17.67	08900				
8.95		125	81.0					22.30	08950								
9.00		125	81.0	28.74	090 2)	18.62	090 2)	6.09	09000	18.20	090	12.98	09000	16.32	090	35.31	090
9.05		125	81.0					12.55	09050								
9.10		125	81.0			30.94	091 2)	6.83	09100			19.58	09100				
9.15		125	81.0					22.30	09150								
9.20		125	81.0			31.75	092 2)	6.83	09200	25.84	092	19.58	09200	24.49	092	53.55	092
9.25		125	81.0					16.24	09250			30.60	09250				
9.30		125	81.0	33.18	093 2)	28.20	093 2)	6.83	09300	27.32	093	19.58	09300	24.49	093	53.80	093
9.35		125	81.0			21.96	935 2)	24.16	09350								
9.40		125	81.0			34.84	094 2)	6.83	09400	29.25	094	19.58	09400	24.49	094	53.80	094
9.45		125	81.0					13.48	09450								
9.50		125	81.0	30.21	095 2)	21.96	095 2)	6.83	09500	21.04	095	14.81	09500	17.48	095	37.81	095
9.55		133	87.0					15.12	09550								
9.60		133	87.0			31.51	096 2)	7.57	09600	30.37	096	22.64	09600	25.63	096	57.50	096
9.65		133	87.0					15.12	09650								
9.70		133	87.0			37.02	097 2)	7.57	09700	30.37	097	23.05	09700	28.45	097	61.50	097
9.75		133	87.0					9.94	09750								
9.80		133	87.0	35.99	098 2)	31.51	098 2)	8.48	09800	30.37	098	23.05	09800	28.45	098	61.50	098
9.85		133	87.0					14.77	09850								
9.90		133	87.0			29.02	099 2)	8.48	09900	30.37	099	23.42	09900	28.45	099	61.50	099
9.95		133	87.0					16.43	09950								
10.00		133	87.0	34.13	100 2)	22.08	100 2)	7.20	10000	19.95	100	15.55	10000	19.58	100	44.14	100
10.05		133	87.0					20.82	10050			39.88	10050				
10.10		133	87.0			28.49	101 2)	9.04	10100			23.83	10100				
10.15		133	87.0					37.41	10150								
10.20		133	87.0	39.41	102 2)	29.85	102 2)	9.22	10200	29.25	102	23.83	10200	27.16	102	59.61	102
10.25		133	87.0					12.36	10250			26.91	10250				
10.30		133	87.0			24.88	103 2)	11.07	10300	44.81	103	23.83	10300	35.87	103	79.57	103
10.35		133	87.0					20.82	10350								
10.40		133	87.0			30.81	104 2)	11.07	10400			23.83	10400				
10.45		133	87.0					37.41	10450								
10.50		133	87.0	39.68	105 2)	30.98	105 2)	9.41	10500	29.63	105	19.18	10500	25.38	105	55.56	105
10.55		133	87.0			33.95	955 2)	26.56	10550								
10.60		133	87.0					11.62	10600			34.27	10600				
10.70		142	94.0					13.48	10700	58.67	107	39.26	10700	38.92	107		
10.75		142	94.0					14.77	10750			45.17	10750				
10.80		142	94.0					13.11	10800			40.92	10800				
10.90		142	94.0					13.84	10900			40.92	10900				
11.00		142	94.0	40.99	110 2)	33.95	110 2)	10.68	11000	32.91	110	23.05	11000	30.98	110	64.92	110
11.10		142	94.0					13.84	11100			28.45	11100				
11.11	7/16	142	94.0	51.38	111 2)	65.45	111 2)										
11.20		142	94.0			65.45	112 2)	13.48	11200	63.47	112	36.01	11200	49.76	112	112.44	112
11.30		142	94.0			65.79	113 2)			63.86	113			49.76	113		
11.40		142	94.0			65.79	114 2)	14.21	11400	63.86	114	57.51	11400	49.76	114		

P	●	●	○	○		●	●
M		●		●		○	○
K	●	●	●			●	●
N	○	○	○	●	●	●	○
S	○	○		○		○	○
H	○					○	○
O	○	○	○			○	○

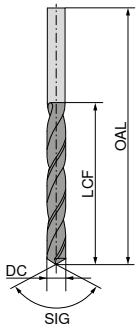
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



	UNI	UNI	N	VA	W	WTL	WTL
	TiN	TiN	vap.			F.-nit	TiN
							
	SIG 130° HSS-E-PM	SIG 118° HSS-E	SIG 118° HSS	SIG 130° HSS-E	SIG 130° HSS	SIG 130° HSS-E	SIG 130° HSS-E
	10 173 ...	10 171 ...	10 152 ...	10 175 ...	10 161 ...	10 168 ...	10 170 ...

DC h8 mm	DC inch	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2		£ T2		£ T2	
11.50		142	94.0	45.47	115 2)	43.33	115 2)	11.62	11500	42.03	115	25.63	11500	35.31	115	78.94	115
11.60		142	94.0			75.38	116 2)	14.21	11600	72.98	116	39.88	11600	49.76	116		
11.70		142	94.0					14.77	11700	72.98	117	39.88	11700	49.76	117	112.44	117
11.80		142	94.0					14.94	11800	72.98	118	39.88	11800	53.80	118	118.25	118
11.90		151	101.0					16.43	11900	72.98	119	39.88	11900				
12.00		151	101.0	48.59	120 2)	48.30	120 2)	13.11	12000	45.97	120	28.07	12000	37.81	120	82.03	120
12.15		151	101.0			49.58	121 2)										
12.20		151	101.0					17.35	12200			47.62	12200				
12.25		151	101.0					19.02	12250								
12.30		151	101.0	87.22	123 2)	51.25	123 2)										
12.50		151	101.0	50.56	125 2)	49.58	925 2)	14.56	12500			28.07	12500	46.53	125	103.91	125
12.70		151	101.0	66.05	127 2)	38.89	127 2)	16.24	12700			27.32	12700				
12.80		151	101.0					19.34	12800			50.14	12800	82.05	128	178.23	128
13.00		151	101.0	53.74	130 2)	52.88	130 2)	16.03	13000			33.28	13000	46.53	130	103.16	130
13.10		151	101.0			66.89	131 2)										
13.20		151	101.0					20.82	13200			60.96	13200				
13.30		160	108.0			66.89	133 2)										
13.50		160	108.0	95.54	135 2)	66.89	135 2)	18.45	13500			41.24	13500	62.45	135	138.96	135
13.80		160	108.0					26.56	13800			76.65	13800	72.39	138	157.88	138
14.00		160	108.0	65.10	140 2)	64.15	140 2)	20.47	14000			39.49	14000	56.92	140	123.50	140
14.50		169	114.0					21.96	14500			52.26	14500	69.69	145	148.43	145
14.80		169	114.0											145.07	148		
15.00		169	114.0					23.60	15000			46.86	15000	70.04	150	156.18	150
15.25		178	120.0					44.07	15250								
15.50		178	120.0					25.83	15500			66.00	15500	104.10	155	312.56	155
15.80		178	120.0					42.39	15800								
16.00		178	120.0					27.85	16000			62.53	16000	87.86	160	191.79	160
16.50		184	125.0					31.71	16500			104.10	16500				
17.00		184	125.0					33.57	17000			106.05	17000				
17.50		191	130.0					36.69	17500			208.98	17500				
18.00		191	130.0					39.06	18000			114.35	18000				
18.50		198	135.0					42.39	18500								
19.00		198	135.0					45.53	19000			130.45	19000				
19.50		205	140.0					48.30	19500								
20.00		205	140.0					52.88	20000			161.59	20000				

P	●	●	○	○		●	●
M		●		●		○	○
K	●	●	●			●	●
N	○	○	○	●	●	●	○
S	○	○		○		○	○
H	○					○	○
O	○	○	○			○	○

1) uncoated
2) self-centering

→ v_c Page 46+47

Twist drill sets DIN 338, short

▲ In a box
▲ In 0.1 mm steps

≤ 5xD



	N	UNI
	vap.	TiN
		
	Drill set type N	Drill set type UNI TiN
	HSS	HSS-E
	10 158 ...	10 158 ...
DC h8 mm	£ T2	£ T2
1,0 - 5,9	96.94 050	367.65 054 1)
6,0 - 10,0	201.37 100	575.68 104 1)
P	○	●
M		●
K	●	●
N	○	○
S		○
H		
O	○	○

1) self-centering

→ v_c Page 46

Set of type N vap. contains the drills of Art. No. 10 152 ...
Set of type UNI TiN contains the drills of Art. No. 10 171 ...

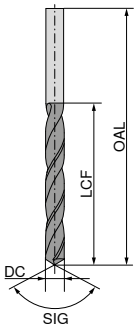
Twist drills with coolant hole, factory standard, long

≤ 10xD



NC

TiAlN





SIG 130°
HSS

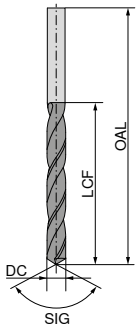
DC h8 mm	OAL mm	LCF mm	10 224 ... £ T2	
3.0	100	66	158.54	030
3.3	106	69	181.34	033
3.5	112	73	179.40	035
3.8	119	78	221.79	038
4.0	119	78	180.33	040
4.2	119	78	183.46	042
4.5	126	82	182.31	045
4.8	132	87	220.04	048
5.0	132	87	184.42	050
5.5	139	91	191.00	055
5.8	139	91	221.20	058
6.0	139	91	198.36	060
6.5	148	97	212.47	065
6.8	156	102	213.45	068
7.0	156	102	213.45	070
7.5	156	102	220.79	075
7.8	165	109	234.73	078
8.0	165	109	225.08	080
8.5	165	109	235.14	085
8.8	175	115	241.10	088
9.0	175	115	240.56	090
9.5	175	115	248.84	095
9.8	184	121	256.81	098
10.0	184	121	248.84	100
10.2	184	121	256.81	102
10.5	184	121	258.73	105
10.8	195	128	265.49	108
11.0	195	128	258.73	110
11.5	195	128	263.76	115
11.8	205	134	305.34	118
12.0	205	134	268.01	120
12.8	205	134	320.05	128
13.0	205	134	282.33	130

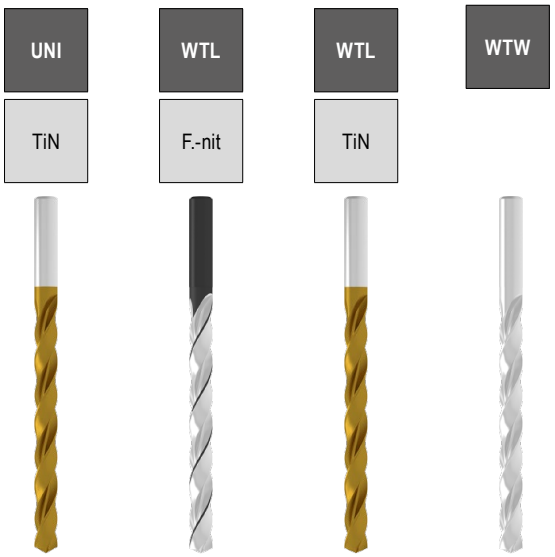
P	○
M	○
K	●
N	○
S	
H	
O	○

→ v_c Page 48

Twist drills, DIN 340, long

≤ 10xD





DC h8 mm	OAL mm	LCF mm	SIG 118° HSS-E 10 270 ... £ T2		SIG 130° HSS-E 10 225 ... £ T2		SIG 130° HSS 10 210 ... £ T2		SIG 130° HSS 10 200 ... £ T2	
1.0	56	33	10.04	010	11.05	010 1)	19.34	010	8.02	010
1.1	60	37	11.19	011	13.49	011 1)	22.64	011	8.77	011
1.2	65	41	12.50	012	12.98	012 1)			8.02	012
1.3	65	41	12.33	013	12.55	013 1)				
1.4	70	45	12.18	014	11.97	014 1)			7.24	014
1.5	70	45	10.59	015	10.45	015 1)	15.78	015	7.24	015
1.6	76	50	12.50	016	11.56	016 1)	15.48	016	6.66	016
1.7	76	50	13.66	017	11.62	017 1)				
1.8	80	53	13.04	018	11.62	018 1)			6.44	018
1.9	80	53	13.95	019	10.65	019 1)	14.91	019	6.44	019
2.0	85	56	10.35	020	8.36	020 1)	13.88	020	5.52	020
2.1	85	56	11.95	021	10.08	021 1)	16.27	021	6.44	021
2.2	90	59	12.18	022	10.26	022 1)				
2.3	90	59	11.95	023	10.26	023 1)	16.88	023	6.44	023
2.4	95	62	11.07	024	10.45	024	16.93	024	6.44	024
2.5	95	62	10.59	025	8.77	025	14.91	025	5.84	025
2.6	95	62	12.18	026	10.45	026	16.93	026	6.44	026
2.7	100	66	12.88	027	14.94	027	17.42	027	6.44	027
2.8	100	66	12.33	028	10.65	028	17.42	028	6.44	028
2.9	100	66	12.88	029	10.65	029	17.48	029	6.44	029
3.0	100	66	11.41	030	9.12	030	14.81	030	6.09	030
3.1	106	69	13.66	031	11.05	031				
3.2	106	69	12.66	032	10.65	032				
3.3	106	69	13.42	033	11.56	033	18.79	033	7.24	033
3.4	112	73	13.95	034	11.18	034				
3.5	112	73	13.66	035	10.65	035	16.93	035	6.85	035
3.6	112	73	14.14	036	16.03	036	21.46	036	8.36	036
3.7	112	73	13.76	037	11.62	037	20.73	037	8.77	037
3.8	119	78	13.24	038	11.56	038	20.73	038	8.77	038
3.9	119	78	14.82	039	11.78	039	20.72	039	9.12	039
4.0	119	78	14.48	040	11.62	040	18.22	040	7.41	040
4.1	119	78	14.73	041	11.97	041				
4.2	119	78	14.14	042	12.55	042	20.73	042	7.78	042
4.3	126	82	15.78	043	12.98	043	23.15	043	10.08	043
4.4	126	82	13.95	044	12.89	044				
4.5	126	82	14.82	045	13.49	045	21.04	045	9.12	045
4.6	126	82	14.30	046	13.55	046	24.32	046	10.26	046
4.7	126	82	16.54	047	14.04	047	24.32	047	10.45	047
4.8	132	87	16.09	048	14.81	048	24.32	048	10.65	048
4.9	132	87	16.31	049	15.48	049	33.73	049	11.05	049
5.0	132	87	16.54	050	13.49	050	22.03	050	8.77	050
5.1	132	87	18.29	051	15.78	051				

P	●	●	○	
M	●	○		
K	●	●	●	
N	○	●	○	●
S	○	○		
H		○		
O	○	○	○	

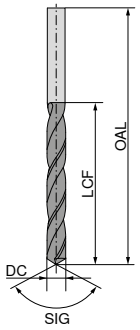
1) uncoated

→ v_c Page 48+49

Continued on next page

Twist drills, DIN 340, long

≤ 10xD



	UNI	WTL	WTL	WTW
	TiN	F.-nit	TiN	
				
	SIG 118° HSS-E	SIG 130° HSS-E	SIG 130° HSS	SIG 130° HSS
DC h8 mm / OAL mm / LCF mm	10 270 ...	10 225 ...	10 210 ...	10 200 ...
	£ T2	£ T2	£ T2	£ T2
5.2 / 132 / 87	17.95 052	16.32 052	27.16 052	11.56 052
5.3 / 132 / 87	19.74 053	16.88 053	27.54 053	11.78 053
5.4 / 139 / 91	21.56 054	16.69 054		
5.5 / 139 / 91	17.19 055	16.27 055	26.40 055	11.18 055
5.6 / 139 / 91	22.47 056	17.48 056	31.75 056	18.06 056
5.7 / 139 / 91	24.82 057	17.67 057	32.91 057	13.55 057
5.8 / 139 / 91	21.79 058	18.20 058	32.66 058	14.04 058
5.9 / 139 / 91	24.31 059	18.22 059	35.05 059	14.43 059
6.0 / 139 / 91	20.65 060	16.88 060	27.16 060	11.62 060
6.1 / 148 / 97	24.49 061	19.34 061		
6.2 / 148 / 97	21.97 062	19.18 062		
6.3 / 148 / 97	24.49 063	19.35 063	38.33 063	16.93 063
6.4 / 148 / 97	22.28 064	20.49 064		
6.5 / 148 / 97	21.40 065	18.59 065	30.37 065	12.98 065
6.6 / 148 / 97	24.67 066	21.29 066		
6.7 / 148 / 97	25.31 067	21.28 067		
6.8 / 156 / 102	27.16 068	23.24 068	46.65 068	19.34 068
6.9 / 156 / 102	28.16 069	23.71 069		
7.0 / 156 / 102	25.55 070	20.72 070	35.61 070	15.55 070
7.1 / 156 / 102	24.67 071	24.49 071		
7.2 / 156 / 102	28.25 072	25.26 072	48.42 072	28.41 072
7.3 / 156 / 102	29.53 073	25.63 073		
7.4 / 156 / 102	30.60 074	38.17 074	49.17 074	28.94 074
7.5 / 156 / 102	31.13 075	24.49 075	43.36 075	18.59 075
7.6 / 165 / 109	33.40 076		50.53 076	21.28 076
7.7 / 165 / 109	31.54 077	29.46 077		21.84 077
7.8 / 165 / 109	34.77 078	30.37 078	52.42 078	22.03 078
7.9 / 165 / 109	33.53 079	30.98 079	50.54 079	31.71 079
8.0 / 165 / 109	28.46 080	22.98 080	41.24 080	17.42 080
8.1 / 165 / 109	31.38 081	44.63 081		
8.2 / 165 / 109	34.22 082	32.91 082		
8.3 / 165 / 109	36.27 083	32.66 083		
8.4 / 165 / 109	38.99 084	34.25 084	56.75 084	34.09 084
8.5 / 165 / 109	33.40 085	29.25 085	52.97 085	22.58 085
8.6 / 175 / 115	33.18 086	35.05 086		
8.7 / 175 / 115	33.53 087	35.61 087		
8.8 / 175 / 115	34.06 088	35.87 088	59.82 088	25.63 088
8.9 / 175 / 115	34.61 089	38.11 089		
9.0 / 175 / 115	35.10 090	28.45 090	49.76 090	21.04 090
9.1 / 175 / 115	35.10 091	53.65 091		
9.2 / 175 / 115	35.10 092	41.39 092		42.61 092
9.3 / 175 / 115	35.10 093	41.59 093		32.32 093

P	●	●	○	
M	●	○		
K	●	●	●	
N	○	●	○	●
S	○	○		
H		○		
O	○	○	○	

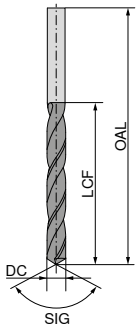
1) uncoated

→ v_c Page 48+49

Continued on next page

Twist drills, DIN 340, long

≤ 10xD



	UNI	WTL	WTL	WTW
	TiN	F.-nit	TiN	
				
	SIG 118° HSS-E	SIG 130° HSS-E	SIG 130° HSS	SIG 130° HSS
	10 270 ...	10 225 ...	10 210 ...	10 200 ...

DC h8 mm	OAL mm	LCF mm	£ T2		£ T2		£ T2		£ T2	
9.4	175	115	35.10	094	58.96	094			46.44	094
9.5	175	115	35.10	095	37.54	095	74.89	095	32.32	095
9.6	184	121	37.18	096					54.94	096
9.7	184	121	38.99	097	51.09	097	95.32	097		
9.8	184	121	41.65	098	51.09	098	101.99	098	41.59	098
9.9	184	121	45.26	099	51.09	099	145.07	099		
10.0	184	121	48.94	100	42.79	100	60.18	100	24.49	100
10.1	184	121	53.47	101						
10.2	184	121	57.11	102	54.97	102	105.37	102	107.08	102
10.3	184	121	61.61	103					72.39	103
10.4	184	121	61.61	104						
10.5	184	121	62.55	105	57.35	105	109.16	105	47.83	105
10.8	195	128			65.43	108				
11.0	195	128	74.25	110	63.02	110	87.71	110	38.92	110
11.5	195	128	75.20	115	78.56	115	146.56	115	63.47	115
11.6	195	128							85.16	116
11.8	195	128			87.07	118			76.26	118
12.0	205	134	76.08	120	78.94	120	111.07	120	47.86	120
12.2	205	134							89.02	122
12.3	205	134							76.26	123
12.5	205	134	83.33	125			113.77	125	50.32	125
13.0	205	134	90.63	130			119.41	130	53.55	130
13.5	214	140	92.40	135						
14.0	214	140	96.07	140			204.54	140	90.36	140

P	●	●	○	
M	●	○		
K	●	●	●	
N	○	●	○	●
S	○	○		
H		○		
O	○	○	○	

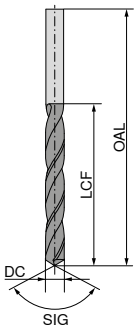
1) uncoated

→ v_c Page 48+49

Twist drills, DIN 1869, extra-long, series 1

▲ Up to diameter DC of 2.30 mm in uncoated version

> 10xD



WTL
TiAlN
SIG 130°
HSS-E

WTL
F.-nit
SIG 130°
HSS

DC h8 mm	OAL mm	LCF mm	10 236 ... £ T2		10 235 ... £ T2	
2.0	125	85			11.97	020 1)
2.1	125	85			14.81	021 1)
2.2	135	90			14.81	022 1)
2.3	135	90			14.81	023 1)
2.4	140	95			15.55	024
2.5	140	95			11.97	025
2.6	140	95			15.55	026
2.7	150	100			16.32	027
2.8	150	100			16.32	028
2.9	150	100			16.32	029
3.0	150	100	23.19	03000	13.88	030
3.1	155	105			16.93	031
3.2	155	105			16.93	032
3.3	155	105	36.96	03300	16.93	033
3.4	165	115			17.42	034
3.5	165	115	26.42	03500	13.88	035
3.6	165	115			17.42	036
3.7	165	115			18.80	037
3.8	175	120			18.80	038
3.9	175	120			18.80	039
4.0	175	120	25.87	04000	14.04	040
4.1	175	120			18.80	041
4.2	175	120	38.09	04200	19.18	042
4.3	185	125			21.29	043
4.4	185	125			21.29	044
4.5	185	125	29.08	04500	15.00	045
4.6	185	125			21.29	046
4.7	185	125			22.08	047
4.8	195	135			22.03	048
4.9	195	135			22.98	049
5.0	195	135	21.70	05000	16.27	050
5.1	195	135			23.71	051
5.2	195	135			24.49	052
5.3	195	135			24.49	053
5.4	205	140			24.49	054
5.5	205	140	30.73	05500	17.48	055
5.6	205	140			24.49	056
5.7	205	140			25.38	057
5.8	205	140			25.26	058
5.9	205	140			25.26	059
6.0	205	140	32.55	06000	17.48	060
6.1	215	150			27.16	061
6.2	215	150			27.32	062
6.3	215	150			29.25	063
6.4	215	150			29.46	064
6.5	215	150	35.01	06500	23.71	065
6.6	215	150			29.46	066
6.7	215	150			31.37	067
6.8	225	155	32.98	06800	30.76	068
6.9	225	155			32.91	069
7.0	225	155	30.13	07000	25.38	070
7.1	225	155			50.32	071
7.3	225	155			50.32	073
7.4	225	155			50.32	074
7.5	225	155	33.63	07500	28.45	075
7.7	240	165			39.31	077
7.8	240	165			41.39	078
7.9	240	165			41.59	079
8.0	240	165	33.28	08000	30.76	080
8.1	240	165			47.27	081
8.2	240	165			47.27	082
8.3	240	165			47.27	083
8.4	240	165			49.76	084
8.5	240	165	42.85	08500	39.67	085
8.6	250	175			71.35	086
8.7	250	175			53.55	087
8.8	250	175			56.32	088
9.0	250	175	47.83	09000	43.17	090
9.2	250	175			63.86	092
9.4	250	175			68.51	094
9.5	250	175	48.15	09500	49.92	095
9.6	265	185			70.43	096
9.7	265	185			70.43	097
9.8	265	185			71.59	098
9.9	265	185			71.59	099
10.0	265	185	54.26	10000	44.48	100
10.2	265	185	79.56	10200		
10.5	265	185			78.94	105
11.0	280	195			58.10	110
11.5	280	195			71.41	115
12.0	295	205			67.72	120
12.5	295	205			82.83	125
13.0	295	205			82.47	130

	10 236 ...	10 235 ...
P	●	●
M		
K	●	●
N	●	●
S		
H		
O	○	○

1) uncoated

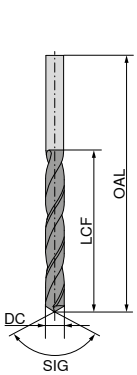
→ v_c Page 50

Twist drills, DIN 1869, extra-long, series 2

▲ Up to diameter DC of 2.00 mm in uncoated version

> 10xD

WTL | TiAlN





SIG 130°
HSS-E

10 246 ...

WTL | F.-nit



SIG 130°
HSS

10 245 ...

DC h8 mm	OAL mm	LCF mm	£ T2		£ T2	
2.0	160	110			23.71	**020** [1]
2.5	180	120			23.71	**025**
3.0	190	130	31.27	**03000**	18.79	**030**
3.5	210	145	36.68	**03500**	18.59	**035**
4.0	220	150	32.88	**04000**	19.58	**040**
4.5	235	160	36.36	**04500**	21.29	**045**
5.0	245	170	34.98	**05000**	21.29	**050**
5.5	260	180	43.26	**05500**	25.63	**055**
6.0	260	180	44.92	**06000**	25.26	**060**
6.5	275	190	42.98	**06500**	29.06	**065**
7.0	290	200	44.97	**07000**	32.32	**070**
7.5	290	200	48.39	**07500**	38.11	**075**
8.0	305	210	53.46	**08000**	37.54	**080**
8.5	305	210	52.51	**08500**	58.85	**085**
9.0	320	220	58.18	**09000**	57.50	**090**
9.5	320	220	60.60	**09500**	65.50	**095**
10.0	340	235	69.09	**10000**	60.58	**100**
10.2	340	235	77.89	**10200**		
10.5	340	235			87.86	**105**
11.0	365	250			85.76	**110**
11.5	365	250			99.10	**115**
12.0	375	260	100.24	**12000**	96.62	**120**
12.5	375	260			96.62	**125**
13.0	375	260			100.24	**130**

P	●	●
M		
K	●	●
N	●	●
S		
H		
O	○	○

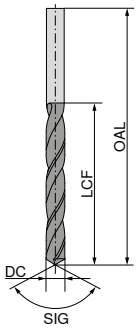
1) uncoated

→ v_c Page 50+51

Twist drills, DIN 1869, extra-long, series 3

> 10xD

WTL | TiAlN





SIG 130°
HSS-E

10 256 ...

WTL | F.-nit



SIG 130°
HSS

10 255 ...

DC h8 mm	OAL mm	LCF mm	£ T2		£ T2	
2.5	225	150			30.76	**025**
3.0	240	160			30.76	**030**
3.5	265	180			25.38	**035**
4.0	280	190	42.70	**04000**	25.38	**040**
4.5	295	200			30.37	**045**
5.0	315	210	48.34	**05000**	30.37	**050**
5.5	330	225			32.91	**055**
6.0	330	225	55.70	**06000**	34.00	**060**
6.5	350	235			37.54	**065**
7.0	370	250			47.83	**070**
7.5	370	250			54.97	**075**
8.0	390	265	66.10	**08000**	54.87	**080**
8.5	390	265			71.04	**085**
9.0	410	280			76.26	**090**
9.5	410	280			124.23	**095**
10.0	430	295	90.73	**10000**	89.02	**100**
10.5	430	295			97.36	**105**
11.0	455	310			103.16	**110**
11.5	455	310			114.35	**115**
12.0	480	330			121.95	**120**
12.5	480	330			114.35	**125**
13.0	480	330			115.35	**130**

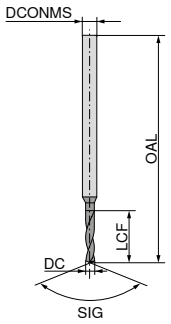
P	●	●
M		
K	●	●
N	●	●
S		
H		
O	○	○

→ v_c Page 50+51

Twist drills, DIN 1899

▲ 4 facet
▲ with reinforced shank

Scope of supply:
Packing quantity 5 pieces (Ø 0.15 mm packing quantity 10 pieces)
price per piece



N



SIG 118°
HSS-E-PM

10 103 ...

DC -0,004 mm	OAL mm	LCF mm	DCONMS h8 mm	£ T2	
0.15	25	0.8	1.0	7.10	**00150**
0.20	25	1.5	1.0	5.84	**00200**
0.25	25	1.9	1.0	3.98	**00250**
0.30	25	1.9	1.0	4.46	**00300**
0.35	25	2.4	1.0	4.10	**00350**
0.40	25	3.0	1.0	4.10	**00400**
0.45	25	3.0	1.0	4.10	**00450**
0.50	25	3.4	1.0	4.10	**00500**
0.55	25	3.9	1.0	4.10	**00550**
0.60	25	3.9	1.0	4.10	**00600**
0.65	25	4.2	1.0	4.10	**00650**
0.70	25	4.8	1.0	3.98	**00700**
0.75	25	4.8	1.0	3.98	**00750**
0.80	25	5.3	1.5	4.10	**00800**
0.85	25	5.3	1.5	4.27	**00850**
0.90	25	6.0	1.5	4.27	**00900**
0.95	25	6.0	1.5	4.27	**00950**
1.00	25	6.8	1.5	4.27	**01000**
1.05	25	6.8	1.5	4.27	**01050**
1.10	25	7.6	1.5	4.27	**01100**
1.15	25	7.6	1.5	4.27	**01150**
1.20	25	8.5	1.5	4.27	**01200**
1.25	25	8.5	1.5	4.27	**01250**
1.30	25	8.5	1.5	4.37	**01300**
1.35	25	9.5	1.5	4.27	**01350**
1.40	25	9.5	1.5	4.27	**01400**
1.45	25	9.5	1.5	4.27	**01450**

P	●
M	○
K	●
N	●
S	○
H	
O	○

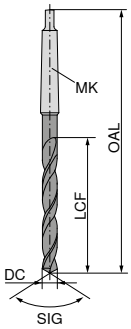
→ v_c Page 52

Twist drill, factory standard, short

≤ 3xD

WT

vap.





SIG 130°
HSS-E

10 285 ...

DC h8 mm	OAL mm	LCF mm	MK	£ T2	
13.0	147	66	1	60.58	**130**
13.5	168	70	2	75.77	**135**
14.0	168	70	2	75.19	**140**
14.5	172	74	2	80.67	**145**
15.0	172	74	2	80.12	**150**
15.5	176	78	2	119.98	**155**
16.0	176	78	2	75.77	**160**
16.5	179	81	2	121.95	**165**
17.0	179	81	2	79.57	**170**
17.5	183	85	2	127.76	**175**
18.0	183	85	2	84.48	**180**
18.5	186	88	2	128.92	**185**
19.0	186	88	2	94.04	**190**
19.5	212	91	3	152.31	**195**
20.0	212	91	3	109.16	**200**
21.0	216	95	3	120.54	**210**
22.0	219	98	3	128.92	**220**
23.0	222	101	3	137.40	**230**
24.0	225	104	3	140.49	**240**
25.0	225	104	3	146.29	**250**
26.0	256	107	4	203.19	**260**
27.0	259	110	4	217.12	**270**
28.0	259	110	4	221.94	**280**
30.0	263	114	4	242.47	**300**

P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c Page 45

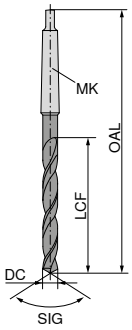
Twist drills, DIN 345

≤ 5xD

N

vap.

WTL





SIG 118°
HSS



SIG 130°
HSS-E

DC h8 mm	OAL mm	LCF mm	MK	10 265 ... £ T2		10 280 ... £ T2	
10.00	168	87	1	22.58	100	56.13	100 1)
10.20	168	87	1	25.63	102	56.75	102 1)
10.50	168	87	1	23.15	105	56.75	105 1)
10.80	175	94	1	30.98	108	63.47	108 1)
11.00	175	94	1	23.71	110	60.58	110 1)
11.20	175	94	1	32.91	112		
11.50	175	94	1	27.54	115	73.56	115 1)
11.80	175	94	1	35.05	118		
12.00	182	101	1	25.38	120	63.47	120 1)
12.20	182	101	1	35.31	122	68.16	122 1)
12.50	182	101	1	26.18	125	64.92	125 1)
12.80	182	101	1	35.87	128		
13.00	182	101	1	27.16	130	71.23	130 1)
13.20	182	101	1	36.47	132		
13.50	189	108	1	30.76	135	84.59	135 1)
13.80	189	108	1	39.31	138		
14.00	189	108	1	29.25	140	75.19	140 1)
14.25	212	114	2	42.72	142	113.77	142 1)
14.50	212	114	2	30.37	145	89.02	145 1)
14.75	212	114	2	46.44	147		
15.00	212	114	2	32.32	150	90.18	150 1)
15.25	218	120	2	43.17	152	114.27	152 1)
15.50	218	120	2	34.00	155	85.24	155 1)
15.75	218	120	2	39.31	157	95.32	157 1)
16.00	218	120	2	34.00	160	92.83	160 1)
16.25	223	125	2	52.23	162		
16.50	223	125	2	37.54	165	95.32	165 2)
16.75	223	125	2	43.17	167		
17.00	223	125	2	38.92	170	90.18	170 2)
17.25	228	130	2	47.86	172	105.37	172 2)
17.50	228	130	2	39.11	175	99.10	175 2)
17.75	228	130	2	48.57	177	109.16	177 2)
18.00	228	130	2	41.01	180	103.70	180 2)
18.25	233	135	2	50.32	182		
18.50	233	135	2	44.81	185	99.10	185 2)
18.75	233	135	2	52.23	187		
19.00	233	135	2	45.26	190	105.37	190 2)
19.25	238	140	2	56.32	192		
19.50	238	140	2	51.09	195		
19.75	238	140	2	58.85	197		
20.00	238	140	2	47.83	200	115.52	200 2)
20.25	243	145	2	63.02	202		
20.50	243	145	2	49.76	205		
20.75	243	145	2	63.60	207		
21.00	243	145	2	54.20	210	136.64	210 2)
21.25	248	150	2	67.35	212		
21.50	248	150	2	62.14	215		
21.75	248	150	2	68.73	217		
22.00	248	150	2	60.18	220	146.88	220 2)
22.25	248	150	2	70.63	222		
22.50	253	155	2	63.60	225	180.73	225 2)
22.75	253	155	2	72.52	227		
23.00	253	155	2	70.43	230	169.51	230 2)
23.50	276	155	3	68.73	235		
23.75	281	160	3	96.37	237		
24.00	281	160	3	73.56	240	185.20	240 2)
24.50	281	160	3	76.26	245		
24.75	281	160	3	105.67	247		
25.00	281	160	3	80.89	250	187.90	250 2)
25.50	286	165	3	82.58	255		
25.75	286	165	3	109.52	257		
26.00	286	165	3	93.12	260	218.12	260 2)
26.50	286	165	3	88.28	265		
26.75	291	170	3	138.97	267		
27.00	291	170	3	90.95	270	251.97	270 2)
27.50	291	170	3	95.57	275		
27.75	291	170	3	136.03	277		
28.00	291	170	3	100.41	280		
28.50	296	175	3	125.64	285		
28.75	296	175	3	195.71	287		
29.00	296	175	3	108.62	290		
29.50	296	175	3	113.41	295		
29.75	296	175	3	144.56	297		
30.00	296	175	3	108.62	300		
30.50	301	180	3	135.29	305		
31.00	301	180	3	131.40	310		
31.50	301	180	3	149.20	315		
32.00	334	185	4	137.97	320		
32.50	334	185	4	158.88	325		
33.00	334	185	4	148.42	330		
33.50	334	185	4	164.47	335		
34.00	339	190	4	173.78	340		
34.50	339	190	4	191.79	345		
35.00	339	190	4	176.68	350		
35.50	339	190	4	204.17	355		
36.00	344	195	4	189.85	360		
36.50	344	195	4	213.45	365		
37.00	344	195	4	207.83	370		
37.50	344	195	4	234.16	375		
38.00	349	200	4	220.04	380		
38.50	349	200	4	264.16	385		
39.00	349	200	4	240.94	390		
39.50	349	200	4	302.08	395		
40.00	349	200	4	250.20	400		
41.00	354	205	4	269.18	410		
42.00	354	205	4	292.59	420		
43.00	359	210	4	311.52	430		
44.00	359	210	4	325.71	440		
45.00	359	210	4	339.81	450		
46.00	364	215	4	353.91	460		
47.00	364	215	4	377.35	470		
48.00	369	220	4	387.03	480		
49.00	369	220	4	405.80	490		
50.00	369	220	4	415.28	500		
51.00	412	225	5	500.22	510		
52.00	412	225	5	537.96	520		
53.00	412	225	5	781.75	530		
54.00	417	230	5	807.94	540		
55.00	417	230	5	821.04	550		

	10 265 ...	10 280 ...
P	○	●
M		○
K	●	●
N	○	●
S		○
H		○
O	○	○

1) nitrided chamfer
2) vaporised

→ v_c Page 47

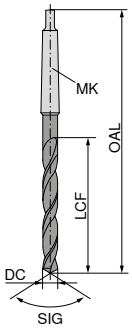
Twist drills, DIN 341, long

≤ 10xD

N

vap.

WTL





SIG 118°
HSS



SIG 130°
HSS-E

DC h8 mm	OAL mm	LCF mm	MK	10 295 ... £ T2		10 297 ... £ T2	
10.00	197	116	1	30.76	100	76.87	100 1)
10.20	197	116	1	35.05	102	73.18	102 1)
10.50	197	116	1	42.20	105	82.40	105 1)
10.80	206	125	1	54.56	108		
11.00	206	125	1	32.91	110	59.82	110 1)
11.20	206	125	1	42.89	112	73.93	112 1)
11.50	206	125	1	32.91	115	62.71	115 1)
11.80	206	125	1	44.14	118	55.56	118 1)
12.00	215	134	1	32.91	120	62.71	120 1)
12.20	215	134	1	58.08	122	54.79	122 1)
12.50	215	134	1	32.66	125	84.77	125 1)
12.80	215	134	1	62.87	128	54.11	128 1)
13.00	215	134	1	32.66	130	64.92	130 1)
13.20	215	134	1	62.87	132		
13.50	223	142	1	36.98	135	67.60	135 1)
13.80	223	142	1	60.58	138	62.14	138 1)
14.00	223	142	1	36.64	140	76.26	140 1)
14.25	245	147	2	57.35	142		
14.50	245	147	2	46.53	145	74.12	145 1)
14.75	245	147	2	57.35	147		
15.00	245	147	2	45.97	150	78.56	150 1)
15.25	251	153	2	57.35	152		
15.50	251	153	2	44.81	155	77.01	155 1)
15.75	251	153	2	58.85	157		
16.00	251	153	2	47.86	160	79.95	160 1)
16.25	257	159	2	64.92	162		
16.50	257	159	2	50.53	165	78.81	165 2)
16.75	257	159	2	63.47	167		
17.00	257	159	2	51.10	170	90.97	170 2)
17.50	263	165	2	57.35	175	87.31	175 2)
17.75	263	165	2	71.59	177		
18.00	263	165	2	56.75	180	92.83	180 2)
18.50	269	171	2	63.60	185	87.31	185 2)
19.00	269	171	2	63.86	190	105.37	190 2)
19.50	275	177	2	73.56	195	106.61	195 2)
20.00	275	177	2	69.86	200	114.74	200 2)
20.50	282	184	2	87.69	205	112.84	205 2)
21.00	282	184	2	79.95	210	134.90	210 2)
21.50	289	191	2	92.83	215		
22.00	289	191	2	87.31	220	146.56	220 2)
22.50	296	198	2	96.37	225		
23.00	296	198	2	90.59	230		
23.50	319	198	3	108.05	235		
24.00	327	206	3	111.07	240	187.90	240 2)
24.50	327	206	3	119.41	245		
25.00	327	206	3	109.91	250	195.06	250 2)
25.50	335	214	3	131.37	255		
26.00	335	214	3	128.49	260		
26.50	335	214	3	137.40	265		
27.00	343	222	3	137.40	270		
27.50	343	222	3	170.49	275		
28.00	343	222	3	153.07	280		
29.00	351	230	3	176.87	290		
29.50	351	230	3	197.96	295		
30.00	351	230	3	176.10	300		
30.50	360	239	3	225.45	305		
31.00	360	239	3	213.67	310		
31.50	360	239	3	238.22	315		
32.00	397	248	4	229.13	320		
33.00	397	248	4	229.13	330		
33.50	397	248	4	265.88	335		
34.00	406	257	4	283.90	340		
35.00	406	257	4	274.78	350		
36.00	416	267	4	315.99	360		
37.00	416	267	4	357.22	370		
37.50	416	267	4	384.68	375		
38.00	426	277	4	343.47	380		
39.00	426	277	4	366.48	390		
40.00	426	277	4	384.68	400		
42.00	436	287	4	435.21	420		
43.00	447	298	4	466.96	430		
44.00	447	298	4	466.96	440		
45.00	447	298	4	644.67	450		
50.00	470	321	4	641.09	500		

P	○	●
M		○
K	●	●
N	○	●
S		○
H		○
O	○	○

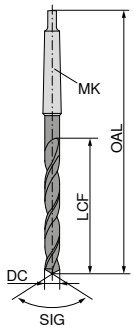
1) nitrided chamfer
2) vaporised

→ v_c Page 49

Twist drills, DIN 1870, extra-long, series 1

> 10xD

WTL





SIG 130°
HSS

10 305 ...

DC h8 mm	OAL mm	LCF mm	MK	£ T2	
10.0	285	185	1	59.44	100 1)
10.5	285	185	1	72.17	105 1)
11.0	300	195	1	67.60	110 1)
11.5	300	195	1	71.22	115 1)
12.0	310	205	1	77.01	120 1)
12.5	310	205	1	79.57	125 1)
13.0	310	205	1	78.81	130 1)
13.5	325	220	1	90.95	135 1)
14.0	325	220	1	90.18	140 1)
14.5	340	220	2	93.48	145 1)
15.0	340	220	2	98.33	150 1)
15.5	355	230	2	105.37	155 1)
16.0	355	230	2	101.00	160 1)
16.5	355	230	2	103.70	165 2)
17.0	355	230	2	103.49	170 2)
17.5	370	245	2	111.07	175 2)
18.0	370	245	2	114.74	180 2)
18.5	370	245	2	126.55	185 2)
19.0	370	245	2	129.24	190 2)
19.5	385	260	2	139.55	195 2)
20.0	385	260	2	147.67	200 2)
21.0	385	260	2	170.49	210 2)
22.0	405	270	2	178.61	220 2)
23.0	405	270	2	209.76	230 2)
24.0	440	290	3	233.75	240 2)
25.0	440	290	3	238.22	250 2)
26.0	440	290	3	256.59	260 2)
28.0	460	305	3	297.80	280 2)
30.0	460	305	3	343.47	300 2)

P	●
M	
K	●
N	●
S	
H	
O	○

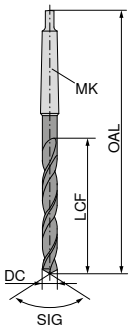
1) nitrided chamfer
2) vaporised

→ v_c Page 51

Twist drills, DIN 1870, extra-long, series 2

> 10xD

WTL





SIG 130°
HSS

10 315 ...

DC h8 mm	OAL mm	LCF mm	MK	£ T2	
10.0	360	235	1	83.35	100 1)
10.5	360	235	1	141.35	105 1)
11.0	375	250	1	95.32	110 1)
11.5	375	250	1	103.70	115 1)
12.0	395	260	1	116.20	120 1)
13.0	395	260	1	123.84	130 1)
13.5	410	275	1	132.18	135 1)
14.0	410	275	1	132.18	140 1)
14.5	425	275	2	132.94	145 1)
15.0	425	275	2	131.37	150 1)
15.5	445	295	2	139.55	155 1)
16.0	445	295	2	137.40	160 1)
16.5	445	295	2	156.74	165 2)
17.0	445	295	2	147.67	170 2)
17.5	465	310	2	159.46	175 2)
18.0	465	310	2	165.86	180 2)
18.5	465	310	2	178.61	185 2)
19.0	465	310	2	181.49	190 2)
19.5	490	325	2	273.69	195 2)
20.0	490	325	2	204.54	200 2)
21.0	490	325	2	219.04	210 2)
22.0	515	345	2	261.05	220 2)
23.0	515	345	2	352.94	230 2)
24.0	555	365	3	297.80	240 2)
25.0	555	365	3	302.27	250 2)
26.0	555	365	3	352.58	260 2)
28.0	580	385	3	412.15	280 2)
30.0	580	385	3	476.40	300 2)

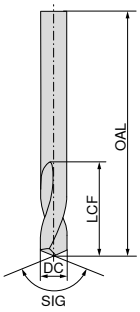
P	●
M	
K	●
N	●
S	
H	
O	○

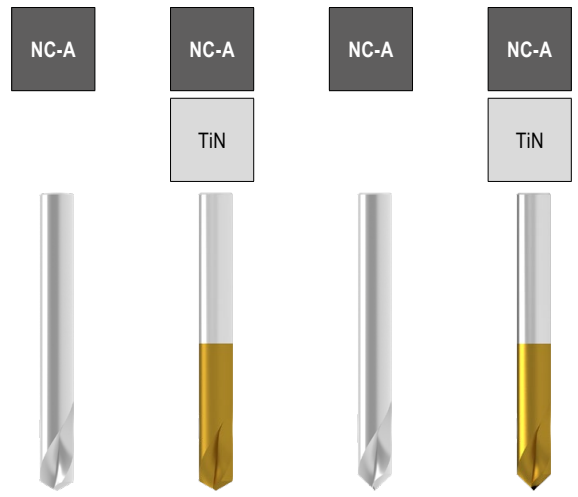
1) nitrided chamfer
2) vaporised

→ v_c Page 51

NC spot drills, factory standard

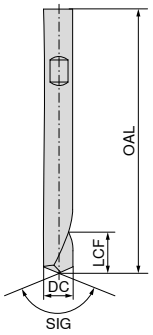
▲ helical flutes

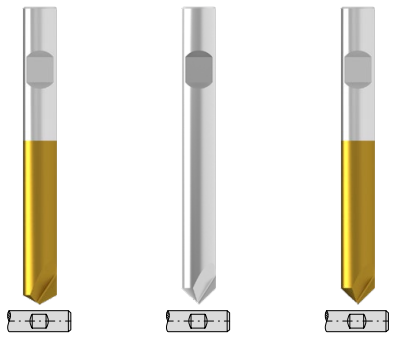




DC h6 mm	OAL mm	LCF mm	SIG 120° HSS 10 510 ... £ T2		SIG 120° HSS 10 512 ... £ T2		SIG 90° HSS 10 520 ... £ T2		SIG 90° HSS 10 522 ... £ T2	
3	46	12.0	10.26	030	22.49	030	9.89	030	22.49	030
4	55	12.0	10.45	040	22.88	040	10.08	040	22.88	040
5	62	14.0	11.05	050	24.35	050	10.65	050	24.35	050
6	66	16.0	11.01	060	25.62	060	10.65	060	25.62	060
8	79	21.0	18.22	080	41.28	080	18.20	080	41.28	080
10	89	25.0	20.73	100	45.53	100	19.02	100	45.53	100
12	102	30.0	29.63	120	66.55	120	29.25	120	66.55	120
16	115	37.5	38.38	160	86.99	160	38.11	160	86.99	160
20	131	45.0	61.89	200	141.54	200	61.37	200	141.54	200

▲ with clamping flat to DIN 1835 B





DC h6 mm	OAL mm	LCF mm	SIG 120° HSS 10 513 ... £ T2		SIG 90° HSS 10 521 ... £ T2		SIG 90° HSS 10 523 ... £ T2	
6	66	7.0	23.32	060	10.45	060	23.32	060
8	79	9.0	33.19	080	14.69	080	33.19	080
10	89	11.5	37.02	100	16.45	100	37.02	100
12	102	14.0	52.03	120	22.85	120	52.03	120
16	115	18.0	68.48	160	29.84	160	68.48	160
20	131	23.0	99.41	200	42.62	200	99.41	200

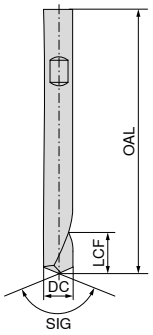
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

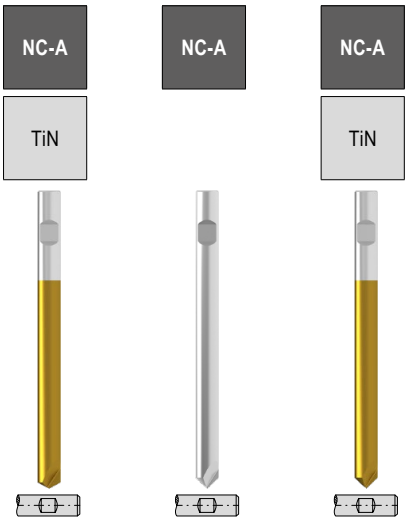
→ v_c Page 53

Suitable only for spot drilling!

NC spot drill factory standard long

▲ with clamping flat to DIN 1835 B





DC h6 mm	OAL mm	LCF mm	10 532 ... SIG 120° HSS £ T2		10 526 ... SIG 90° HSS £ T2		10 528 ... SIG 90° HSS £ T2	
6	93	7.0	29.06	**060**	12.80	**060**	29.06	**060**
8	117	9.0	45.81	**080**	19.95	**080**	45.81	**080**
10	133	11.5	50.58	**100**	22.03	**100**	50.58	**100**
12	151	14.0	60.01	**120**	26.17	**120**	60.01	**120**
16	178	18.0	92.87	**160**	39.91	**160**	92.87	**160**
20	205	23.0	130.21	**200**	55.39	**200**	130.21	**200**

P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

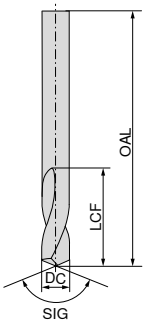
→ v_c Page 53

Suitable only for spot drilling!

NC spot drills, factory standard, long

▲ helical flutes

NC-A





SIG 90°
HSS

10 525 ...

DC h6 mm	OAL mm	LCF mm	£ T2	
6.35	105	17	17.15	**025**
8.00	118	21	31.37	**030**
9.52	132	25	31.71	**040**
12.70	159	30	44.80	**050**
15.87	186	37	39.47	**060**

P	●
M	○
K	●
N	○
S	○
H	
O	○

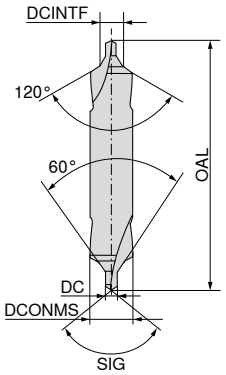
→ v_c Page 53

Suitable only for spot drilling!

Centre drills, DIN 333, form B

▲ with protective countersink 120°

ZB





Right-hand
SIG 118°
HSS

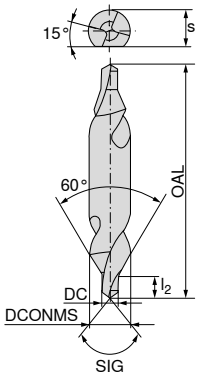
10 480 ...

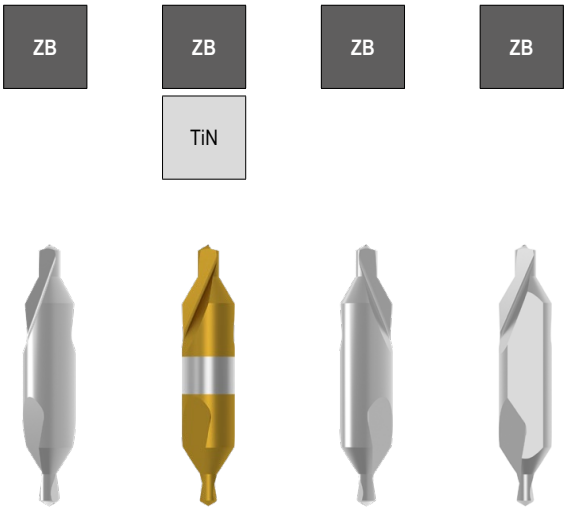
DC mm	DCONMS h8 mm	DCINTF k12 mm	OAL mm	£ T2	
1.00	4.0	2.12	35.5	10.13	**100**
1.25	5.0	2.65	40.0	11.23	**125**
1.60	6.3	3.35	45.0	10.50	**160**
2.00	8.0	4.25	50.0	11.23	**200**
2.50	10.0	5.30	56.0	13.84	**250**
3.15	11.2	6.70	62.0	20.12	**315**
4.00	14.0	8.50	69.0	26.40	**400**
5.00	18.0	10.60	77.0	34.25	**500**

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c Page 53

Centre drills, DIN 333, form A





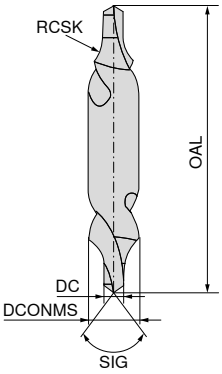
DC	s	DCONMS $_{h8}$	OAL	l_2		Right-hand SIG 118° HSS 10 415 ... £ T2		Right-hand SIG 118° HSS 10 425 ... £ T2		Left-hand SIG 118° HSS 10 435 ... £ T2		Right-hand SIG 118° HSS-E 10 445 ... £ T2	
mm	mm	mm	mm	mm									
0.50		3.15	25.0	0.8		7.20	**050** [2]	17.35	**050** [2]	10.13	**050** [2]		
0.80		3.15	25.0	1.1		7.01	**080** [2]	16.58	**080** [2]	9.94	**080** [2]		
1.00		3.15	31.5	1.3		6.44	**100**	15.32	**100**	9.04	**100**		
1.25		3.15	31.5	1.6		5.57	**125**	17.51	**125**	10.50	**125**		
1.60		4.00	35.5	2.0		5.90	**160**	14.43	**160**	9.66	**160**		
1.60	3.25	4.00	35.5	2.0								11.07	**160** [1]
2.00		5.00	40.0	2.5		4.84	**200**	14.77	**200**	10.34	**200**		
2.00	4.20	5.00	40.0	2.5								8.56	**200** [1]
2.50		6.30	45.0	3.1		5.57	**250**	17.35	**250**	11.07	**250**		
2.50	5.35	6.30	45.0	3.1								9.66	**250** [1]
3.15		8.00	50.0	3.9		9.22	**315**	21.56	**315**	14.01	**315**		
3.15	6.95	8.00	50.0	3.9								12.98	**315** [1]
4.00		10.00	56.0	5.0		14.21	**400**	33.95	**400**	18.45	**400**		
4.00	8.40	10.00	56.0	5.0								24.69	**400** [1]
5.00		12.50	63.0	6.3		20.47	**500**	48.66	**500**	28.94	**500**		
5.00	10.95	12.50	63.0	6.3								26.00	**500** [1]
6.30		16.00	71.0	8.0		29.85	**630**	72.24	**630**	42.39	**630**		
6.30	14.00	16.00	71.0	8.0								60.43	**630** [1]
P						●		●		●		●	
M						○		○		○		○	
K						●		●		●		●	
N						○		○		○		○	
S						○		○		○		○	
H													
O						○		○		○		○	

1) with flat
2) Single ended

→ v_c Page 53

Centre drills, DIN 333, form R

ZB ZB





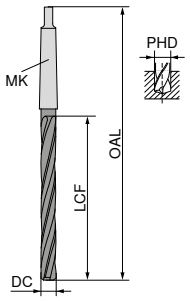


DC mm	DCONMS h8 mm	OAL mm	RCSK mm	Right-hand SIG 118° HSS 10 455 ... £ T2		Left-hand SIG 118° HSS 10 475 ... £ T2	
0.50	3.15	25.0	2.00	7.37	**050** [1]		
0.80	3.15	25.0	2.50	7.20	**080** [1]	14.43	**080** [1]
1.00	3.15	31.5	2.90	6.44	**100**	15.12	**100**
1.25	3.15	31.5	3.15	7.37	**125**	13.70	**125**
1.60	4.00	35.5	4.00	6.09	**160**	11.01	**160**
2.00	5.00	40.0	5.00	6.44	**200**	11.18	**200**
2.50	6.30	45.0	6.30	7.37	**250**	11.56	**250**
3.15	8.00	50.0	8.00	9.41	**315**	16.27	**315**
4.00	10.00	56.0	10.00	13.48	**400**	23.15	**400**
5.00	12.50	63.0	12.50	20.69	**500**	45.90	**500**
6.30	16.00	71.0	16.00	30.80	**630**		
P				●		●	
M				○		○	
K				●		●	
N				○		○	
S				○		○	
H							
O				○		○	

1) Single ended

→ v_c Page 53

Core drills (spiral countersinks)



N

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SIG 120°
HSS

10 228 ...

DC h8 mm	OAL mm	LCF mm	PHD mm	MK	£ T2	
12.00	182	101	8.4	1	57.32	**120**
12.75	182	101	9.1	1	44.70	**127**
13.00	182	101	9.1	1	39.11	**130**
13.75	189	108	9.8	1	44.65	**137**
14.00	189	108	9.8	1	39.67	**140**
14.75	212	114	10.5	2	49.76	**147**
15.00	212	114	10.5	2	44.65	**150**
15.75	218	120	11.2	2	52.45	**157**
16.00	218	120	11.2	2	46.65	**160**
16.75	223	125	11.9	2	54.87	**167**
17.00	223	125	11.9	2	49.76	**170**
17.75	228	130	12.6	2	57.50	**177**
18.00	228	130	12.6	2	49.76	**180**
18.70	233	135	13.3	2	58.08	**187**
19.00	233	135	13.3	2	56.92	**190**
19.70	238	140	14.0	2	58.08	**197**
20.00	238	140	14.0	2	56.92	**200**
20.70	243	145	14.6	2	66.28	**207**
21.00	243	145	14.6	2	66.57	**210**
21.70	248	150	15.3	2	67.92	**217**
22.00	248	150	15.3	2	67.16	**220**
22.70	253	155	16.0	2	73.83	**227**
23.00	253	155	16.0	2	73.08	**230**
23.70	281	160	16.6	3	76.90	**237**
24.00	281	160	16.6	3	75.77	**240**
24.70	281	160	17.3	3	82.03	**247**
25.00	281	160	17.3	3	82.05	**250**
25.70	286	165	18.0	3	85.81	**257**
26.00	286	165	18.0	3	86.52	**260**
26.70	291	170	18.6	3	101.99	**267**
27.00	291	170	18.6	3	100.05	**270**
27.70	291	170	19.3	3	101.00	**277**
28.00	291	170	19.3	3	100.86	**280**
28.70	296	175	20.0	3	110.48	**287**
29.00	296	175	20.0	3	111.67	**290**
29.70	296	175	20.5	3	117.49	**297**
30.00	296	175	20.5	3	115.52	**300**

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c Page 53

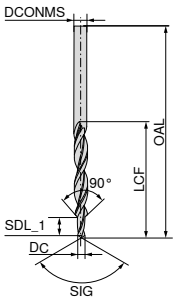
Stepped drills, DIN 8378

▲ Countersinking angle 90°
▲ for tapping drill holes according to DIN 336, Table 1 with 90 ° chamfer and for through holes according to DIN EN 20273 – medium
▲ the feed rate has to be selected based on the small Ø DC

DIN 8378

SB

vap.





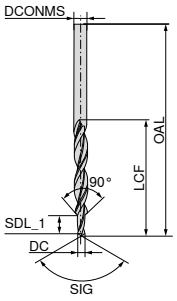
SIG 118°
HSS

10 365 ...

For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	£ T2	
M3	2.5	3.4	70	8.8	39	25.84	030
M4	3.3	4.5	80	11.4	47	28.31	040
M5	4.2	5.5	93	13.6	57	29.25	050
M6	5.0	6.6	101	16.5	63	32.66	060
M8	6.8	9.0	125	21.0	81	36.64	080
M10	8.5	11.0	142	25.5	94	47.83	100
M12	10.2	13.5	160	30.0	108	59.82	120

▲ for through holes according to DIN EN 20273 – fine
▲ with 90° screw head countersink
▲ the feed rate has to be selected based on the small Ø DC

DIN 8374





SIG 118°
HSS

10 355 ...

For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	£ T2	
M3	3.2	6.0	93	9	57	30.37	030
M4	4.3	8.0	117	11	75	35.12	040
M5	5.3	10.0	133	13	87	44.14	050
M6	6.4	11.5	142	15	94	67.09	060
M8	8.4	15.0	169	19	114	83.21	080
M10	10.5	19.0	198	23	135	128.49	100

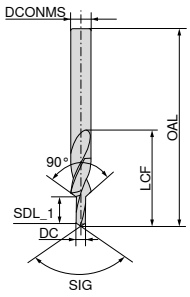
P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c Page 53

Stepped drills, overall length to DIN 1897

▲ Countersinking angle 90°
▲ for tapping drill holes according to DIN 336, Table 1 with 90 ° chamfer and for through holes according to DIN EN 20273 – medium
▲ the feed rate has to be selected based on the small Ø DC

SB





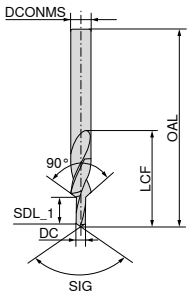
SIG 118°
HSS

10 320 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T2	
M3	2.5	3.4	52	8.8	20	16.69	030
M4	3.3	4.5	58	11.4	24	16.93	040
M5	4.2	5.5	66	13.6	28	18.22	050
M6	5.0	6.6	70	16.5	31	19.34	060
M8	6.8	9.0	84	21.0	40	22.42	080
M10	8.5	11.0	95	25.5	47	29.06	100
M12	10.2	13.5	107	30.0	54	37.24	120

▲ for through holes according to DIN EN 20273 – fine
▲ with 90° screw head countersink
▲ the feed rate has to be selected based on the small Ø DC

DIN 8374





SIG 118°
HSS

10 330 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T2	
M3	3.2	6.0	66	9	28	19.34	030
M4	4.3	8.0	79	11	37	22.08	040
M5	5.3	10.0	89	13	43	27.16	050
M6	6.4	11.5	95	15	47	30.98	060
M8	8.4	15.0	111	19	56	35.12	080
M10	10.5	19.0	127	23	64	52.42	100

P	●
M	○
K	●
N	○
S	○
H	
O	○

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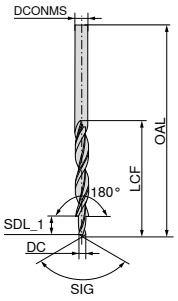
Stepped drills, DIN 8376

▲ Countersinking angle 180°
▲ for through holes according to DIN EN 20273 – Medium
▲ for screw heads to DIN 974-1 – Series 1
▲ the feed rate has to be selected based on the small Ø DC

DIN 8376

SB

vap.





SIG 118°
HSS

10 375 ...

For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	£ T2		
M3	3.4	6	93	9	57	30.37	**030**	1)
M4	4.5	8	117	11	75	35.12	**040**	
M5	5.5	10	133	13	87	42.16	**050**	
M6	6.6	11	142	15	94	48.42	**060**	
M8	9.0	15	169	19	114	62.14	**080**	
M10	11.0	18	191	23	130	129.24	**100**	

P	●
M	○
K	●
N	○
S	○
H	
O	○

1) DCONMS not according to DIN 974-1

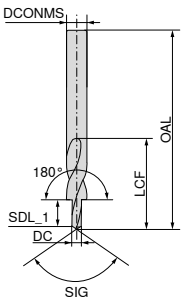
→ v_c Page 53

Stepped drills, factory standard, total length according to DIN 1897

▲ Countersinking angle 180°
▲ for through holes according to DIN EN 20273 – Medium
▲ for screw heads to DIN 974-1 – Series 1
▲ the feed rate has to be selected based on the small Ø DC

DIN 8376

SB





SIG 118°
HSS

10 340 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T2		
M3	3.4	6	66	9	28	18.79	**030**	1)
M4	4.5	8	79	11	37	21.28	**040**	
M5	5.5	10	89	13	43	25.84	**050**	
M6	6.6	11	95	15	47	30.37	**060**	
M8	9.0	15	111	19	56	38.72	**080**	
M10	11.0	18	123	23	62	56.75	**100**	

P	●
M	○
K	●
N	○
S	○
H	
O	○

1) DCONMS not according to DIN 974-1

→ v_c Page 53

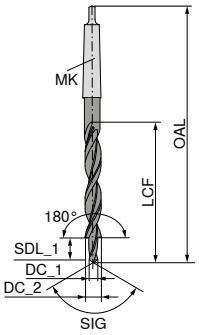
Stepped drills, DIN 8377

▲ Countersinking angle 180°
▲ for through holes according to DIN EN 20273 – Medium
▲ for screw heads to DIN 974-1 – Series 1
▲ the feed rate has to be selected based on the small Ø DC

DIN 8377

SB

vap.





SIG 118°
HSS

							10 405 ...	
For threads	DC_1 h9 mm	DC_2 mm	OAL mm	SDL_1 mm	LCF mm	MK	£ T2	
M6	6.6	11	175	15	94	1	62.14	060
M8	9.0	15	212	19	114	2	81.88	080
M10	11.0	18	228	23	130	2	109.16	100
M12	13.5	20	238	27	140	2	132.18	120
M14	15.5	24	281	31	160	3	169.51	140
M16	17.5	26	286	35	165	3	198.74	160

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c Page 53

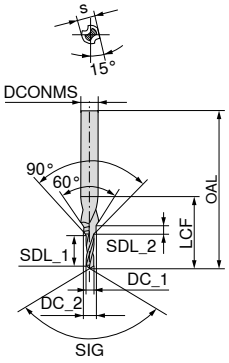
Stepped drills for centring, factory standard

▲ with flat
▲ Countersinking angle 60°
▲ Special drill for creating tapping drill holes with centring, 60° countersinking angle according to DIN 332, sheet 2, form D.
▲ Point thinning ≥ Ø 3,3 mm
▲ the feed rate has to be selected based on the small Ø DC



SB

vap.





SIG 118°
HSS

10 350 ...

For threads	DC_1 h8 mm	DCONMS h7 mm	DC_2 mm	s mm	OAL mm	SDL_1 mm	LCF mm	SDL_2 mm	£ T2	
M4	3.3	8.0	4.3	6.75	63	11.0	23	1.60	70.27	**040**
M5	4.2	10.0	5.3	8.45	67	13.0	27	2.15	79.95	**050**
M6	5.0	12.5	6.4	10.45	71	16.0	33	2.90	87.31	**060**
M8	6.8	14.0	8.4	12.50	88	19.5	41	3.50	82.63	**080**
M10	8.5	16.0	10.5	14.85	94	23.0	47	4.70	92.83	**100**
M12	10.2	20.0	13.0	18.45	105	28.0	59	6.50	122.46	**120**
M16	14.0	25.0	17.0	23.40	132	33.0	67	8.30	174.17	**160**
M20	17.5	31.5	21.0	29.35	145	38.0	77	10.35	233.75	**200**

P	●
M	○
K	●
N	○
S	○
H	
O	○

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Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values – Hole depth 3xD

Index	10 122 ... Type VX-TiN		10 113 ... Type UNI-PM-TiN		10 107 ... Type UNI-TiN		10 105 ... Type N		10 130 ... Type VA	
	v_c m/min	F	v_c m/min	F	v_c m/min	F	v_c m/min	F	v_c m/min	F
P.1.1	46	6	44	6	46	6	28	6	38	5
P.1.2	39	5	37	5	39	5	24	5	32	4
P.1.3	35	5	33	5	35	5	21	5	29	4
P.1.4	32	5	31	5	32	5	20	5	27	4
P.1.5	28	5	26	5	28	5	17	5		
P.2.1	35	5	32	6	35	5	17	4	25	5
P.2.2	24	4	23	5	24	4	12	3	18	4
P.2.3	21	4	19	5	21	4	10	3		
P.2.4	19	3	18	4	19	3	9	2		
P.3.1	17	4	21	4	17	4	13	4		
P.3.2	13	3	16	3	13	3				
P.3.3	12	3	15	3	12	3				
P.4.1	18	4	14	3	18	4			15	3
P.4.2	17	3	14	2	17	3			14	2
M.1.1	15	4			15	4			13	3
M.2.1	12	3			12	3			11	2
M.3.1	10	3			10	3			9	2
K.1.1	41	6	46	6	41	6	30	6		
K.1.2	33	6	37	6	33	6	24	6		
K.2.1	35	6	39	6	35	6	26	6		
K.2.2	27	5	30	5	27	5	20	5		
K.3.1	35	6	39	6	35	6	26	6		
K.3.2	27	5	30	5	27	5	20	5		
N.1.1									80	7
N.1.2									80	7
N.2.1	75	6	69	6	75	6	50	6	65	6
N.2.2	60	5	55	5	60	5	40	5	52	5
N.2.3	52	5	48	5	52	5	35	5	46	5
N.3.1	69	5	64	5	69	5	60	5	60	5
N.3.2	41	4	39	4	41	4	36	4	36	4
N.3.3	55	4	52	4	55	4	48	4	48	4
N.4.1	70	5	60	5	70	5	45	5	6	5
S.1.1			7	2					8	1
S.1.2			6	1					6	1
S.2.1			6	2					7	1
S.2.2										
S.2.3										
S.3.1	9	2			9	2			10	2
S.3.2	6	1			6	1			7	1
S.3.3									6	2
H.1.1			6	1						
H.1.2										
H.1.3										
H.1.4										
H.2.1			10	3						
H.3.1										
O.1.1	29	4	23	4	29	4	20	5		
O.1.2	29	4			29	4	20	5		
O.2.1	29	4	23	4	29	4	20	5		
O.2.2	29	4	23	4	29	4	20	5		
O.3.1										

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Index	10 106 ... Type WNX		10 109 ... Type WT		10 110 ... Type WT-TiN		10 285 ... Type WT-MK	
	v_c m/min	F	v_c m/min	F	v_c m/min	F	v_c m/min	F
P.1.1	38	6	38	6	44	6	38	6
P.1.2	32	5	32	5	37	5	32	5
P.1.3	29	5	29	5	33	5	29	5
P.1.4	27	5	27	5	31	5	27	5
P.1.5	23	5	23	5	26	5	23	5
P.2.1	28	6	25	5	29	5	25	5
P.2.2	20	5	18	4	20	4	18	4
P.2.3	17	5	15	4	17	4	15	4
P.2.4	15	4	14	3	16	3	14	3
P.3.1	18	4	16	4	18	4	16	4
P.3.2	14	3	12	3	14	3	12	3
P.3.3	13	3	12	3	14	3	12	3
P.4.1	13	3	14	3	17	3	14	3
P.4.2	12	2	14	2	16	2	14	2
M.1.1			12	3	14	3	12	3
M.2.1			10	2	12	2	10	2
M.3.1			8	2	10	2	8	2
K.1.1	40	6	35	6	40	6	35	6
K.1.2	32	6	28	6	32	6	28	6
K.2.1	34	6	30	6	34	6	30	6
K.2.2	26	5	23	5	26	5	23	5
K.3.1	34	6	30	6	34	6	30	6
K.3.2	26	5	23	5	26	5	23	5
N.1.1								
N.1.2								
N.2.1	60	6						
N.2.2	48	5						
N.2.3	42	5						
N.3.1	56	5	62	5	71	5	62	5
N.3.2	34	4	37	4	43	4	37	4
N.3.3	45	4						
N.4.1	55	5						
S.1.1	6	2	8	1	9	1	8	1
S.1.2	5	1	6	1	7	1	6	1
S.2.1	5	2	7	1	8	1	7	1
S.2.2					5	1		
S.2.3					6	1		
S.3.1			10	2	12	2	10	2
S.3.2			7	1	7	1	7	1
S.3.3			6	2	7	2	6	2
H.1.1	5	1	4	1	5	1	4	1
H.1.2								
H.1.3								
H.1.4								
H.2.1	9	3	8	3	9	3	8	3
H.3.1								
O.1.1	20	4						
O.1.2								
O.2.1	20	4						
O.2.2	20	4						
O.3.1								

When drilling tough materials which tend to jam, chips should be removed at drilling depth ≥ 4xD and the cutting speed v_c should be reduced as follows: at drilling depths > 4xD by 10 %, at drilling depths > 6xD by 15–20 %.
It is also recommended to use an emulsion for cooling.

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 54**

Cutting data standard values – Hole depth 5xD

Index	10 124 ... Type VX-TiN		10 173 ... Type UNI-PM-TiN		10 171 ... Type UNI-TiN		10 152 ... Type N		10 175 ... Type VA	
	v_c m/min	F	v_c m/min	F	v_c m/min	F	v_c m/min	F	v_c m/min	F
P.1.1	**46**	6	**44**	6	**46**	6	28	6	38	5
P.1.2	**39**	5	**37**	5	**39**	5	24	5	32	4
P.1.3	**35**	5	**33**	5	**35**	5	21	5	29	4
P.1.4	**32**	5	**31**	5	**32**	5	20	5	27	4
P.1.5	**28**	5	**26**	5	**28**	5	17	5		
P.2.1	**35**	5	**32**	6	**35**	5	17	4	25	5
P.2.2	**24**	4	**23**	5	**24**	4	12	3	18	4
P.2.3	**21**	4	**19**	5	**21**	4	10	3		
P.2.4	**19**	3	**18**	4	**19**	3	9	2		
P.3.1	**17**	4	**21**	4	**17**	4	13	4		
P.3.2	**13**	3	**16**	3	**13**	3				
P.3.3	**12**	3	**15**	3	**12**	3				
P.4.1	**18**	4	**14**	3	**18**	4			15	3
P.4.2	**17**	3	**14**	2	**17**	3			14	2
M.1.1	**15**	4			**15**	4			**13**	3
M.2.1	**14**	4			**14**	4			**12**	3
M.3.1	**10**	3			**10**	3			**9**	2
K.1.1	**41**	6	**46**	6	**41**	6	**30**	6		
K.1.2	**33**	6	**37**	6	**33**	6	**24**	6		
K.2.1	**35**	6	**39**	6	**35**	6	**26**	6		
K.2.2	**27**	5	**30**	5	**27**	5	**20**	5		
K.3.1	**35**	6	**39**	6	**35**	6	**26**	6		
K.3.2	**27**	5	**30**	5	**27**	5	**20**	5		
N.1.1									**80**	7
N.1.2									**80**	7
N.2.1	75	6	69	6	75	6	50	6	**65**	6
N.2.2	60	5	55	5	60	5	40	5	**52**	5
N.2.3	52	5	48	5	52	5	35	5	**46**	5
N.3.1	69	5	64	5	69	5	60	5	**60**	5
N.3.2	41	4	39	4	41	4	36	4	**36**	4
N.3.3	55	4	52	4	55	4	48	4	**48**	4
N.4.1	75	6	65	6	70	6	45	6	**60**	6
S.1.1			7	2					8	1
S.1.2			6	1					6	1
S.2.1			6	2					7	1
S.2.2										
S.2.3										
S.3.1	9	2			9	2			10	2
S.3.2	6	1			6	1			7	1
S.3.3									6	1
H.1.1			6	1						
H.1.2										
H.1.3										
H.1.4										
H.2.1			10	3						
H.3.1										
O.1.1	29	4	23	4	29	4	20	5		
O.1.2	29	4			29	4	20	5		
O.2.1	29	4	23	4	29	4	20	5		
O.2.2	29	4	23	4	29	4	20	5		
O.3.1										

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Index	10 161 ... Type W		10 168 ... Type WTL		10 170 ... Type WTL-TiN		10 265 ... Type N-MK		10 280 ... Type WTL-MK	
	v_c m/min	F	v_c m/min	F	v_c m/min	F	v_c m/min	F	v_c m/min	F
P.1.1			**32**	6	**37**	6	28	6	**32**	6
P.1.2			**27**	5	**31**	5	24	5	**27**	5
P.1.3			**24**	5	**28**	5	21	5	**24**	5
P.1.4			**23**	5	**26**	5	20	5	**23**	5
P.1.5			**19**	5	**22**	5	17	5	**19**	5
P.2.1			**20**	5	**22**	5	17	4	**20**	5
P.2.2			**14**	4	**16**	4	12	3	**14**	4
P.2.3			**12**	4	**13**	4	10	3	**12**	4
P.2.4			**11**	3	**12**	3	9	2	**11**	3
P.3.1			**15**	4	**17**	4	13	4	**15**	4
P.3.2			**11**	3	**13**	3			**11**	3
P.3.3			**10**	3	**12**	3			**10**	3
P.4.1			**10**	3	**12**	3			**10**	3
P.4.2			**10**	2	**11**	2			**10**	2
M.1.1			9	3	11	3			9	3
M.2.1			8	2					8	2
M.3.1										
K.1.1			**35**	6	**40**	6	**30**	6	**35**	6
K.1.2			**28**	6	**32**	6	**24**	6	**28**	6
K.2.1			**29**	6	**34**	6	**26**	6	**29**	6
K.2.2			**22**	5	**26**	5	**20**	5	**22**	5
K.3.1			**29**	6	**34**	6	**26**	6	**29**	6
K.3.2			**22**	5	**26**	5	**20**	5	**22**	5
N.1.1	**70**	7	**69**	7					**69**	7
N.1.2	**70**	7	**69**	7					**69**	7
N.2.1	**60**	6	**58**	6	66	6	50	6	**58**	6
N.2.2			**46**	5	53	5	40	5	**46**	5
N.2.3			**40**	5	46	5	35	5	**40**	5
N.3.1			**69**	5	79	5	60	5	**69**	5
N.3.2			**41**	4	48	4	36	4	**41**	4
N.3.3	**56**	4	**55**	4	63	4	48	4	**55**	4
N.4.1	**60**	6	**6**	6	60	6	45	6	**50**	6
S.1.1			7	2	8	2			7	2
S.1.2			6	1	6	1			6	1
S.2.1			6	2	7	2			6	2
S.2.2			3	1	4	1			3	1
S.2.3			4	1	5	1			4	1
S.3.1			6	2	7	2			6	2
S.3.2			4	1	4	1			4	1
S.3.3										
H.1.1			5	1	5	1			5	1
H.1.2										
H.1.3										
H.1.4										
H.2.1			9	3	11	3			9	3
H.3.1										
O.1.1			23	4	26	4	20	5	23	4
O.1.2			23	4	26	4	20	5	23	4
O.2.1			23	4	26	4	20	5	23	4
O.2.2			23	4	26	4	20	5	23	4
O.3.1										

When drilling tough materials which tend to jam, chips should be removed at drilling depth ≥ 4xD and the cutting speed v_c should be reduced as follows: at drilling depths > 4xD by 10 %, at drilling depths > 6xD by 15–20 %.
It is also recommended to use an emulsion for cooling.

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 54**

Cutting data standard values – Hole depth 10xD

Index	10 224 ... Type NC-TiALN		10 270 ... Type UNI-TiN		10 225 ... Type WTL		10 210 ... Type WTL-TiN	
	v_c m/min	F	v_c m/min	F	v_c m/min	F	v_c m/min	F
P.1.1	41	7	**41**	6	**29**	6	29	6
P.1.2	34	6	**35**	5	**25**	5	25	5
P.1.3	30	6	**31**	5	**22**	5	22	5
P.1.4	28	6	**29**	5	**20**	5	20	5
P.1.5	24	6	**25**	5	**17**	5	17	5
P.2.1	25	5	**31**	5	**18**	5	18	5
P.2.2	17	4	**22**	4	**12**	4	12	4
P.2.3	15	4	**19**	4	**11**	4	11	4
P.2.4	14	3	**17**	3	**10**	3	10	3
P.3.1	19	5	**16**	4	**13**	4	13	4
P.3.2			**12**	3	**10**	3	10	3
P.3.3			**10**	2	**8**	3	8	3
P.4.1	13	4	**16**	4	**9**	3		
P.4.2	12	3	**15**	3	**9**	2		
M.1.1	12	4	**13**	4	8	3		
M.2.1	8	3	**8**	3	2	2		
M.3.1			**9**	3				
K.1.1	**43**	7	**37**	6	**31**	6	**31**	6
K.1.2	**35**	7	**30**	6	**25**	6	**25**	6
K.2.1	**37**	7	**32**	6	**26**	6	**26**	6
K.2.2	**28**	6	**24**	5	**20**	5	**20**	5
K.3.1	**37**	7	**32**	6	**26**	6	**26**	6
K.3.2	**28**	6	**24**	5	**20**	5	**20**	5
N.1.1					**62**	7		
N.1.2					**62**	7		
N.2.1	72	7	67	6	**52**	6	52	6
N.2.2	58	6	54	5	**41**	5	41	5
N.2.3	51	6	47	5	**36**	5	36	5
N.3.1	87	6	62	5	**62**	5	62	5
N.3.2	52	5	37	4	**37**	4	37	4
N.3.3	70	5	50	4	**50**	4	50	4
N.4.1	50	6	50	6	**50**	6	50	5
S.1.1					6	2		
S.1.2					5	1		
S.2.1					5	2		
S.2.2					3	1		
S.2.3					4	1		
S.3.1			8	2	5	2		
S.3.2			5	1	3	1		
S.3.3								
H.1.1					4	1		
H.1.2								
H.1.3								
H.1.4								
H.2.1					8	3		
H.3.1								
O.1.1	29	6	26	4	21	4	21	4
O.1.2	29	6	26	4	21	4	21	4
O.2.1	29	6	26	4	21	4	21	4
O.2.2	29	6	26	4	21	4	21	4
O.3.1								

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Index	10 200 ... Type WTW		10 295 ... Type N-MK		10 297 ... Type WTL-MK	
	v_c m/min	F	v_c m/min	F	v_c m/min	F
P.1.1			25	6	**29**	6
P.1.2			21	5	**25**	5
P.1.3			19	5	**22**	5
P.1.4			18	5	**20**	5
P.1.5			15	5	**17**	5
P.2.1			15	4	**18**	5
P.2.2			11	3	**12**	4
P.2.3			9	3	**11**	4
P.2.4			8	2	**10**	3
P.3.1			12	4	**13**	4
P.3.2					**10**	3
P.3.3					**8**	3
P.4.1					**9**	3
P.4.2					**9**	2
M.1.1					8	3
M.2.1					2	2
M.3.1						
K.1.1			**27**	6	**31**	6
K.1.2			**22**	6	**25**	6
K.2.1			**23**	6	**26**	6
K.2.2			**18**	5	**20**	5
K.3.1			**23**	6	**26**	6
K.3.2			**18**	5	**20**	5
N.1.1	**72**	7			**62**	7
N.1.2	**72**	7			**62**	7
N.2.1			45	6	**52**	6
N.2.2			36	5	**41**	5
N.2.3			32	5	**36**	5
N.3.1			54	5	**62**	5
N.3.2			32	4	**37**	4
N.3.3			43	4	**50**	4
N.4.1			60	6	**50**	6
S.1.1					6	2
S.1.2					5	1
S.2.1					5	2
S.2.2					3	1
S.2.3					4	1
S.3.1					5	2
S.3.2					3	1
S.3.3						
H.1.1					4	1
H.1.2						
H.1.3						
H.1.4						
H.2.1					8	3
H.3.1						
O.1.1			18	5	21	4
O.1.2			18	5	21	4
O.2.1			18	5	21	4
O.2.2			18	5	21	4
O.3.1						

When drilling tough materials which tend to jam, chips should be removed at drilling depth ≥ 4xD and the cutting speed v_c should be reduced as follows: at drilling depths > 4xD by 10 %, at drilling depths > 6xD by 15–20 %.
It is also recommended to use an emulsion for cooling.

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 54**

Cutting data standard values – hole depth greater than 10xD

Index	10 235 ... Type WTL-R1		10 245 ... Type WTL-R2		10 255 ... Type WTL-R3		10 236 ... Type WTL-TiAlN-R1	
	v_c m/min	F	v_c m/min	F	v_c m/min	F	v_c m/min	F
P.1.1	21	5	21	5	21	5	24	5
P.1.2	18	4	18	4	18	4	21	4
P.1.3	16	4	16	4	16	4	18	4
P.1.4	15	4	15	4	15	4	17	4
P.1.5	13	4	13	4	13	4	14	4
P.2.1	13	4	13	4	13	4	15	4
P.2.2	9	3	9	3	9	3	10	3
P.2.3	8	3	8	3	8	3	9	3
P.2.4	7	2	7	2	7	2	8	2
P.3.1	10	3	10	3	10	3	11	3
P.3.2	7	2	7	2	7	2	8	2
P.3.3	6	2	6	2	6	2	7	2
P.4.1								
P.4.2								
M.1.1								
M.2.1								
M.3.1								
K.1.1	23	5	23	5	23	5	26	5
K.1.2	18	5	18	5	18	5	21	5
K.2.1	19	5	19	5	19	5	22	5
K.2.2	15	4	15	4	15	4	17	4
K.3.1	19	5	19	5	19	5	22	5
K.3.2	15	4	15	4	15	4	17	4
N.1.1	45	6	45	6	45	6	52	6
N.1.2	45	6	45	6	45	6	52	6
N.2.1	38	5	38	5	38	5	43	5
N.2.2	30	4	30	4	30	4	35	4
N.2.3	26	4	26	4	26	4	30	4
N.3.1	45	4	45	4	45	4	52	4
N.3.2	27	3	27	3	27	3	31	3
N.3.3	36	3	36	3	36	3	41	3
N.4.1	55	5	55	5	55	5	60	6
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	15	3	15	3	15	3	17	3
O.1.2	15	3	15	3	15	3	17	3
O.2.1	15	3	15	3	15	3	17	3
O.2.2	15	3	15	3	15	3	17	3
O.3.1								

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Index	10 246 ... Type WTL-TiAlN-R2		10 256 ... Type WTL-TiAlN-R3		10 305 ... Type WTL-MK-R1		10 315 ... Type WTL-MK-R2	
	v_c m/min	F	v_c m/min	F	v_c m/min	F	v_c m/min	F
P.1.1	24	5	24	5	21	5	21	5
P.1.2	21	4	21	4	18	4	18	4
P.1.3	18	4	18	4	16	4	16	4
P.1.4	17	4	17	4	15	4	15	4
P.1.5	14	4	14	4	13	4	13	4
P.2.1	15	4	15	4	13	4	13	4
P.2.2	10	3	10	3	9	3	9	3
P.2.3	9	3	9	3	8	3	8	3
P.2.4	8	2	8	2	7	2	7	2
P.3.1	11	3	11	3	10	3	10	3
P.3.2	8	2	8	2	7	2	7	2
P.3.3	7	2	7	2	6	2	6	2
P.4.1								
P.4.2								
M.1.1								
M.2.1								
M.3.1								
K.1.1	26	5	26	5	23	5	23	5
K.1.2	21	5	21	5	18	5	18	5
K.2.1	22	5	22	5	19	5	19	5
K.2.2	17	4	17	4	15	4	15	4
K.3.1	22	5	22	5	19	5	19	5
K.3.2	17	4	17	4	15	4	15	4
N.1.1	52	6	52	6	45	6	45	6
N.1.2	52	6	52	6	45	6	45	6
N.2.1	43	5	43	5	38	5	38	5
N.2.2	35	4	35	4	30	4	30	4
N.2.3	30	4	30	4	26	4	26	4
N.3.1	52	4	52	4	45	4	45	4
N.3.2	31	3	31	3	27	3	27	3
N.3.3	41	3	41	3	36	3	36	3
N.4.1	60	6	60	6	55	5	55	5
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	17	3	17	3	15	3	15	3
O.1.2	17	3	17	3	15	3	15	3
O.2.1	17	3	17	3	15	3	15	3
O.2.2	17	3	17	3	15	3	15	3
O.3.1								

When drilling tough materials which tend to jam, chips should be removed at drilling depth ≥ 4xD and the cutting speed v_c should be reduced as follows: at drilling depths > 4xD by 10 %, at drilling depths > 6xD by 15–20 %.
It is also recommended to use an emulsion for cooling.

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 54**

Cutting data standard values – micro drills

Index	v_c m/min	10 103 ...						
		Ø 0,15	Ø 0,20–0,25	Ø 0,30–0,35	Ø 0,40–0,55	Ø 0,60–0,75	Ø 0,80–0,95	Ø 1,00–1,45
		f (mm/rev)						
P.1.1	33	0,009	0,011	0,015	0,019	0,026	0,031	0,050
P.1.2	28	0,007	0,009	0,011	0,014	0,020	0,024	0,041
P.1.3	25	0,007	0,009	0,011	0,014	0,020	0,024	0,041
P.1.4	23	0,007	0,009	0,011	0,014	0,020	0,024	0,041
P.1.5	20	0,007	0,009	0,011	0,014	0,020	0,024	0,041
P.2.1	20	0,005	0,007	0,009	0,011	0,015	0,020	0,035
P.2.2	14	0,004	0,005	0,007	0,008	0,012	0,016	0,029
P.2.3	12	0,004	0,005	0,007	0,008	0,012	0,016	0,029
P.2.4	11	0,003	0,004	0,005	0,007	0,009	0,013	0,024
P.3.1	15	0,005	0,007	0,009	0,011	0,015	0,020	0,035
P.3.2	11	0,004	0,005	0,007	0,008	0,012	0,016	0,029
P.3.3	10	0,004	0,005	0,007	0,008	0,012	0,016	0,029
P.4.1	11	0,004	0,005	0,007	0,008	0,012	0,016	0,029
P.4.2	10	0,003	0,004	0,005	0,007	0,009	0,013	0,024
M.1.1	9	0,004	0,005	0,007	0,008	0,012	0,016	0,029
M.2.1	8	0,004	0,005	0,007	0,008	0,012	0,016	0,029
M.3.1								
K.1.1	35	0,009	0,011	0,015	0,019	0,026	0,031	0,050
K.1.2	28	0,009	0,011	0,015	0,019	0,026	0,031	0,050
K.2.1	30	0,009	0,011	0,015	0,019	0,026	0,031	0,050
K.2.2	23	0,007	0,009	0,011	0,014	0,020	0,024	0,041
K.3.1	30	0,009	0,011	0,015	0,019	0,026	0,031	0,050
K.3.2	23	0,007	0,009	0,011	0,014	0,020	0,024	0,041
N.1.1	70	0,012	0,014	0,019	0,024	0,034	0,038	0,060
N.1.2	70	0,012	0,014	0,019	0,024	0,034	0,038	0,060
N.2.1	59	0,009	0,011	0,015	0,019	0,026	0,031	0,050
N.2.2	47	0,007	0,009	0,011	0,014	0,020	0,024	0,041
N.2.3	41	0,007	0,009	0,011	0,014	0,020	0,024	0,041
N.3.1	70	0,007	0,009	0,011	0,014	0,020	0,024	0,041
N.3.2	42	0,005	0,007	0,009	0,011	0,015	0,020	0,035
N.3.3	56	0,005	0,007	0,009	0,011	0,015	0,020	0,035
N.4.1	42	0,007	0,009	0,011	0,014	0,020	0,024	0,041
S.1.1	7	0,003	0,004	0,005	0,007	0,009	0,013	0,024
S.1.2	6	0,002	0,003	0,004	0,005	0,007	0,010	0,020
S.2.1	6	0,003	0,004	0,005	0,007	0,009	0,013	0,024
S.2.2	4	0,002	0,003	0,004	0,005	0,007	0,010	0,020
S.2.3	4	0,002	0,003	0,004	0,005	0,007	0,010	0,020
S.3.1	6	0,003	0,004	0,005	0,007	0,009	0,013	0,024
S.3.2	4	0,002	0,003	0,004	0,005	0,007	0,010	0,020
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	23	0,007	0,009	0,011	0,014	0,020	0,024	0,041
O.1.2	23	0,007	0,009	0,011	0,014	0,020	0,024	0,041
O.2.1	23	0,007	0,009	0,011	0,014	0,020	0,024	0,041
O.2.2	23	0,007	0,009	0,011	0,014	0,020	0,024	0,041
O.3.1								

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values – NC spot drills, Centre drills, Core drills, Stepped drills

Index	10 510 ... / 10 520 ... / 10 521 ... / 10 526 ... / 10 525 ...		10 512 ... / 10 522 ... / 10 513 ... / 10 523 ... / 10 532 ... / 10 528 ...		10 480 ... / 10 415 ... / 10 435 ... / 10 445 ... / 10 455 ... / 10 475 ...		10 425 ...		10 228 ... / 10 365 ... / 10 355 ... / 10 320 ... / 10 330 ... / 10 375 ... / 10 340 ... / 10 405 ... / 10 350 ...	
	Type NC-A		Type NC-A TiN		Type ZB		Type ZB TiN		Type N / SB / SB vap.	
	v_c m/min	F	v_c m/min	F	v_c m/min	F	v_c m/min	F	v_c m/min	F
P.1.1	28	6	32	6	28	6	32	6	28	6
P.1.2	24	5	27	5	24	5	27	5	24	5
P.1.3	24	5	27	5	24	5	27	5	24	5
P.1.4	20	5	23	5	20	5	23	5	20	5
P.1.5	17	5	19	5	17	5	19	5	17	5
P.2.1	17	4	20	4	17	4	20	4	17	4
P.2.2	12	3	14	3	12	3	14	3	12	3
P.2.3	10	3	12	3	10	3	12	3	10	3
P.2.4	9	2	11	2	9	2	11	2	9	2
P.3.1	13	4	15	4	13	4	15	4	13	4
P.3.2	13	4	15	4	13	4	15	4	13	4
P.3.3										
P.4.1	9	3	10	3	9	3	10	3	9	3
P.4.2	8	2	9	2	9	2	10	2	9	2
M.1.1	8	3	9	3	8	3	9	3	8	3
M.2.1	7	2	8	2	7	2	9	2	7	2
M.3.1	7	2	8	2	6	2	7	2	6	2
K.1.1	30	6	35	6	30	6	35	6	30	6
K.1.2	24	6	28	6	24	6	28	6	24	6
K.2.1	26	6	29	6	26	6	29	6	26	6
K.2.2	20	5	22	5	20	5	22	5	20	5
K.3.1	26	6	29	6	26	6	29	6	26	6
K.3.2	20	5	22	5	20	5	22	5	20	5
N.1.1	60	6	65	6	60	7	65	7	60	7
N.1.2	60	6	65	6	60	7	65	7	60	7
N.2.1	50	6	58	6	50	6	58	6	50	6
N.2.2	40	5	46	5	40	5	46	5	40	5
N.2.3	35	5	40	5	35	5	40	5	35	5
N.3.1	60	5	69	5	60	5	69	5	60	5
N.3.2	36	4	41	4	36	4	41	4	36	4
N.3.3	48	4	55	4	48	4	55	4	48	4
N.4.1	20	5	23	5	20	5	23	5	20	5
S.1.1	6	2	7	2	6	2	7	2	6	2
S.1.2	5	1	6	1	5	1	6	1	5	1
S.2.1	5	2	6	2	5	2	6	2	5	2
S.2.2	3	1	3	1	3	1	3	1	3	1
S.2.3	4	1	4	1	4	1	4	1	4	1
S.3.1	5	2	6	2	5	2	6	2	5	2
S.3.2	3	1	4	1	3	1	4	1	3	1
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1	20	5	23	5	20	5	23	5	20	5
O.1.2	20	5	23	5	20	5	23	5	20	5
O.2.1										
O.2.2	20	5	23	5	20	5	23	5	20	5
O.3.1										

When drilling tough materials which tend to jam, chips should be removed at drilling depth ≥ 4xD and the cutting speed v_c should be reduced as follows: at drilling depths > 4xD by 10 %, at drilling depths > 6xD by 15–20 %.
It is also recommended to use an emulsion for cooling.

v_c = Cutting speed in m/min.
F = Factor for feed selection
Feed approximate values see → **Page 54**

Feed rate guide values for HSS twist drills

Factor F	Drill diameter in mm															
	0,5	1	2	3	4	5	6	8	10	12	14	16	18	20	26	30
	Feed rate f in mm/rev.															
1	0,004	0,006	0,02	0,03	0,04	0,04	0,05	0,06	0,08	0,08	0,09	0,1	0,12	0,15	0,18	0,19
2	0,006	0,008	0,02	0,03	0,05	0,05	0,05	0,08	0,1	0,1	0,1	0,12	0,12	0,2	0,2	0,2
3	0,007	0,012	0,03	0,05	0,06	0,069	0,08	0,1	0,12	0,13	0,13	0,16	0,16	0,25	0,25	0,25
4	0,008	0,014	0,04	0,06	0,08	0,09	0,1	0,14	0,16	0,16	0,16	0,2	0,2	0,3	0,3	0,3
5	0,01	0,016	0,06	0,08	0,1	0,12	0,13	0,16	0,2	0,2	0,22	0,25	0,25	0,4	0,4	0,4
6	0,012	0,018	0,06	0,1	0,12	0,14	0,16	0,2	0,25	0,25	0,25	0,3	0,3	0,5	0,5	0,5
7	0,014	0,02	0,08	0,13	0,16	0,18	0,2	0,25	0,35	0,35	0,35	0,4	0,4	0,6	0,6	0,6
8	0,016	0,023	0,1	0,16	0,2	0,2	0,25	0,35	0,4	0,4	0,4	0,4	0,5	0,6	0,7	0,8
9	0,019	0,025	0,13	0,17	0,2	0,23	0,32	0,4	0,4	0,5	0,5	0,5	0,6	0,8	0,9	0,9

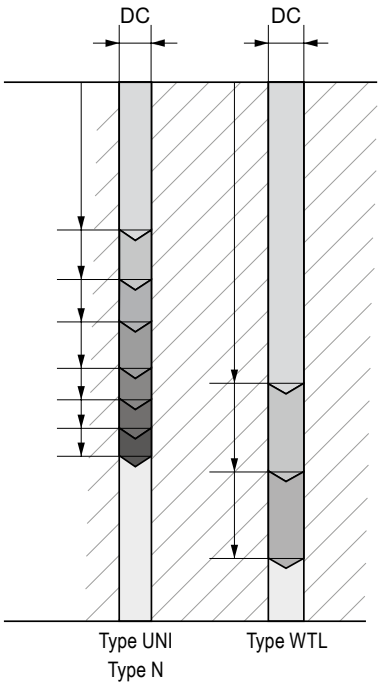
All the indicated data are guide values only and represent average values.

Speed for HSS drills

v_c m/min	Drill diameter in mm															
	2,0	2,5	3,15	4,0	5,0	6,3	8,0	10,0	12,5	16,0	20,0	25,0	31,5	40,0	50,0	63,0	80,0
	Speed in U/min																
80	12.500	10.000	8.000	6.300	5.000	4.000	3.200	2.500	2.000	1.600	1.250	1.000	800	630	500	400	320
63	10.000	8.000	6.300	5.000	4.000	3.200	2.500	2.000	1.600	1.250	1.000	800	630	500	400	320	250
50	8.000	6.300	5.000	4.000	3.200	2.500	2.000	1.600	1.250	1.000	800	630	500	400	320	250	200
40	6.300	5.000	4.000	3.200	2.500	2.000	1.600	1.250	1.000	800	630	500	400	320	250	200	160
32	5.000	4.000	3.200	2.500	2.000	1.600	1.250	1.000	800	630	500	400	320	250	200	160	125
25	4.000	3.200	2.500	2.000	1.600	1.250	1.000	800	630	500	400	320	250	200	160	125	100
20	3.200	2.500	2.000	1.600	1.250	1.000	800	630	500	400	320	250	200	160	125	100	80
16	2.500	2.000	1.600	1.250	1.000	800	630	500	400	320	250	200	160	125	100	80	63
12	2.000	1.600	1.250	1.000	800	630	500	400	320	250	200	160	125	100	80	63	50
10	1.600	1.250	1.000	800	630	500	400	320	250	200	160	125	100	80	63	50	40
8	1.250	1.000	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32
6	1.000	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25
5	800	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20
4	630	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20	16
3	500	400	320	250	200	160	125	100	80	63	50	40	32	25	20	16	12

Peck frequency for deep drilling

- Cutting edge needs to be sufficiently cooled; this is achieved by removing chips from the hole
- Chip removal frequency depends on the material to be machined, the hole depth and the drill type used
- Using a drill with a flat flute profile (WTL) significantly improves chip transport, which makes it possible to reduce the number of chip removal processes
- When drilling into tough materials and materials that tend to jam, chips should be removed for hole depths ≥ 4xD and the cutting speed v_c reduced as follows: by 10% for hole depths > 4xD, by 15-20% for hole depths > 6xD. It is also recommended to cool using emulsion.
- In the case of deep holes and to improve the positional accuracy, it is recommended to bore a pilot/centring hole.
- Drills with coolant holes and a thro' coolant supply are recommended for extremely deep holes or horizontal drilling applications



Coatings

TiN
- TiN coating
- Maximum application temperature: 450°C

TiAlN
- TiAlN multilayer coating
- Maximum application temperature: 900°C

vap.
- Vaporised
- Vaporisation (vapour-deposition) prevents cold welds from forming on the tool and increases the surface hardness and thus the wear resistance

F.-nit
- Titanium carbon nitride based PVD coating particularly suitable for steel machining
- Applicable up to approx. 450°C

Cutting materials

HSS
- Conventional high speed steel
- Universal cutting material

HSS-E
- Cobalt-alloyed high speed steel
- Cutting material with increased elevated-temperature hardness and heat resistance as well as wear resistance
- Suitable for high cutting temperatures and difficult-to-machine materials

HSS-E-PM
- Cobalt-alloyed high speed steel, produced using powder metallurgy
- Cutting material with a very tight and homogeneous structure
- High hardness, heat resistance and wear resistance

New products for machining technicians

NEW WPC – Change



≤ 3xD | ≤ 5xD

▲ The new modular WPC Change drilling system with replaceable cutting heads and thro' coolant enables cost-effective machining of even large holes with the performance of solid carbide drills. The drilling system is also characterised by its easy handling.



▲ Replaceable cutting head type UNI with wear-resistant TPX74S coating for usage on steel and cast iron materials.

→ Page 104+105



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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WNT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

WNT \ Standard

Quality tools for standard applications.

The quality tools of the **WNT Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Symbol explanation

Shank


Plain cylindrical shank


Cylindrical shank with lateral driving face „Weldon“


Cylindrical shank with angled clamping flat „Whistle Notch“


Cylindrical shank with lateral driving face (similar to ISO 9766)

Tool types

HFDS

An explanation of the tool types can be found on → **Page 158**.



Version


Int. coolant supply


self-centering


▲ Pilot hole necessary
▲ min. 2xD

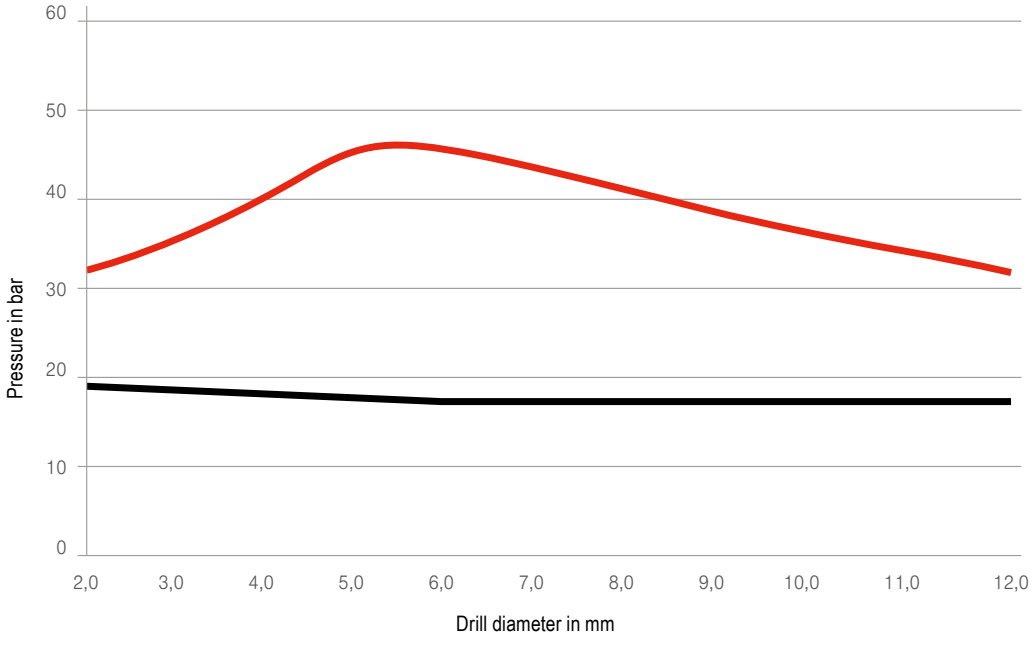
● = **Main Application**
○ = Extended application

Recommended application – WTX Performance Tools

● = Main Application
○ = Extended application

	WTX – Type	Solid drilling	Flat bottom hole	High-feed machining	High speed machining	Stack plate drilling	Drilling through a transverse hole	Angled hole entrance	Angled drill exit	Drilling a precise fit	deep holes	miniature holes
												
Monobloc Tool	WTX – UNI	●				●	●					
	WTX – Speed UNI	●			●	●						
	WTX – HFDS	●		●		●	●					
	WTX – Feed UNI	●		●		●	●	●	●			
	WTX – Speed VA	●			●							
	WTX – VA	●										
	WTX – Ti	●					●					
	WTX – AL	●										
	WTX – 180	●	●				●	●	●			
	WTX – Quattro 4F	●							○			
	WTX – Feed BR	●		●		○	○	○	○	●		
	WTX – H	●										
	WTX – TB	●									●	
	WTX – Micro	●									●	●
	WTX – Mini	●										●
Modular	WTX – Change Feed UNI	●		●				●	●			
	WTX – Change Drill heads	●										

Coolant diagram



Recommended coolant pressure
Minimum coolant Pressure

Additional application criteria for WTX drills can be found on → **page 159.**

Toolfinder

	Product name	Tool type	Description	Int. coolant supply	Replaceable cutting heads	1xD	3xD	5xD	8xD	12xD	Video
Steel/Universal	**Solid carbide drilling**										
	WTX	UNI	▲ highest performance for all materials up to 1200 N/mm² ▲ suitable for volume production	✗ ✓			13–17 24–27	36–39 42–46	60–63		▶
		UNI	▲ Quality tool for standard applications ▲ Attractive price-performance ratio	✗ ✓			18–21 28–31	40 51–54	64	72	▶
	WTX	Speed UNI	▲ High-performance drill for high cutting speeds ▲ Innovative DPX14S Dragonskin ▲ New cutting edge geometry	✓			24–27	42–46	60–63		▶
	WTX	HFDS	▲ High-feed drill with four cutting edges ▲ Innovative cutting edge geometry enables maximum positioning accuracy ▲ Optimal cooling with four spiral coolant holes	✓			35	59			▶
	WTX	Feed UNI	▲ High-feed drill with three cutting edges ▲ Suitable for difficult drilling applications ▲ High positioning accuracy	✓				58	68	73	▶
	WTX	Quattro 4F	▲ with additional guide land for best alignment accuracy, concentricity and positional accuracy	✓				42–46	60–63	69–71	
	WTX	180	▲ for inclined surfaces up to 45° and flat bottom holes	✓			34	57			
		N	▲ uncoated solid carbide drills ▲ universal application	✗			23	41			
	Mini-drill										
	WTX	MINI	▲ Available from Ø 0.1 mm ▲ Standard shank Ø 3.0 mm for use in heat shrink adapters	✗				78			
	WTX	MICRO	▲ Universal high-performance micro drill ▲ Specialised geometry and coating ▲ WTX – Micro (5xD) pilot drill for deep hole twist drill	✓				79	79	80	▶
	Drill Reamers										
	WTX	Feed BR/ BR100	▲ solid carbide high performance drill reamer ▲ excellent surface quality ▲ for blind and through holes	✓			83+85	84+85			
	Stepped drills										
	WTX	SB	▲ Solid carbide short step drill for core hole plus countersink for thread cutting and thread forming	✗ ✓			86 87				
	NC Spot Drill										
		NC-A	▲ spiral fluted ▲ 90°, 120°, 142°	✗		88+89					
	Centre drills										
		ZB	▲ spiral fluted ▲ 120°	✗		90					
	Drill with replaceable cutting heads										
	WTX	Change Feed UNI	▲ three-edged exchangeable head drill with solid carbide drill head type Feed UNI from Ø 14.0 mm to 32.0 mm ▲ universal application (steel, cast iron)	✓	91+92		93	93	94		▶
	WTX	Change UNI	▲ exchangeable head drill with type UNI solid carbide drill head from Ø 12.0 mm to 41.0 mm ▲ for steels <700 N/mm²	✓	95–100	101	101	102	102	103	▶
	WTX	Change P	▲ exchangeable head drill with type P solid carbide drill head from Ø 12.0 mm to 41.0 mm ▲ for steels >700 N/mm²	✓	95–100	101	101	102	102	103	▶
	WPC	Change UNI	▲ Indexable insert drill with solid carbide indexable insert type UNI from Ø 14.0 to 30.0 mm ▲ Universal application on steel and cast iron materials	✓	104		105	105			
	Exchangeable head NC spot drill										
		NC-A	▲ NC spot drill – exchange head system ▲ 90°, 120°, 142°	✗	107						

✗ = without through coolant | ✓ = with thro' coolant

Toolfinder

	Product name	Tool type	Description	Int. coolant supply	Replaceable cutting heads	1xD	3xD	5xD	8xD	12xD	Video
Stainless steel	**Solid carbide drilling**										
	WTX	VA	▲ highest performance for corrosion and acid resistant steels and aluminium ▲ for volume production	✗ ✓			13–17 24–27	36–39 47–50	 65–67		
		VA	▲ Quality tool for corrosion-resistant and ▲ acid-resistant steels and aluminium ▲ Attractive price-performance ratio	✗ ✓			18–21 28–31	 51–54			
	WTX	Speed VA	▲ double the cutting speed in corrosion and acid-resistant steels and aluminum	✓				47–50		69–71	
	Drill with replaceable cutting heads										
	WTX	Change VA	▲ exchangeable head drill with solid carbide drill head type VA from Ø 12.0 mm to 32.0 mm	✓	95–100	101	101	102	102	103	▶
Cast iron	**Solid carbide drilling**										
	WTX	UNI	▲ highest performance for all materials up to 1200 N/mm² ▲ suitable for volume production	✗ ✓			13–17 24–27	36–39 42–46	 60–63		▶
	Drill with replaceable cutting heads										
	WTX	Change GG	▲ exchangeable head drill with solid carbide drill head type GG from Ø 12.0 mm to 32.0 mm	✓	95–100	101	101	102	102	103	▶
Non-ferrous metals	**Solid carbide drilling**										
	WTX	AL	▲ solid carbide high performance drill, especially for the machining of aluminum, copper and brass ▲ for volume production	✓				47–50	65–67	69–71	
	Drill with replaceable cutting heads										
	WTX	Change AL	▲ exchangeable head drill with solid carbide drill head type AL from Ø 12.0 mm to 32.0 mm	✓	95–100	101	101	102	102	103	▶
Heat-resistant	**Solid carbide drilling**										
	WTX	Ti	▲ highest performance in titanium, titanium alloys and heat resistant alloys	✓			32+33	55+56			
Tempered steel	**Solid carbide drilling**										
	WTX	H	▲ highest performance in hardened steel from 46 to 70 HRC	✗			22				▶

	Product name	Tool type	Description	Int. coolant supply	16xD	20xD	25xD	30xD	40xD	50xD	Video
	Deep Hole Drills										
Steel/Universal	WTX	MICRO	▲ Available from Ø 0.8 mm ▲ Universal high-performance micro deep hole twist drill ▲ Specialised geometry and coating ▲ Hole depths up to 30xD possible	✓	80	81	81	82			▶
	WTX	CP 20 UNI	▲ Ensures an even safer deep hole drilling process ▲ Excellent alignment precision ▲ For optimal guidance of the deep hole twist drill for hole depths > 30xD	✓		74					
	WTX	TB UNI	▲ solid carbide deep hole drill to 50xD without peck ▲ 4 facet geometry for excellent alignment accuracy	✓	75	75	76	76	77	77	
Non-ferrous metals	WTX	TB ALU	▲ solid carbide deep hole drills, up to 30xD without pecking ▲ 6-facet head geometry for excellent alignment accuracy	✓	75	75	76	76			

✗ = without through coolant | ✓ = with thro' coolant

Overview Solid Carbide Drills

	Product name	Tool type	Boring depth	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat-resistant	H Tempered steel	O Non metal materials		coated ■	uncoated □	WNT \ Performance / WNT \ Standard Page No.
3xD without thro' coolant															
	WTX	UNI	≤ 3xD	3–25	●		●			○			■		13–17
	WTX	VA	≤ 3xD	2–20	○	●	○	○	●				■		13–17
		UNI	≤ 3xD	1–20	●		●						■		18–21
		VA	≤ 3xD	1–20	○	●		○	○		○		■		18–21
	WTX	H	≤ 3xD	2,55–14	○		●			●		up to 70 HRC	■		22
		N	≤ 3xD	0,5–20	○		●	●	○					□	23
3xD with thro' coolant															
	WTX	Speed UNI	≤ 3xD	3–20	●	●	●						■		24–27
	WTX	UNI	≤ 3xD	3–25	●		●			○			■		24–27
	WTX	VA	≤ 3xD	3–20	○	●	○	○	●				■		24–27
		UNI	≤ 3xD	1–20	●	●	●	○					■		28–31
		VA	≤ 3xD	1–20	○	●		●	○		○		■		28–31
	WTX	Ti	≤ 3xD	3–20	○	●			●				■		32+33
	WTX	180	≤ 3xD	3–20	●	●	●					180° Point angle	■		34
	WTX	HFDS	≤ 3xD	6–16	●	○	●	○			○	4 flute	■		35
5xD without thro' coolant															
	WTX	UNI	≤ 5xD	3–20	●		●			○			■		36–39
	WTX	VA	≤ 5xD	3–20	○	●	○	○	●				■		36–39
		UNI	≤ 5xD	3–20	●		●						■		40
		N	≤ 5xD	0,5–16	○		●	●	○					□	41

Overview Solid Carbide Drills

	Product name	Tool type	Boring depth	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat-resistant	H Tempered steel	O Non metal materials		coated ■	uncoated □	WNT \ Performance / WNT \ Standard Page No.
5xD with thro' coolant															
	WTX	Speed UNI	≤ 5xD	3–18	●	●	●						■		42–46
	WTX	UNI	≤ 5xD	3–25	●		●				○		■		42–46
	WTX	Quattro 4F	≤ 5xD	3–18	●		●				○		■		42–46
	WTX	Speed VA	≤ 5xD	3–20	●	●	●	○	●				■		47–50
	WTX	VA	≤ 5xD	3–20	○	●	○	○	●				■		47–50
	WTX	AL	≤ 5xD	2,5–20				●					■		47–50
		UNI	≤ 5xD	1–20	●	●	●	○					■		51–54
		VA	≤ 5xD	1–20	○	●		●	○		○		■		51–54
	WTX	Ti	≤ 5xD	3–20	○	●			●				■		55+56
	WTX	180	≤ 5xD	3–20	●	●	●					180° Point angle	■		57
	WTX	Feed UNI	≤ 5xD	4–20	●	●	●	○				3 flute	■		58
	WTX	HFDS	≤ 5xD	6–16	●	○	●	○			○	4 flute	■		59
8xD with thro' coolant															
	WTX	Speed UNI	≤ 8xD	3–18	●	●	●						■		60–63
	WTX	UNI	≤ 8xD	3–20	●		●				○		■		60–63
	WTX	Quattro 4F	≤ 8xD	3–18	●		●				○		■		60–63
		UNI	≤ 8xD	3–20	●	●	●						■		64
	WTX	VA	≤ 8xD	3–20	○	●	○	○	●				■		65–67
	WTX	AL	≤ 8xD	3–20				●					■		65–67
	WTX	Feed UNI	≤ 8xD	4–20	●	●	●	○				3 flute	■		68

Overview Solid Carbide Drills

	Product name	Tool type	Boring depth	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non metal materials O		coated ■	uncoated □	WNT \ Performance Page No.	WNT \ Standard
12xD with thro' coolant																
	WTX	Speed VA	≤ 12xD	3 – 17,5	●	●	●	○	●				■		69–71	
	WTX	Quattro 4F	≤ 12xD	3 – 18	●		●			○			■		69–71	
	WTX	AL	≤ 12xD	3 – 20				●					■		69–71	
		UNI	≤ 12xD	3 – 20	●	●	●						■			72
	WTX	Feed UNI	≤ 12xD	4 – 20	●	●	●	○				3 flute	■		73	
Deep hole twist drill 16xD to 50xD																
	WTX	CP 20 UNI	≤ 20xD	3 – 9	●	●	●		○			Co-pilot drill	■		74	
	WTX	TB UNI	≤ 16xD ≤ 20xD	2 – 12	●	●	●		○				■		75	
	WTX	TB UNI	≤ 25xD ≤ 30xD	2 – 12	●	●	●		○				■		76	
	WTX	TB UNI	≤ 40xD	3 – 9	●	●	●		○				■		77	
	WTX	TB UNI	≤ 50xD	3 – 6,8	●	●	●		○				■		77	
	WTX	TB ALU	≤ 16xD ≤ 20xD	2 – 12				●					■		75	
	WTX	TB ALU	≤ 25xD ≤ 30xD	2 – 12				●					■		76	

Overview Solid Carbide Drills

	Product name	Tool type	Boring depth	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non metal materials O		coated ■	uncoated □	WNT \ Performance / WNT \ Standard	Page No.
Micro drill 5xD to 30xD																
	WTX	MINI	≤ 5xD	0,1 – 2,9	○		●	●	○				■			78
	WTX	MICRO	≤ 5xD	0,8 – 2,9	●	●	●		○			with thro' coolant	■			79
	WTX	MICRO	≤ 8xD	0,8 – 2,9	●	●	●		○			with thro' coolant	■			79
	WTX	MICRO	≤ 12xD	0,8 – 2,9	●	●	●		○			with thro' coolant	■			80
	WTX	MICRO	≤ 16xD	0,8 – 2,9	●	●	●					with thro' coolant	■			80
	WTX	MICRO	≤ 20xD	0,8 – 2,9	●	●	●					with thro' coolant	■			81
	WTX	MICRO	≤ 25xD	0,8 – 2,9	●	●	●					with thro' coolant	■			81
	WTX	MICRO	≤ 30xD	0,8 – 2,9	●	●	●					with thro' coolant	■			82
Drill Reamers																
	WTX	Feed BR100	≤ 3xD ≤ 5xD	3,97 – 12,02	●	●	●					1/100 3 flute	■			83+84
	WTX	Feed BR	≤ 3xD	4 – 16	●	●	●					Tolerance H7 3 flute	■			85
	WTX	Feed BR	≤ 5xD	4 – 20	●	●	●					Tolerance H7 3 flute	■			85
Stepped drills																
	WTX	SB		2,5 – 14	●		●				○	Thread cutting	■			86
	WTX	SB		2,8 – 15	●		●				○	Thread forming	■			86
	WTX	SB		3,3 – 14	●		●				○	Thread cutting with thro' coolant	■			87
	WTX	SB		3,7 – 15	●		●				○	Thread forming with thro' coolant	■			87

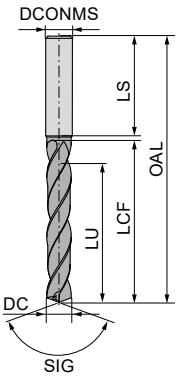
Overview Solid Carbide Drills

	Product name	Tool type	Point angle SIG	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat-resistant	H Tempered steel	O Non metal materials		■ coated	□ uncoated	WNT \ Performance / WNT \ Standard Page No.
NC Spot Drill															
		NC–A	90° 120° 142°	2–20	●		●	●						□	88
		NC–A	90° 120° 142°	2–20	●		●	●			○		■		88
		NC–A	90° 120° 142°	3–16	●		●	●			○	long version	■		89
Centre drills															
		ZB	120°	0,5–6,3	●		●	●						□	90
Drill with replaceable cutting heads															
Replaceable cutting heads															
	WTX	Change Feed		14–32	●		●					3 Edges	■		91+92
	WTX	Change UNI		12–41	●		●						■		95–100
	WTX	Change P		12–41	●		●						■		95–100
	WTX	Change VA		12–32	○	●	●		●				■		95–100
	WTX	Change GG		12–32			●						■		95–100
	WTX	Change ALU		12–32				●					■		95–100
	WPC	Change UNI		14–30	●		●						■		104
Tool holder															
	WTX	Change Feed		14–32								3xD / 5xD / 8xD			93+94
	WTX	Change		12–41								1xD / 3xD / 5xD / 8xD / 12xD			101–103
	WPC	Change		14–30								3xD / 5xD			105
MultiChange NC spot drill															
		NC–A	90° 120° 142°	8–20	●	●	●	●					■		107

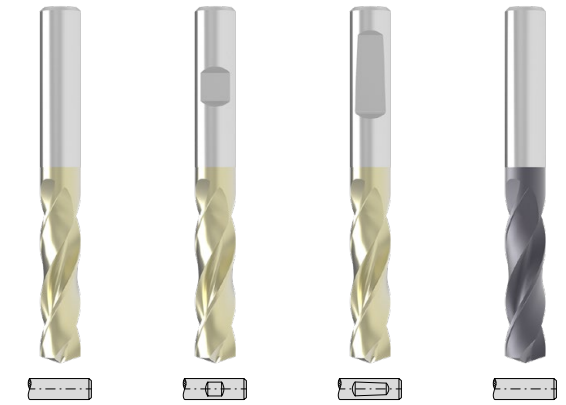
WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



UNI	UNI	UNI	VA
DPX74S	DPX74S	DPX74S	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	



SIG 140°
Solid carbide

11 777 ...	11 778 ...	11 776 ...	10 731 ...

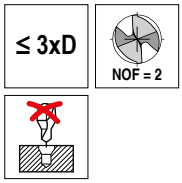
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T7		£ T7		£ T7		£ T5	
2.00	6	58	16	11	36							59.44	020
2.10	6	58	16	11	36							59.44	021
2.20	6	58	16	11	36							59.44	022
2.30	6	58	16	11	36							59.44	023
2.33	6	58	16	11	36							59.44	823
2.40	6	58	16	11	36							59.44	024
2.43	6	58	16	11	36							59.44	824
2.50	6	58	16	11	36							59.44	025
2.55	6	58	16	11	36							59.44	825
2.60	6	58	16	11	36							59.44	026
2.62	6	58	16	11	36							59.44	826
2.70	6	58	16	11	36							59.44	027
2.80	6	58	16	11	36							59.44	028
2.90	6	58	16	11	36							59.44	029
3.00	6	62	20	14	36	38.38	03000	38.38	03000	38.38	03000	78.51	030
3.10	6	62	20	14	36	38.38	03100	38.38	03100	38.38	03100	78.51	031
3.15	6	62	20	14	36	38.38	03150	38.38	03150	38.38	03150	78.51	831
3.20	6	62	20	14	36	38.38	03200	38.38	03200	38.38	03200	78.51	032
3.22	6	62	20	14	36	38.38	03220	38.38	03220	38.38	03220	78.51	832
3.25	6	62	20	14	36	38.38	03250	38.38	03250	38.38	03250	78.51	890
3.30	6	62	20	14	36	38.38	03300	38.38	03300	38.38	03300	78.51	033
3.40	6	62	20	14	36	38.38	03400	38.38	03400	38.38	03400	78.51	034
3.50	6	62	20	14	36	38.38	03500	38.38	03500	38.38	03500	78.51	035
3.60	6	62	20	14	36	38.38	03600	38.38	03600	38.38	03600	78.51	036
3.70	6	62	20	14	36	38.38	03700	38.38	03700	38.38	03700	78.51	037
3.80	6	66	24	17	36	38.38	03800	38.38	03800	38.38	03800	78.51	038
3.85	6	66	24	17	36	38.38	03850	38.38	03850	38.38	03850	78.51	838
3.90	6	66	24	17	36	38.38	03900	38.38	03900	38.38	03900	78.51	039
4.00	6	66	24	17	36	38.38	04000	38.38	04000	38.38	04000	78.51	040
4.10	6	66	24	17	36	38.38	04100	38.38	04100	38.38	04100	78.51	041
4.20	6	66	24	17	36	38.38	04200	38.38	04200	38.38	04200	78.51	042
4.25	6	66	24	17	36	38.38	04250	38.38	04250	38.38	04250		
4.30	6	66	24	17	36	38.38	04300	38.38	04300	38.38	04300	78.51	043
4.35	6	66	24	17	36	38.38	04350	38.38	04350	38.38	04350	78.51	843
4.40	6	66	24	17	36	38.38	04400	38.38	04400	38.38	04400	78.51	044
4.45	6	66	24	17	36	38.38	04450	38.38	04450	38.38	04450	78.51	844
4.50	6	66	24	17	36	38.38	04500	38.38	04500	38.38	04500	78.51	045
4.60	6	66	24	17	36	38.38	04600	38.38	04600	38.38	04600	78.51	046
4.65	6	66	24	17	36	38.38	04650	38.38	04650	38.38	04650	78.51	900
4.70	6	66	24	17	36	38.38	04700	38.38	04700	38.38	04700	78.51	047
4.80	6	66	28	20	36	38.38	04800	38.38	04800	38.38	04800	78.51	048

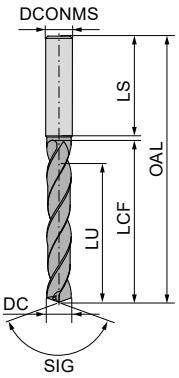
P	●	●	●	○
M				●
K	●	●	●	○
N				○
S				●
H	○	○	○	
O				

→ v_c Page 110+112

Continued on next page

WTX – High Performance Drill, DIN 6537







DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	SIG 140° Solid carbide 11 777 ... £ T7		SIG 140° Solid carbide 11 778 ... £ T7		SIG 140° Solid carbide 11 776 ... £ T7		SIG 140° Solid carbide 10 731 ... £ T5	
4.90	6	66	28	20	36	38.38	04900	38.38	04900	38.38	04900	78.51	049
4.95	6	66	28	20	36	38.38	04950	38.38	04950	38.38	04950		
5.00	6	66	28	20	36	38.38	05000	38.38	05000	38.38	05000	78.51	050
5.05	6	66	28	20	36	38.38	05050	38.38	05050	38.38	05050		
5.10	6	66	28	20	36	38.38	05100	38.38	05100	38.38	05100	78.51	051
5.20	6	66	28	20	36	38.38	05200	38.38	05200	38.38	05200	78.51	052
5.30	6	66	28	20	36	38.38	05300	38.38	05300	38.38	05300	78.51	053
5.40	6	66	28	20	36	38.38	05400	38.38	05400	38.38	05400	78.51	054
5.50	6	66	28	20	36	38.38	05500	38.38	05500	38.38	05500	78.51	055
5.55	6	66	28	20	36	38.38	05550	38.38	05550	38.38	05550	78.51	902
5.60	6	66	28	20	36	38.38	05600	38.38	05600	38.38	05600	78.51	056
5.70	6	66	28	20	36	38.38	05700	38.38	05700	38.38	05700	78.51	057
5.75	6	66	28	20	36	38.38	05750	38.38	05750	38.38	05750	78.51	916
5.80	6	66	28	20	36	38.38	05800	38.38	05800	38.38	05800	78.51	058
5.90	6	66	28	20	36	38.38	05900	38.38	05900	38.38	05900	78.51	059
5.95	6	66	28	20	36	38.38	05950	38.38	05950	38.38	05950	78.51	959
6.00	6	66	28	20	36	38.38	06000	38.38	06000	38.38	06000	78.51	060
6.10	8	79	34	24	36	41.39	06100	41.39	06100	41.39	06100	99.72	061
6.20	8	79	34	24	36	41.39	06200	41.39	06200	41.39	06200	99.72	062
6.30	8	79	34	24	36	41.39	06300	41.39	06300	41.39	06300	99.72	063
6.40	8	79	34	24	36	41.39	06400	41.39	06400	41.39	06400	99.72	064
6.50	8	79	34	24	36	41.39	06500	41.39	06500	41.39	06500	99.72	065
6.60	8	79	34	24	36	41.39	06600	41.39	06600	41.39	06600	99.72	066
6.70	8	79	34	24	36	41.39	06700	41.39	06700	41.39	06700	99.72	067
6.80	8	79	34	24	36	41.39	06800	41.39	06800	41.39	06800	99.72	068
6.90	8	79	34	24	36	41.39	06900	41.39	06900	41.39	06900	99.72	069
7.00	8	79	34	24	36	41.39	07000	41.39	07000	41.39	07000	99.72	070
7.10	8	79	41	29	36	41.39	07100	41.39	07100	41.39	07100	99.72	071
7.20	8	79	41	29	36	41.39	07200	41.39	07200	41.39	07200	99.72	072
7.30	8	79	41	29	36	41.39	07300	41.39	07300	41.39	07300	99.72	073
7.40	8	79	41	29	36	41.39	07400	41.39	07400	41.39	07400	99.72	074
7.45	8	79	41	29	36	41.39	07450	41.39	07450	41.39	07450	99.72	924
7.50	8	79	41	29	36	41.39	07500	41.39	07500	41.39	07500	99.72	075
7.60	8	79	41	29	36	41.39	07600	41.39	07600	41.39	07600	99.72	076
7.70	8	79	41	29	36	41.39	07700	41.39	07700	41.39	07700	99.72	077
7.80	8	79	41	29	36	41.39	07800	41.39	07800	41.39	07800	99.72	078
7.90	8	79	41	29	36	41.39	07900	41.39	07900	41.39	07900	99.72	079
8.00	8	79	41	29	36	41.39	08000	41.39	08000	41.39	08000	99.72	080
8.10	10	89	47	35	40	45.40	08100	45.40	08100	45.40	08100	118.87	081
8.20	10	89	47	35	40	45.40	08200	45.40	08200	45.40	08200	118.87	082
8.30	10	89	47	35	40	45.40	08300	45.40	08300	45.40	08300	118.87	083

P	●	●	●	○
M				●
K	●	●	●	○
N				○
S				●
H	○	○	○	
O				

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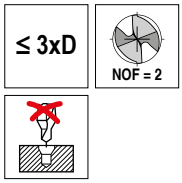
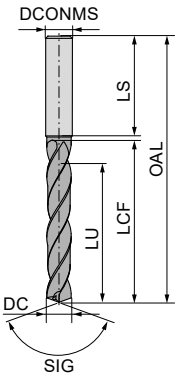
WTX – High Performance Drill, DIN 6537







SIG 140° Solid carbide

SIG 140° Solid carbide

SIG 140° Solid carbide

SIG 140° Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 777 ... £ T7		11 778 ... £ T7		11 776 ... £ T7		10 731 ... £ T5	
8.40	10	89	47	35	40	45.40	08400	45.40	08400	45.40	08400	118.87	084
8.50	10	89	47	35	40	45.40	08500	45.40	08500	45.40	08500	118.87	085
8.60	10	89	47	35	40	45.40	08600	45.40	08600	45.40	08600	118.87	086
8.70	10	89	47	35	40	45.40	08700	45.40	08700	45.40	08700	118.87	087
8.80	10	89	47	35	40	45.40	08800	45.40	08800	45.40	08800	118.87	088
8.90	10	89	47	35	40	45.40	08900	45.40	08900	45.40	08900	118.87	089
9.00	10	89	47	35	40	45.40	09000	45.40	09000	45.40	09000	118.87	090
9.10	10	89	47	35	40	45.40	09100	45.40	09100	45.40	09100	118.87	091
9.20	10	89	47	35	40	45.40	09200	45.40	09200	45.40	09200	118.87	092
9.30	10	89	47	35	40	45.40	09300	45.40	09300	45.40	09300	118.87	093
9.35	10	89	47	35	40	45.40	09350	45.40	09350	45.40	09350	118.87	930
9.40	10	89	47	35	40	45.40	09400	45.40	09400	45.40	09400	118.87	094
9.45	10	89	47	35	40	45.40	09450	45.40	09450	45.40	09450	118.87	994
9.50	10	89	47	35	40	45.40	09500	45.40	09500	45.40	09500	118.87	095
9.60	10	89	47	35	40	45.40	09600	45.40	09600	45.40	09600	118.87	096
9.70	10	89	47	35	40	45.40	09700	45.40	09700	45.40	09700	118.87	097
9.80	10	89	47	35	40	45.40	09800	45.40	09800	45.40	09800	118.87	098
9.90	10	89	47	35	40	45.40	09900	45.40	09900	45.40	09900	118.87	099
10.00	10	89	47	35	40	45.40	10000	45.40	10000	45.40	10000	118.87	100
10.10	12	102	55	40	45	65.79	10100	65.79	10100	65.79	10100	168.65	101
10.20	12	102	55	40	45	65.79	10200	65.79	10200	65.79	10200	168.65	102
10.30	12	102	55	40	45	65.79	10300	65.79	10300	65.79	10300	168.65	103
10.40	12	102	55	40	45	65.79	10400	65.79	10400	65.79	10400	168.65	104
10.50	12	102	55	40	45	65.79	10500	65.79	10500	65.79	10500	168.65	105
10.55	12	102	55	40	45	65.79	10550	65.79	10550	65.79	10550	168.65	932
10.60	12	102	55	40	45	65.79	10600	65.79	10600	65.79	10600	168.65	106
10.70	12	102	55	40	45	65.79	10700	65.79	10700	65.79	10700	168.65	107
10.75	12	102	55	40	45	65.79	10750	65.79	10750	65.79	10750		
10.80	12	102	55	40	45	65.79	10800	65.79	10800	65.79	10800	168.65	108
10.90	12	102	55	40	45	65.79	10900	65.79	10900	65.79	10900	168.65	109
11.00	12	102	55	40	45	65.79	11000	65.79	11000	65.79	11000	168.65	110
11.10	12	102	55	40	45	65.79	11100	65.79	11100	65.79	11100	168.65	111
11.20	12	102	55	40	45	65.79	11200	65.79	11200	65.79	11200	168.65	112
11.25	12	102	55	40	45	65.79	11250	65.79	11250	65.79	11250	168.65	912
11.30	12	102	55	40	45	65.79	11300	65.79	11300	65.79	11300	168.65	113
11.35	12	102	55	40	45	65.79	11350	65.79	11350	65.79	11350	168.65	913
11.40	12	102	55	40	45	65.79	11400	65.79	11400	65.79	11400	168.65	114
11.45	12	102	55	40	45	65.79	11450	65.79	11450	65.79	11450	168.65	914
11.50	12	102	55	40	45	65.79	11500	65.79	11500	65.79	11500	168.65	115
11.60	12	102	55	40	45	65.79	11600	65.79	11600	65.79	11600	168.65	116
11.70	12	102	55	40	45	65.79	11700	65.79	11700	65.79	11700	168.65	117
P						●		●		●		○	
M												●	
K						●		●		●		○	
N												○	
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H						○		○		○			
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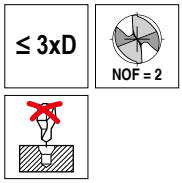
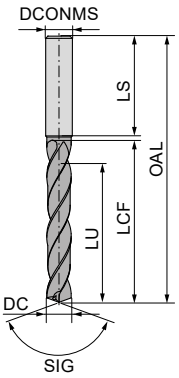
WTX – High Performance Drill, DIN 6537







						11 777 ...		11 778 ...		11 776 ...		10 731 ...	
						SIG 140° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide	
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T7		£ T7		£ T7		£ T5	
11.80	12	102	55	40	45	65.79	11800	65.79	11800	65.79	11800	168.65	118
11.90	12	102	55	40	45	65.79	11900	65.79	11900	65.79	11900	168.65	119
12.00	12	102	55	40	45	65.79	12000	65.79	12000	65.79	12000	168.65	120
12.15	14	107	60	43	45	85.81	12150	85.81	12150	85.81	12150	223.35	921
12.25	14	107	60	43	45	85.81	12250	85.81	12250	85.81	12250		
12.50	14	107	60	43	45	85.81	12500	85.81	12500	85.81	12500	223.35	125
12.55	14	107	60	43	45	85.81	12550	85.81	12550	85.81	12550	223.35	925
12.70	14	107	60	43	45	85.81	12700	85.81	12700	85.81	12700		
12.80	14	107	60	43	45	85.81	12800	85.81	12800	85.81	12800	223.35	128
12.90	14	107	60	43	45	85.81	12900	85.81	12900	85.81	12900		
13.00	14	107	60	43	45	85.81	13000	85.81	13000	85.81	13000	223.35	130
13.10	14	107	60	43	45	85.81	13100	85.81	13100	85.81	13100		
13.30	14	107	60	43	45	85.81	13300	85.81	13300	85.81	13300		
13.35	14	107	60	43	45	85.81	13350	85.81	13350	85.81	13350	223.35	933
13.50	14	107	60	43	45	85.81	13500	85.81	13500	85.81	13500	223.35	135
13.70	14	107	60	43	45	85.81	13700	85.81	13700	85.81	13700		
13.80	14	107	60	43	45	85.81	13800	85.81	13800	85.81	13800	223.35	138
14.00	14	107	60	43	45	85.81	14000	85.81	14000	85.81	14000	223.35	140
14.20	16	115	65	45	48	111.87	14200	111.87	14200	111.87	14200		
14.50	16	115	65	45	48	111.87	14500	111.87	14500	111.87	14500	275.53	145
14.80	16	115	65	45	48	111.87	14800	111.87	14800	111.87	14800	275.53	148
15.00	16	115	65	45	48	111.87	15000	111.87	15000	111.87	15000	275.53	150
15.10	16	115	65	45	48	111.87	15100	111.87	15100	111.87	15100		
15.25	16	115	65	45	48	111.87	15250	111.87	15250	111.87	15250		
15.30	16	115	65	45	48	111.87	15300	111.87	15300	111.87	15300		
15.35	16	115	65	45	48	111.87	15350	111.87	15350	111.87	15350	275.53	953
15.50	16	115	65	45	48	111.87	15500	111.87	15500	111.87	15500	275.53	155
15.60	16	115	65	45	48	111.87	15600	111.87	15600	111.87	15600		
15.80	16	115	65	45	48	111.87	15800	111.87	15800	111.87	15800	275.53	158
16.00	16	115	65	45	48	111.87	16000	111.87	16000	111.87	16000	275.53	160
16.05	18	123	73	51	48	218.25	16050	218.25	16050	218.25	16050	403.80	960
16.50	18	123	73	51	48	218.25	16500	218.25	16500	218.25	16500	403.80	165
16.80	18	123	73	51	48	218.25	16800	218.25	16800	218.25	16800	403.80	168
16.90	18	123	73	51	48	218.25	16900	218.25	16900	218.25	16900		
17.00	18	123	73	51	48	218.25	17000	218.25	17000	218.25	17000	403.80	170
17.50	18	123	73	51	48	218.25	17500	218.25	17500	218.25	17500	403.80	175
17.60	18	123	73	51	48	218.25	17600	218.25	17600	218.25	17600		
17.80	18	123	73	51	48	218.25	17800	218.25	17800	218.25	17800	403.80	178
18.00	18	123	73	51	48	218.25	18000	218.25	18000	218.25	18000	403.80	180
18.50	20	131	79	55	50	242.47	18500	242.47	18500	242.47	18500	534.43	185
18.80	20	131	79	55	50	242.47	18800	242.47	18800	242.47	18800	534.43	188
P						●		●		●		○	
M												●	
K						●		●		●		○	
N												○	
S												●	
H						○		○		○			
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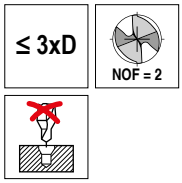
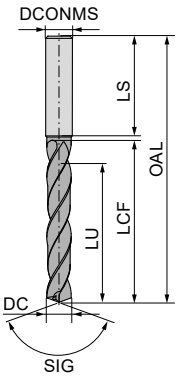
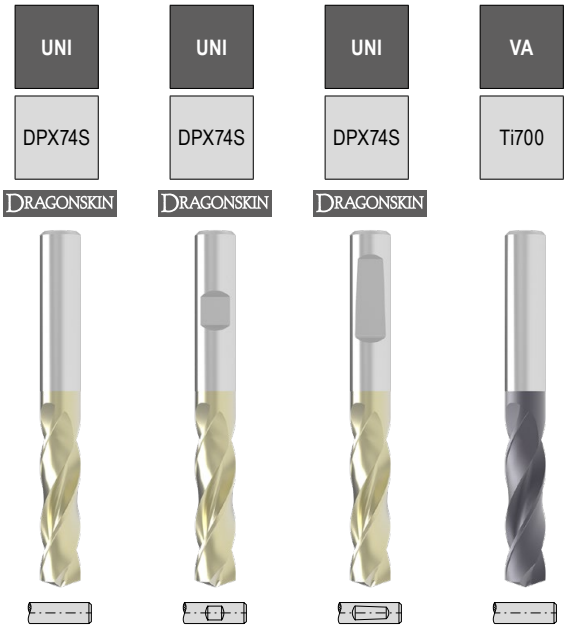
WTX – High Performance Drill, DIN 6537







SIG 140°
Solid carbide

11 777 ...

SIG 140°
Solid carbide

11 778 ...

SIG 140°
Solid carbide

11 776 ...

SIG 140°
Solid carbide

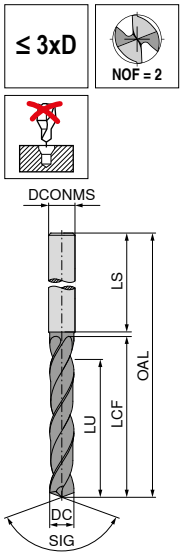
10 731 ...

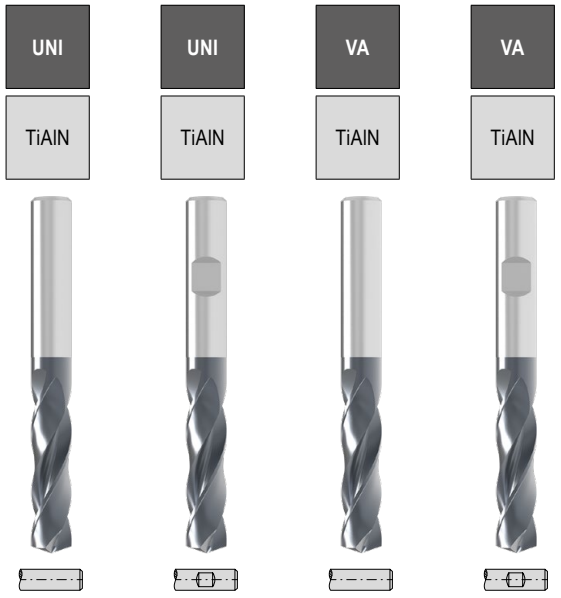
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T7		£ T7		£ T7		£ T5	
18.90	20	131	79	55	50	242.47	**18900**	242.47	**18900**	242.47	**18900**		
19.00	20	131	79	55	50	242.47	**19000**	242.47	**19000**	242.47	**19000**	534.43	**190**
19.35	20	131	79	55	50	242.47	**19350**	242.47	**19350**	242.47	**19350**	534.43	**993**
19.50	20	131	79	55	50	242.47	**19500**	242.47	**19500**	242.47	**19500**	534.43	**195**
19.60	20	131	79	55	50	242.47	**19600**	242.47	**19600**	242.47	**19600**		
19.80	20	131	79	55	50	242.47	**19800**	242.47	**19800**	242.47	**19800**	534.43	**198**
20.00	20	131	79	55	50	242.47	**20000**	242.47	**20000**	242.47	**20000**	534.43	**200**
20.50	25	151	93	66	56	438.14	**20500**	438.14	**20500**	438.14	**20500**		
21.00	25	151	93	66	56	438.14	**21000**	438.14	**21000**	438.14	**21000**		
21.50	25	151	93	66	56	438.14	**21500**	438.14	**21500**	438.14	**21500**		
22.00	25	151	93	66	56	438.14	**22000**	438.14	**22000**	438.14	**22000**		
22.50	25	153	96	72	56	438.14	**22500**	438.14	**22500**	438.14	**22500**		
23.00	25	153	96	72	56	438.14	**23000**	438.14	**23000**	438.14	**23000**		
23.50	25	153	96	72	56	438.14	**23500**	438.14	**23500**	438.14	**23500**		
24.00	25	153	96	72	56	438.14	**24000**	438.14	**24000**	438.14	**24000**		
24.50	25	153	96	75	56	438.14	**24500**	438.14	**24500**	438.14	**24500**		
25.00	25	153	96	75	56	438.14	**25000**	438.14	**25000**	438.14	**25000**		

P	●	●	●	○
M				●
K	●	●	●	○
N				○
S				●
H	○	○	○	
O				

→ v_c Page 110+112

High Performance Drill, DIN 6537





SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

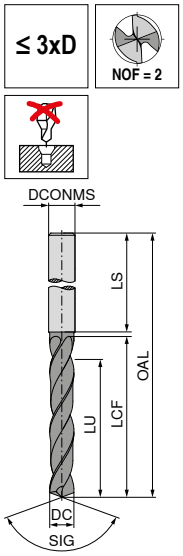
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 706 ... £ T1/9C		11 707 ... £ T1/9C		11 711 ... £ T1/9C		11 712 ... £ T1/9C	
1.00	4	45	7	5.5	28	29.17	01000			33.40	01000		
1.10	4	45	7	5.3	28	29.17	01100			33.40	01100		
1.20	4	45	7	5.2	28	29.17	01200			33.40	01200		
1.30	4	45	7	5.0	28	29.17	01300			33.40	01300		
1.40	4	45	7	4.9	28	29.17	01400			33.40	01400		
1.50	4	55	14	11.7	28	29.17	01500			33.40	01500		
1.60	4	55	14	11.6	28	29.17	01600			33.40	01600		
1.70	4	55	14	11.4	28	29.17	01700			33.40	01700		
1.80	4	55	14	11.3	28	29.17	01800			33.40	01800		
1.90	4	55	14	11.1	28	29.17	01900			33.40	01900		
2.00	4	55	20	17.0	28	26.64	02000			30.43	02000		
2.10	4	55	20	16.8	28	26.64	02100			30.43	02100		
2.20	4	55	20	16.7	28	26.64	02200			30.43	02200		
2.30	4	55	20	16.5	28	26.64	02300			30.43	02300		
2.40	4	55	20	16.4	28	26.64	02400			30.43	02400		
2.50	4	55	20	16.2	28	26.64	02500			30.43	02500		
2.60	4	55	20	16.1	28	26.64	02600			30.43	02600		
2.70	4	55	20	15.9	28	26.64	02700			30.43	02700		
2.80	4	55	20	15.8	28	26.64	02800			30.43	02800		
2.90	4	55	20	15.6	28	26.64	02900			30.43	02900		
3.00	6	62	20	15.5	36	25.38	03000	25.38	03000	29.50	03000	29.50	03000
3.10	6	62	20	15.3	36	25.38	03100	25.38	03100	29.50	03100	29.50	03100
3.20	6	62	20	15.2	36	25.38	03200	25.38	03200	29.50	03200	29.50	03200
3.25	6	62	20	15.1	36	25.38	03250	25.38	03250				
3.30	6	62	20	15.0	36	25.38	03300	25.38	03300	29.50	03300	29.50	03300
3.40	6	62	20	14.9	36	25.38	03400	25.38	03400	29.50	03400	29.50	03400
3.50	6	62	20	14.7	36	25.38	03500	25.38	03500	29.50	03500	29.50	03500
3.60	6	62	20	14.6	36	25.38	03600	25.38	03600	29.50	03600	29.50	03600
3.70	6	62	20	14.4	36	25.38	03700	25.38	03700	29.50	03700	29.50	03700
3.80	6	66	24	18.3	36	25.38	03800	25.38	03800	29.50	03800	29.50	03800
3.90	6	66	24	18.1	36	25.38	03900	25.38	03900	29.50	03900	29.50	03900
4.00	6	66	24	18.0	36	25.38	04000	25.38	04000	29.50	04000	29.50	04000
4.10	6	66	24	17.8	36	25.38	04100	25.38	04100	29.50	04100	29.50	04100
4.20	6	66	24	17.7	36	25.38	04200	25.38	04200	29.50	04200	29.50	04200
4.30	6	66	24	17.5	36	25.38	04300	25.38	04300	29.50	04300	29.50	04300
4.40	6	66	24	17.4	36	25.38	04400	25.38	04400	29.50	04400	29.50	04400
4.50	6	66	24	17.2	36	25.38	04500	25.38	04500	29.50	04500	29.50	04500
4.60	6	66	24	17.1	36	25.38	04600	25.38	04600	29.50	04600	29.50	04600
4.65	6	66	24	17.0	36	25.38	04650	25.38	04650				
4.70	6	66	24	16.9	36	25.38	04700	25.38	04700	29.50	04700	29.50	04700
P						●		●		○		○	
M										●		●	
K						●		●					
N										○		○	
S										○		○	
H													
O										○		○	

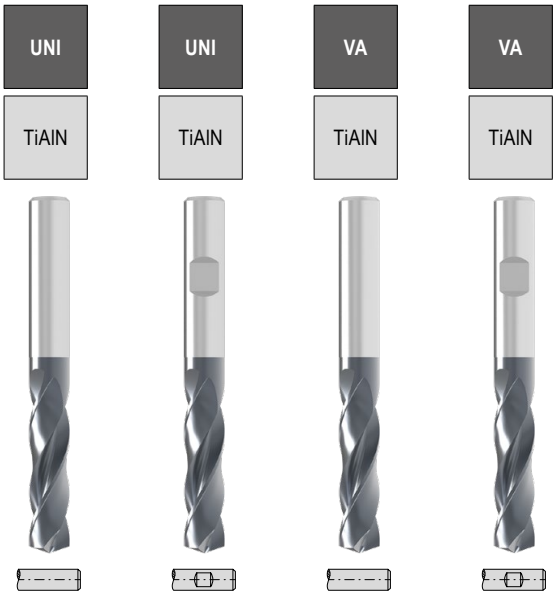
→ v_c Page 128+132

Ø DC_{h7} for Type UNI / **Ø DC_{m7}** for Type VA

Continued on next page

High Performance Drill, DIN 6537





SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 706 ... £ T1/9C		11 707 ... £ T1/9C		11 711 ... £ T1/9C		11 712 ... £ T1/9C	
4.80	6	66	28	20.8	36	25.38	04800	25.38	04800	29.50	04800	29.50	04800
4.90	6	66	28	20.6	36	25.38	04900	25.38	04900	29.50	04900	29.50	04900
5.00	6	66	28	20.5	36	25.38	05000	25.38	05000	29.50	05000	29.50	05000
5.10	6	66	28	20.3	36	25.38	05100	25.38	05100	29.50	05100	29.50	05100
5.20	6	66	28	20.2	36	25.38	05200	25.38	05200	29.50	05200	29.50	05200
5.30	6	66	28	20.0	36	25.38	05300	25.38	05300	29.50	05300	29.50	05300
5.40	6	66	28	19.9	36	25.38	05400	25.38	05400	29.50	05400	29.50	05400
5.50	6	66	28	19.7	36	25.38	05500	25.38	05500	29.50	05500	29.50	05500
5.55	6	66	28	19.6	36	25.38	05550	25.38	05550				
5.60	6	66	28	19.6	36	25.38	05600	25.38	05600	29.50	05600	29.50	05600
5.65	6	66	28	19.5	36	25.38	05650	25.38	05650				
5.70	6	66	28	19.4	36	25.38	05700	25.38	05700	29.50	05700	29.50	05700
5.80	6	66	28	19.3	36	25.38	05800	25.38	05800	29.50	05800	29.50	05800
5.90	6	66	28	19.1	36	25.38	05900	25.38	05900	29.50	05900	29.50	05900
6.00	6	66	28	19.0	36	25.38	06000	25.38	06000	29.50	06000	29.50	06000
6.10	8	79	34	24.8	36	25.38	06100	25.38	06100	29.60	06100	29.60	06100
6.20	8	79	34	24.7	36	25.38	06200	25.38	06200	29.60	06200	29.60	06200
6.30	8	79	34	24.5	36	25.38	06300	25.38	06300	29.60	06300	29.60	06300
6.40	8	79	34	24.4	36	25.38	06400	25.38	06400	29.60	06400	29.60	06400
6.50	8	79	34	24.2	36	25.38	06500	25.38	06500	29.60	06500	29.60	06500
6.60	8	79	34	24.1	36	25.38	06600	25.38	06600	29.60	06600	29.60	06600
6.70	8	79	34	23.9	36	25.38	06700	25.38	06700	29.60	06700	29.60	06700
6.80	8	79	34	23.8	36	25.38	06800	25.38	06800	29.60	06800	29.60	06800
6.90	8	79	34	23.6	36	25.38	06900	25.38	06900	29.60	06900	29.60	06900
7.00	8	79	34	23.5	36	25.38	07000	25.38	07000	29.60	07000	29.60	07000
7.10	8	79	41	30.3	36	25.38	07100	25.38	07100	29.60	07100	29.60	07100
7.20	8	79	41	30.2	36	25.38	07200	25.38	07200	29.60	07200	29.60	07200
7.30	8	79	41	30.0	36	25.38	07300	25.38	07300	29.60	07300	29.60	07300
7.40	8	79	41	29.9	36	25.38	07400	25.38	07400	29.60	07400	29.60	07400
7.50	8	79	41	29.7	36	25.38	07500	25.38	07500	29.60	07500	29.60	07500
7.55	8	79	41	29.6	36	25.38	07550	25.38	07550				
7.60	8	79	41	29.6	36	25.38	07600	25.38	07600	29.60	07600	29.60	07600
7.65	8	79	41	29.5	36	25.38	07650	25.38	07650				
7.70	8	79	41	29.4	36	25.38	07700	25.38	07700	29.60	07700	29.60	07700
7.80	8	79	41	29.3	36	25.38	07800	25.38	07800	29.60	07800	29.60	07800
7.90	8	79	41	29.1	36	25.38	07900	25.38	07900	29.60	07900	29.60	07900
8.00	8	79	41	29.0	36	25.38	08000	25.38	08000	29.60	08000	29.60	08000
8.10	10	89	47	34.8	40	29.17	08100	29.17	08100	33.13	08100	33.13	08100
8.20	10	89	47	34.7	40	29.17	08200	29.17	08200	33.13	08200	33.13	08200
8.30	10	89	47	34.5	40	29.17	08300	29.17	08300	33.13	08300	33.13	08300

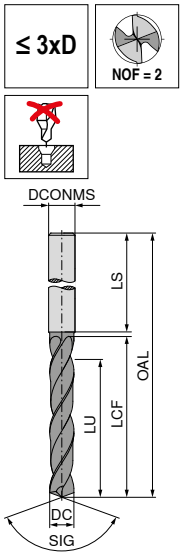
P	●	●	○	○
M			●	●
K	●	●		
N			○	○
S			○	○
H				
O			○	○

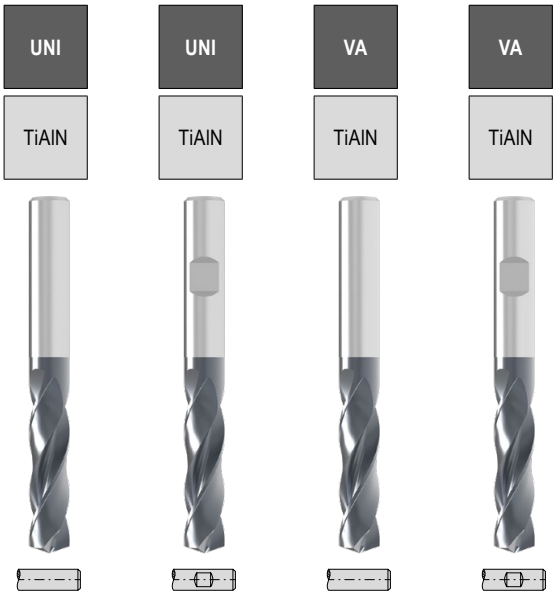
→ v_c Page 128+132

Ø DC_{h7} for Type UNI / **Ø DC_{m7}** for Type VA

Continued on next page

High Performance Drill, DIN 6537





SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 706 ... £ T1/9C		11 707 ... £ T1/9C		11 711 ... £ T1/9C		11 712 ... £ T1/9C	
8.40	10	89	47	34.4	40	29.17	**08400**	29.17	**08400**	33.13	**08400**	33.13	**08400**
8.50	10	89	47	34.2	40	29.17	**08500**	29.17	**08500**	33.13	**08500**	33.13	**08500**
8.60	10	89	47	34.1	40	29.17	**08600**	29.17	**08600**	33.13	**08600**	33.13	**08600**
8.70	10	89	47	33.9	40	29.17	**08700**	29.17	**08700**	33.13	**08700**	33.13	**08700**
8.80	10	89	47	33.8	40	29.17	**08800**	29.17	**08800**	33.13	**08800**	33.13	**08800**
8.90	10	89	47	33.6	40	29.17	**08900**	29.17	**08900**	33.13	**08900**	33.13	**08900**
9.00	10	89	47	33.5	40	29.17	**09000**	29.17	**09000**	33.13	**09000**	33.13	**09000**
9.10	10	89	47	33.3	40	29.17	**09100**	29.17	**09100**	33.13	**09100**	33.13	**09100**
9.20	10	89	47	33.2	40	29.17	**09200**	29.17	**09200**	33.13	**09200**	33.13	**09200**
9.30	10	89	47	33.0	40	29.17	**09300**	29.17	**09300**	33.13	**09300**	33.13	**09300**
9.40	10	89	47	32.9	40	29.17	**09400**	29.17	**09400**	33.13	**09400**	33.13	**09400**
9.50	10	89	47	32.7	40	29.17	**09500**	29.17	**09500**	33.13	**09500**	33.13	**09500**
9.60	10	89	47	32.6	40	29.17	**09600**	29.17	**09600**	33.13	**09600**	33.13	**09600**
9.70	10	89	47	32.4	40	29.17	**09700**	29.17	**09700**	33.13	**09700**	33.13	**09700**
9.80	10	89	47	32.3	40	29.17	**09800**	29.17	**09800**	33.13	**09800**	33.13	**09800**
9.90	10	89	47	32.1	40	29.17	**09900**	29.17	**09900**	33.13	**09900**	33.13	**09900**
10.00	10	89	47	32.0	40	29.17	**10000**	29.17	**10000**	33.13	**10000**	33.13	**10000**
10.10	12	102	55	39.8	45	44.40	**10100**	44.40	**10100**	49.97	**10100**	49.97	**10100**
10.20	12	102	55	39.7	45	44.40	**10200**	44.40	**10200**	49.97	**10200**	49.97	**10200**
10.30	12	102	55	39.5	45	44.40	**10300**	44.40	**10300**	49.97	**10300**	49.97	**10300**
10.40	12	102	55	39.4	45	44.40	**10400**	44.40	**10400**	49.97	**10400**	49.97	**10400**
10.50	12	102	55	39.2	45	44.40	**10500**	44.40	**10500**	49.97	**10500**	49.97	**10500**
10.60	12	102	55	39.1	45	44.40	**10600**	44.40	**10600**	49.97	**10600**	49.97	**10600**
10.70	12	102	55	38.9	45	44.40	**10700**	44.40	**10700**	49.97	**10700**	49.97	**10700**
10.80	12	102	55	38.8	45	44.40	**10800**	44.40	**10800**	49.97	**10800**	49.97	**10800**
10.90	12	102	55	38.6	45	44.40	**10900**	44.40	**10900**	49.97	**10900**	49.97	**10900**
11.00	12	102	55	38.5	45	44.40	**11000**	44.40	**11000**	49.97	**11000**	49.97	**11000**
11.10	12	102	55	38.3	45	44.40	**11100**	44.40	**11100**	49.97	**11100**	49.97	**11100**
11.20	12	102	55	38.2	45	44.40	**11200**	44.40	**11200**	49.97	**11200**	49.97	**11200**
11.30	12	102	55	38.0	45	44.40	**11300**	44.40	**11300**	49.97	**11300**	49.97	**11300**
11.40	12	102	55	37.9	45	44.40	**11400**	44.40	**11400**	49.97	**11400**	49.97	**11400**
11.50	12	102	55	37.7	45	44.40	**11500**	44.40	**11500**	49.97	**11500**	49.97	**11500**
11.60	12	102	55	37.6	45	44.40	**11600**	44.40	**11600**	49.97	**11600**	49.97	**11600**
11.70	12	102	55	37.4	45	44.40	**11700**	44.40	**11700**	49.97	**11700**	49.97	**11700**
11.80	12	102	55	37.3	45	44.40	**11800**	44.40	**11800**	49.97	**11800**	49.97	**11800**
11.90	12	102	55	37.1	45	44.40	**11900**	44.40	**11900**	49.97	**11900**	49.97	**11900**
12.00	12	102	55	37.0	45	44.40	**12000**	44.40	**12000**	49.97	**12000**	49.97	**12000**
12.20	14	107	60	41.7	45	59.63	**12200**	59.63	**12200**	66.95	**12200**	66.95	**12200**
12.50	14	107	60	41.2	45	59.63	**12500**	59.63	**12500**	66.95	**12500**	66.95	**12500**
12.70	14	107	60	40.9	45	65.57	**12700**	65.57	**12700**	66.95	**12700**	66.95	**12700**

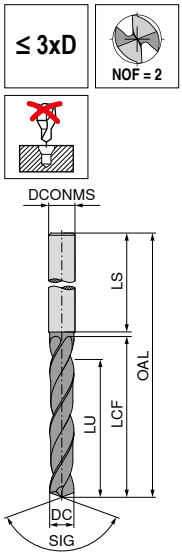
P	●	●	○	○
M			●	●
K	●	●		
N			○	○
S			○	○
H				
O			○	○

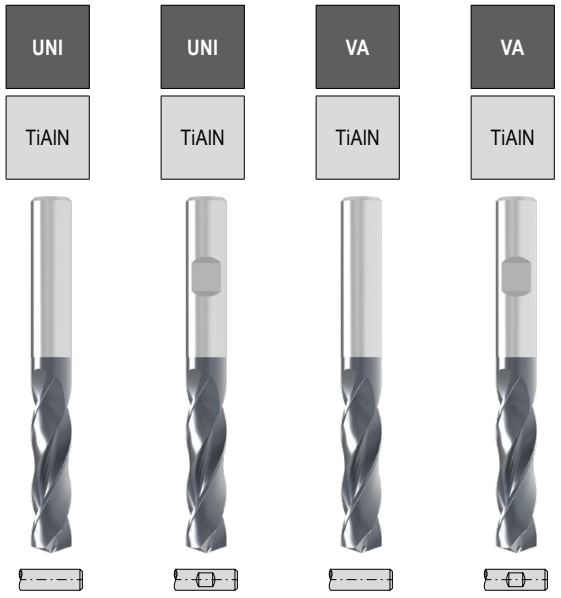
→ v_c Page 128+132

Ø DC$_{h7}$ for Type UNI / **Ø DC$_{m7}$** for Type VA

Continued on next page

High Performance Drill, DIN 6537





SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 706 ... £ T1/9C		11 707 ... £ T1/9C		11 711 ... £ T1/9C		11 712 ... £ T1/9C	
12.80	14	107	60	40.8	45	59.63	12800	59.63	12800	66.95	12800	66.95	12800
13.00	14	107	60	40.5	45	59.63	13000	59.63	13000	66.95	13000	66.95	13000
13.10	14	107	60	40.3	45	59.63	13100	59.63	13100	66.95	13100	66.95	13100
13.50	14	107	60	39.7	45	59.63	13500	59.63	13500	66.95	13500	66.95	13500
13.70	14	107	60	39.4	45					66.95	13700	66.95	13700
13.80	14	107	60	39.3	45	59.63	13800	59.63	13800	66.95	13800	66.95	13800
14.00	14	107	60	39.0	45	59.63	14000	59.63	14000	66.95	14000	66.95	14000
14.20	16	115	65	43.7	48	76.13	14200	76.13	14200	87.01	14200	87.01	14200
14.40	16	115	65	43.4	48	76.13	14400	76.13	14400	87.01	14400	87.01	14400
14.50	16	115	65	43.2	48	76.13	14500	76.13	14500	87.01	14500	87.01	14500
14.70	16	115	65	42.9	48					87.01	14700	87.01	14700
14.80	16	115	65	42.8	48	76.13	14800	76.13	14800	87.01	14800	87.01	14800
15.00	16	115	65	42.5	48	76.13	15000	76.13	15000	87.01	15000	87.01	15000
15.10	16	115	65	42.3	48	76.13	15100	76.13	15100	87.01	15100	87.01	15100
15.20	16	115	65	42.2	48	76.13	15200	76.13	15200	87.01	15200	87.01	15200
15.50	16	115	65	41.7	48	76.13	15500	76.13	15500	87.01	15500	87.01	15500
15.70	16	115	65	41.4	48					87.01	15700	87.01	15700
15.80	16	115	65	41.3	48	76.13	15800	76.13	15800	87.01	15800	87.01	15800
16.00	16	115	65	41.0	48	76.13	16000	76.13	16000	87.01	16000	87.01	16000
16.50	18	123	73	48.2	48	130.67	16500	130.67	16500	147.50	16500	147.50	16500
17.00	18	123	73	47.5	48	130.67	17000	130.67	17000	147.50	17000	147.50	17000
17.50	18	123	73	46.7	48	130.67	17500	130.67	17500	147.50	17500	147.50	17500
18.00	18	123	73	46.0	48	130.67	18000	130.67	18000	147.50	18000	147.50	18000
18.50	20	131	79	51.2	50	143.36	18500	143.36	18500	161.38	18500	161.38	18500
18.90	20	131	79	50.6	50	143.36	18900	143.36	18900	161.38	18900	161.38	18900
19.00	20	131	79	50.5	50	143.36	19000	143.36	19000	161.38	19000	161.38	19000
19.50	20	131	79	49.7	50	143.36	19500	143.36	19500	161.38	19500	161.38	19500
20.00	20	131	79	49.0	50	143.36	20000	143.36	20000	161.38	20000	161.38	20000

P	●	●	○	○
M			●	●
K	●	●		
N			○	○
S			○	○
H				
O			○	○

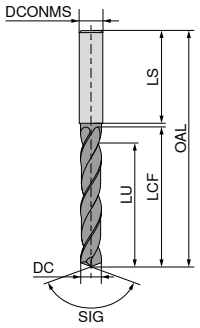
→ v_c Page 128+132

Ø DC_{h7} for Type UNI / **Ø DC_{m7}** for Type VA

WTX – High Performance Drill, factory standard

▲ Special cutting edge geometry
▲ Special flute geometry
▲ Optimised core thickness
▲ 46 to 70 HRC

≤ 3xD | NOF = 2



H

DPX64U

DRAGONSKIN



SIG 140°

Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 777 ... £ T4/9F	
2.55	4	55	20	16.1	28	66.25	02550
2.60	4	55	20	16.1	28	66.25	02600
2.70	4	55	20	15.9	28	66.25	02700
2.80	4	55	20	15.8	28	66.25	02800
2.90	4	55	20	15.6	28	66.25	02900
3.00	6	62	20	15.5	36	95.54	03000
3.10	6	62	20	15.3	36	95.54	03100
3.20	6	62	20	15.2	36	95.54	03200
3.30	6	62	20	15.0	36	95.54	03300
3.40	6	62	20	14.9	36	95.54	03400
3.50	6	62	20	14.7	36	95.54	03500
3.60	6	62	20	14.6	36	95.54	03600
3.70	6	62	20	14.4	36	95.54	03700
3.80	6	66	24	18.3	36	95.54	03800
3.90	6	66	24	18.1	36	95.54	03900
4.00	6	66	24	18.0	36	95.54	04000
4.10	6	66	24	17.8	36	95.54	04100
4.20	6	66	24	17.7	36	95.54	04200
4.30	6	66	24	17.5	36	95.54	04300
4.40	6	66	24	17.4	36	95.54	04400
4.50	6	66	24	17.2	36	95.54	04500
4.60	6	66	24	17.1	36	95.54	04600
4.70	6	66	24	16.9	36	95.54	04700
4.80	6	66	28	20.8	36	95.54	04800
4.90	6	66	28	20.6	36	95.54	04900
5.00	6	66	28	20.5	36	95.54	05000
5.10	6	66	28	20.3	36	95.54	05100
5.20	6	66	28	20.2	36	95.54	05200
5.30	6	66	28	20.0	36	95.54	05300
5.40	6	66	28	19.9	36	95.54	05400
5.50	6	66	28	19.7	36	95.54	05500
5.60	6	66	28	19.6	36	95.54	05600
5.70	6	66	28	19.4	36	95.54	05700
5.80	6	66	28	19.3	36	95.54	05800
5.90	6	66	28	19.1	36	95.54	05900
6.00	6	66	28	19.0	36	95.54	06000
6.10	8	79	34	24.8	36	124.16	06100
6.20	8	79	34	24.7	36	124.16	06200
6.30	8	79	34	24.5	36	124.16	06300
6.40	8	79	34	24.4	36	124.16	06400
6.50	8	79	34	24.2	36	124.16	06500
6.60	8	79	34	24.1	36	124.16	06600
6.70	8	79	34	23.9	36	124.16	06700
6.80	8	79	34	23.8	36	124.16	06800
6.90	8	79	34	23.6	36	124.16	06900
7.00	8	79	34	23.5	36	124.16	07000
7.10	8	79	41	30.3	36	124.16	07100
7.20	8	79	41	30.2	36	124.16	07200
7.30	8	79	41	30.0	36	124.16	07300
7.40	8	79	41	29.9	36	124.16	07400
7.50	8	79	41	29.7	36	124.16	07500
7.60	8	79	41	29.6	36	124.16	07600
7.70	8	79	41	29.4	36	124.16	07700
7.80	8	79	41	29.3	36	124.16	07800
7.90	8	79	41	29.1	36	124.16	07900
8.00	8	79	41	29.0	36	124.16	08000
8.10	10	89	47	34.8	40	140.34	08100
8.20	10	89	47	34.7	40	140.34	08200
8.30	10	89	47	34.5	40	140.34	08300
8.40	10	89	47	34.4	40	140.34	08400
8.50	10	89	47	34.2	40	140.34	08500
8.60	10	89	47	34.1	40	140.34	08600
8.70	10	89	47	33.9	40	140.34	08700
8.80	10	89	47	33.8	40	140.34	08800
8.90	10	89	47	33.6	40	140.34	08900
9.00	10	89	47	33.5	40	140.34	09000
9.10	10	89	47	33.3	40	140.34	09100
9.20	10	89	47	33.2	40	140.34	09200
9.30	10	89	47	33.0	40	140.34	09300
9.40	10	89	47	32.9	40	140.34	09400
9.50	10	89	47	32.7	40	140.34	09500
9.60	10	89	47	32.6	40	140.34	09600
9.70	10	89	47	32.4	40	140.34	09700
9.80	10	89	47	32.3	40	140.34	09800
9.90	10	89	47	32.1	40	140.34	09900
10.00	10	89	47	32.0	40	140.34	10000
10.10	12	102	55	39.8	45	182.24	10100
10.20	12	102	55	39.7	45	182.24	10200
10.30	12	102	55	39.5	45	182.24	10300
10.40	12	102	55	39.4	45	182.24	10400
10.50	12	102	55	39.2	45	182.24	10500
10.60	12	102	55	39.1	45	182.24	10600
10.70	12	102	55	38.9	45	182.24	10700
10.80	12	102	55	38.8	45	182.24	10800
10.90	12	102	55	38.6	45	182.24	10900
11.00	12	102	55	38.5	45	182.24	11000
11.10	12	102	55	38.3	45	182.24	11100
11.20	12	102	55	38.2	45	182.24	11200
11.30	12	102	55	38.0	45	182.24	11300
11.40	12	102	55	37.9	45	182.24	11400
11.50	12	102	55	37.7	45	182.24	11500
11.60	12	102	55	37.6	45	182.24	11600
11.70	12	102	55	37.4	45	182.24	11700
11.80	12	102	55	37.3	45	182.24	11800
11.90	12	102	55	37.1	45	182.24	11900
12.00	12	102	55	37.0	45	182.24	12000
12.10	14	107	60	41.8	45	215.34	12100
12.20	14	107	60	41.7	45	215.34	12200
12.30	14	107	60	41.5	45	215.34	12300
12.40	14	107	60	41.4	45	215.34	12400
12.50	14	107	60	41.2	45	215.34	12500
12.60	14	107	60	41.1	45	215.34	12600
12.70	14	107	60	40.9	45	215.34	12700
12.80	14	107	60	40.8	45	215.34	12800
12.90	14	107	60	40.6	45	215.34	12900
13.00	14	107	60	40.5	45	215.34	13000
13.10	14	107	60	40.3	45	215.34	13100
13.20	14	107	60	40.2	45	215.34	13200
13.30	14	107	60	40.0	45	215.34	13300
13.40	14	107	60	39.9	45	215.34	13400
13.50	14	107	60	39.7	45	215.34	13500
13.60	14	107	60	39.6	45	215.34	13600
13.70	14	107	60	39.4	45	215.34	13700
13.80	14	107	60	39.3	45	215.34	13800
13.90	14	107	60	39.1	45	215.34	13900
14.00	14	107	60	39.0	45	215.34	14000

P	○
K	●
S	
H.1.1	●
H.1.2	●
H.1.3	●
H.1.4	●

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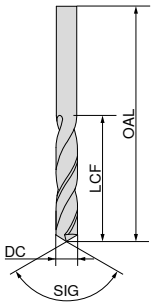
Twist drill similar to DIN 1897

▲ Helix angle 30°
▲ Shank Ø h7

≤ 3xD

NOF = 2



N



SIG 118°
Solid carbide

DC h7 mm	OAL mm	LCF mm	10 700 ... £ T3	
0.5	20	3.0	7.57	005
0.6	21	3.5	7.96	006
0.7	23	4.5	7.96	007
0.8	24	5.0	7.96	008
0.9	25	5.5	7.96	009
1.0	26	6.0	7.96	010
1.2	30	8.0	7.96	012
1.3	30	8.0	7.96	013
1.4	32	9.0	7.96	014
1.5	32	9.0	7.96	015
1.6	34	10.0	7.96	016
1.7	34	10.0	7.96	017
1.8	36	11.0	7.96	018
1.9	36	11.0	7.96	019
2.0	38	12.0	10.68	020
2.1	38	12.0	11.01	021
2.2	40	13.0	11.01	022
2.3	40	13.0	11.01	023
2.4	43	14.0	11.01	024
2.5	43	14.0	12.36	025
2.6	43	14.0	12.36	026
2.7	46	16.0	12.98	027
2.8	46	16.0	12.98	028
2.9	46	16.0	12.98	029
3.0	46	16.0	13.88	030
3.1	49	18.0	13.88	031
3.2	49	18.0	13.88	032
3.3	49	18.0	16.24	033
3.4	52	20.0	16.24	034
3.5	52	20.0	17.51	035
3.6	52	20.0	17.51	036
3.7	52	20.0	17.51	037
3.8	55	22.0	18.05	038
3.9	55	22.0	18.05	039
4.0	55	22.0	20.82	040
4.1	55	22.0	20.82	041
4.2	55	22.0	22.67	042
4.3	58	24.0	22.67	043
4.4	58	24.0	22.67	044
4.5	58	24.0	24.53	045
4.6	58	24.0	24.53	046
4.7	58	24.0	24.53	047
4.8	62	26.0	24.53	048
4.9	62	26.0	24.53	049
5.0	62	26.0	27.47	050
5.1	62	26.0	27.47	051
5.2	62	26.0	28.31	052
5.3	62	26.0	28.31	053
5.4	66	28.0	28.31	054
5.5	66	28.0	31.90	055
5.6	66	28.0	31.90	056
5.7	66	28.0	31.90	057
5.8	66	28.0	31.90	058
5.9	66	28.0	31.90	059
6.0	66	28.0	35.40	060
6.1	70	31.0	36.47	061
6.2	70	31.0	36.47	062
6.3	70	31.0	36.47	063
6.4	70	31.0	36.47	064
6.5	70	31.0	39.47	065
6.6	70	31.0	43.49	066
6.7	70	31.0	43.49	067
6.8	74	34.0	43.49	068
6.9	74	34.0	43.49	069
7.0	74	34.0	43.49	070
7.1	74	34.0	43.49	071
7.2	74	34.0	43.49	072
7.3	74	34.0	43.49	073
7.4	74	34.0	43.49	074
7.5	74	34.0	50.32	075
7.6	79	37.0	50.32	076
7.7	79	37.0	50.32	077
7.8	79	37.0	50.32	078
7.9	79	37.0	50.32	079
8.0	79	37.0	51.67	080
8.1	79	37.0	56.66	081
8.2	79	37.0	56.66	082
8.3	79	37.0	56.66	083
8.4	79	37.0	56.66	084
8.5	79	37.0	58.67	085
8.6	84	40.0	59.82	086
8.7	84	40.0	59.82	087
8.8	84	40.0	65.43	088
8.9	84	40.0	65.43	089
9.0	84	40.0	65.43	090
9.1	84	40.0	65.43	091
9.2	84	40.0	65.43	092
9.3	84	40.0	65.43	093
9.4	84	40.0	65.43	094
9.5	84	40.0	70.43	095
9.6	89	43.0	70.43	096
9.7	89	43.0	70.43	097
9.8	89	43.0	70.43	098
9.9	89	43.0	70.43	099
10.0	89	43.0	78.17	100
10.2	89	43.0	83.35	102
10.5	89	43.0	83.35	105
10.8	95	47.0	83.35	108
11.0	95	47.0	92.88	110
11.2	95	47.0	101.74	112
11.5	95	47.0	103.16	115
11.8	95	47.0	103.16	118
12.0	102	51.0	115.73	120
12.5	102	51.0	126.26	125
13.0	102	51.0	141.48	130
13.5	107	54.0	161.00	135
14.0	107	54.0	174.76	140
14.5	111	56.0	186.98	145
15.0	111	56.0	202.77	150
15.5	115	58.0	218.87	155
16.0	115	58.0	230.70	160
18.0	123	62.0	309.56	180
20.0	131	66.0	414.77	200

P	○
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S	○
H	
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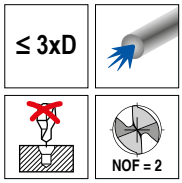
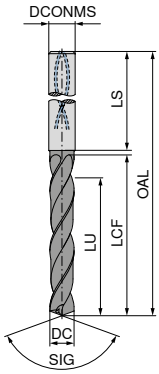
WTX – High Performance Drill, DIN 6537





	Speed UNI	UNI	UNI	UNI	VA
	DPX14S	DPX74S	DPX74S	DPX74S	Ti700
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
					
	SIG 145°	SIG 140°	SIG 140°	SIG 140°	SIG 140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 781 ...	**11 780 ...**	**11 781 ...**	**11 779 ...**	**10 734 ...**

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T5	
3.00	6	62	20	14	36	122.02	**03000**	57.50	**03000**	57.50	**03000**	57.50	**03000**	111.68	**030**
3.10	6	62	20	14	36	122.02	**03100**	57.50	**03100**	57.50	**03100**	57.50	**03100**	111.68	**031**
3.15	6	62	20	14	36			57.50	**03150**	57.50	**03150**	57.50	**03150**	111.68	**831**
3.20	6	62	20	14	36	122.02	**03200**	57.50	**03200**	57.50	**03200**	57.50	**03200**	111.68	**032**
3.22	6	62	20	14	36			57.50	**03220**	57.50	**03220**	57.50	**03220**	111.68	**832**
3.25	6	62	20	14	36			57.50	**03250**	57.50	**03250**	57.50	**03250**	111.68	**890**
3.30	6	62	20	14	36	122.02	**03300**	57.50	**03300**	57.50	**03300**	57.50	**03300**	111.68	**033**
3.40	6	62	20	14	36	122.02	**03400**	57.50	**03400**	57.50	**03400**	57.50	**03400**	111.68	**034**
3.50	6	62	20	14	36	122.02	**03500**	57.50	**03500**	57.50	**03500**	57.50	**03500**	111.68	**035**
3.60	6	62	20	14	36	122.02	**03600**	57.50	**03600**	57.50	**03600**	57.50	**03600**	111.68	**036**
3.70	6	62	20	14	36	122.02	**03700**	57.50	**03700**	57.50	**03700**	57.50	**03700**	111.68	**037**
3.80	6	66	24	17	36	122.02	**03800**	57.50	**03800**	57.50	**03800**	57.50	**03800**	111.68	**038**
3.85	6	66	24	17	36			57.50	**03850**	57.50	**03850**	57.50	**03850**	111.68	**838**
3.90	6	66	24	17	36	122.02	**03900**	57.50	**03900**	57.50	**03900**	57.50	**03900**	111.68	**039**
4.00	6	66	24	17	36	122.02	**04000**	57.50	**04000**	57.50	**04000**	57.50	**04000**	111.68	**040**
4.10	6	66	24	17	36	122.02	**04100**	57.50	**04100**	57.50	**04100**	57.50	**04100**	111.68	**041**
4.20	6	66	24	17	36	122.02	**04200**	57.50	**04200**	57.50	**04200**	57.50	**04200**	111.68	**042**
4.25	6	66	24	17	36			57.50	**04250**	57.50	**04250**	57.50	**04250**		
4.30	6	66	24	17	36	122.02	**04300**	57.50	**04300**	57.50	**04300**	57.50	**04300**	111.68	**043**
4.35	6	66	24	17	36			57.50	**04350**	57.50	**04350**	57.50	**04350**	111.68	**843**
4.40	6	66	24	17	36	122.02	**04400**	57.50	**04400**	57.50	**04400**	57.50	**04400**	111.68	**044**
4.45	6	66	24	17	36			57.50	**04450**	57.50	**04450**	57.50	**04450**	111.68	**844**
4.50	6	66	24	17	36	122.02	**04500**	57.50	**04500**	57.50	**04500**	57.50	**04500**	111.68	**045**
4.60	6	66	24	17	36	122.02	**04600**	57.50	**04600**	57.50	**04600**	57.50	**04600**	111.68	**046**
4.65	6	66	24	17	36	122.02	**04650**	57.50	**04650**	57.50	**04650**	57.50	**04650**	111.68	**900**
4.70	6	66	24	17	36	122.02	**04700**	57.50	**04700**	57.50	**04700**	57.50	**04700**	111.68	**047**
4.80	6	66	28	20	36	122.02	**04800**	57.50	**04800**	57.50	**04800**	57.50	**04800**	111.68	**048**
4.90	6	66	28	20	36	122.02	**04900**	57.50	**04900**	57.50	**04900**	57.50	**04900**	111.68	**049**
4.95	6	66	28	20	36			57.50	**04950**	57.50	**04950**	57.50	**04950**		
5.00	6	66	28	20	36	122.02	**05000**	57.50	**05000**	57.50	**05000**	57.50	**05000**	111.68	**050**
5.05	6	66	28	20	36			57.50	**05050**	57.50	**05050**	57.50	**05050**		
5.10	6	66	28	20	36	122.02	**05100**	57.50	**05100**	57.50	**05100**	57.50	**05100**	111.68	**051**
5.20	6	66	28	20	36	122.02	**05200**	57.50	**05200**	57.50	**05200**	57.50	**05200**	111.68	**052**
5.30	6	66	28	20	36	122.02	**05300**	57.50	**05300**	57.50	**05300**	57.50	**05300**	111.68	**053**
5.40	6	66	28	20	36	122.02	**05400**	57.50	**05400**	57.50	**05400**	57.50	**05400**	111.68	**054**
5.50	6	66	28	20	36	122.02	**05500**	57.50	**05500**	57.50	**05500**	57.50	**05500**	111.68	**055**
5.55	6	66	28	20	36	122.02	**05550**	57.50	**05550**	57.50	**05550**	57.50	**05550**	111.68	**902**
5.60	6	66	28	20	36	122.02	**05600**	57.50	**05600**	57.50	**05600**	57.50	**05600**	111.68	**056**
5.70	6	66	28	20	36	122.02	**05700**	57.50	**05700**	57.50	**05700**	57.50	**05700**	111.68	**057**
5.75	6	66	28	20	36			57.50	**05750**	57.50	**05750**	57.50	**05750**	111.68	**916**
5.80	6	66	28	20	36	122.02	**05800**	57.50	**05800**	57.50	**05800**	57.50	**05800**	111.68	**058**
5.90	6	66	28	20	36	122.02	**05900**	57.50	**05900**	57.50	**05900**	57.50	**05900**	111.68	**059**

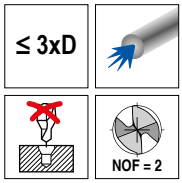
P	●	●	●	●	○
M	●				●
K	●	●	●	●	○
N					○
S					●
H		○	○	○	
O					

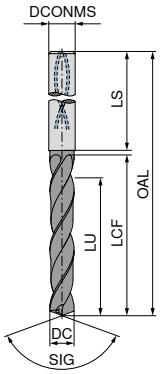
→ v_c Page 110–114

Ø DC_{m7} for Type UNI and VA / **Ø DC_{h7}** for Type Speed UNI

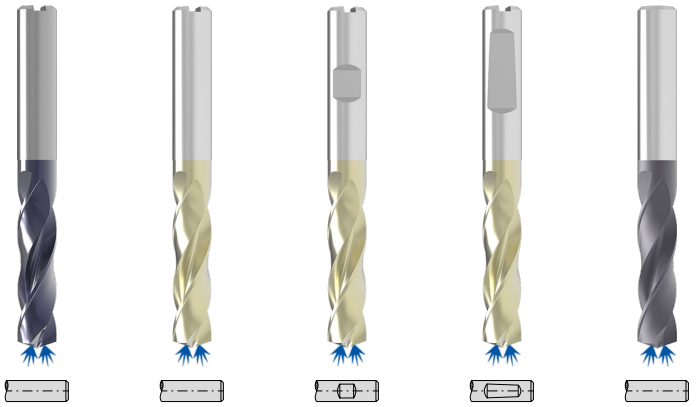
Continued on next page

WTX – High Performance Drill, DIN 6537





Speed UNI	UNI	UNI	UNI	VA
DPX14S	DPX74S	DPX74S	DPX74S	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	



SIG 145°	SIG 140°	SIG 140°	SIG 140°	SIG 140°
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
10 781 ...	**11 780 ...**	**11 781 ...**	**11 779 ...**	**10 734 ...**

DC m7/h7	DCONMS h6	OAL	LCF	LU	LS	£ T4		£ T7		£ T7		£ T7		£ T5	
mm	mm	mm	mm	mm	mm										
5.95	6	66	28	20	36			57.50	05950	57.50	05950	57.50	05950	111.68	959
6.00	6	66	28	20	36	122.02	06000	57.50	06000	57.50	06000	57.50	06000	111.68	060
6.10	8	79	34	24	36	149.13	06100	75.10	06100	75.10	06100	75.10	06100	137.85	061
6.20	8	79	34	24	36	149.13	06200	75.10	06200	75.10	06200	75.10	06200	137.85	062
6.30	8	79	34	24	36	149.13	06300	75.10	06300	75.10	06300	75.10	06300	137.85	063
6.40	8	79	34	24	36	149.13	06400	75.10	06400	75.10	06400	75.10	06400	137.85	064
6.50	8	79	34	24	36	149.13	06500	75.10	06500	75.10	06500	75.10	06500	137.85	065
6.60	8	79	34	24	36	149.13	06600	75.10	06600	75.10	06600	75.10	06600	137.85	066
6.70	8	79	34	24	36	149.13	06700	75.10	06700	75.10	06700	75.10	06700	137.85	067
6.80	8	79	34	24	36	149.13	06800	75.10	06800	75.10	06800	75.10	06800	137.85	068
6.90	8	79	34	24	36	149.13	06900	75.10	06900	75.10	06900	75.10	06900	137.85	069
7.00	8	79	34	24	36	149.13	07000	75.10	07000	75.10	07000	75.10	07000	137.85	070
7.10	8	79	41	29	36	149.13	07100	75.10	07100	75.10	07100	75.10	07100	137.85	071
7.20	8	79	41	29	36	149.13	07200	75.10	07200	75.10	07200	75.10	07200	137.85	072
7.30	8	79	41	29	36	149.13	07300	75.10	07300	75.10	07300	75.10	07300	137.85	073
7.40	8	79	41	29	36	149.13	07400	75.10	07400	75.10	07400	75.10	07400	137.85	074
7.45	8	79	41	29	36			75.10	07450	75.10	07450	75.10	07450	137.85	924
7.50	8	79	41	29	36	149.13	07500	75.10	07500	75.10	07500	75.10	07500	137.85	075
7.60	8	79	41	29	36	149.13	07600	75.10	07600	75.10	07600	75.10	07600	137.85	076
7.70	8	79	41	29	36	149.13	07700	75.10	07700	75.10	07700	75.10	07700	137.85	077
7.80	8	79	41	29	36	149.13	07800	75.10	07800	75.10	07800	75.10	07800	137.85	078
7.90	8	79	41	29	36	149.13	07900	75.10	07900	75.10	07900	75.10	07900	137.85	079
8.00	8	79	41	29	36	149.13	08000	75.10	08000	75.10	08000	75.10	08000	136.95	080
8.10	10	89	47	35	40	205.67	08100	85.81	08100	85.81	08100	85.81	08100	137.85	081
8.20	10	89	47	35	40	205.67	08200	85.81	08200	85.81	08200	85.81	08200	137.85	082
8.30	10	89	47	35	40	205.67	08300	85.81	08300	85.81	08300	85.81	08300	137.85	083
8.40	10	89	47	35	40	205.67	08400	85.81	08400	85.81	08400	85.81	08400	137.85	084
8.50	10	89	47	35	40	205.67	08500	85.81	08500	85.81	08500	85.81	08500	137.85	085
8.60	10	89	47	35	40	205.67	08600	85.81	08600	85.81	08600	85.81	08600	137.85	086
8.70	10	89	47	35	40	205.67	08700	85.81	08700	85.81	08700	85.81	08700	137.85	087
8.80	10	89	47	35	40	205.67	08800	85.81	08800	85.81	08800	85.81	08800	137.85	088
8.90	10	89	47	35	40	205.67	08900	85.81	08900	85.81	08900	85.81	08900	137.85	089
9.00	10	89	47	35	40	205.67	09000	85.81	09000	85.81	09000	85.81	09000	137.85	090
9.10	10	89	47	35	40	205.67	09100	85.81	09100	85.81	09100	85.81	09100	137.85	091
9.20	10	89	47	35	40	205.67	09200	85.81	09200	85.81	09200	85.81	09200	159.26	092
9.30	10	89	47	35	40	205.67	09300	85.81	09300	85.81	09300	85.81	09300	159.26	093
9.35	10	89	47	35	40			85.81	09350	85.81	09350	85.81	09350	159.26	930
9.40	10	89	47	35	40	205.67	09400	85.81	09400	85.81	09400	85.81	09400	159.26	094
9.45	10	89	47	35	40			85.81	09450	85.81	09450	85.81	09450	159.26	994
9.50	10	89	47	35	40	205.67	09500	85.81	09500	85.81	09500	85.81	09500	159.26	095
9.60	10	89	47	35	40	205.67	09600	85.81	09600	85.81	09600	85.81	09600	159.26	096
9.70	10	89	47	35	40	205.67	09700	85.81	09700	85.81	09700	85.81	09700	159.26	097

P	●	●	●	●	○
M	●				●
K	●	●	●	●	○
N					○
S					●
H		○	○	○	
O					

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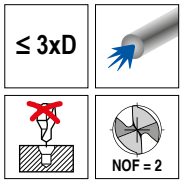
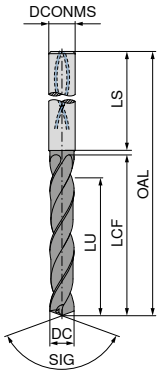
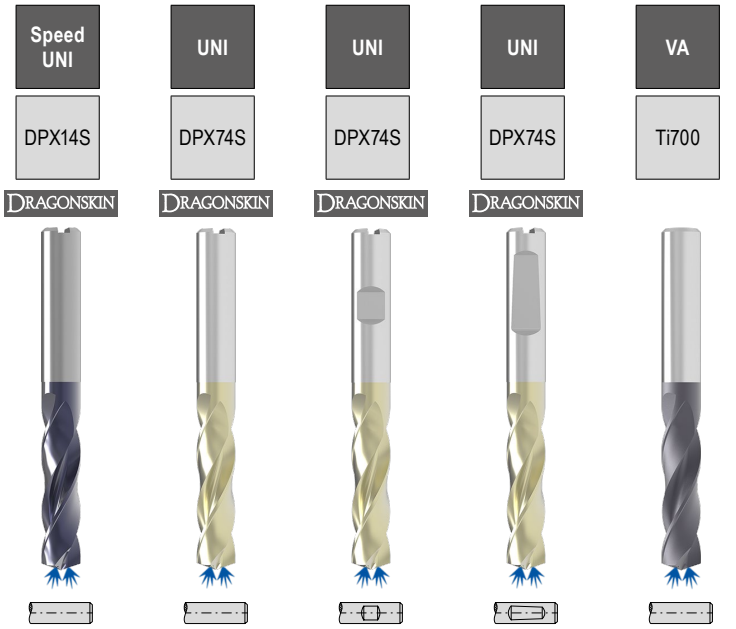
Ø DC_{m7} for Type UNI and VA / Ø DC_{h7} for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537







						SIG 145° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide	
						10 781 ...		11 780 ...		11 781 ...		11 779 ...		10 734 ...	
DC m7/h7	DCONMS h6	OAL	LCF	LU	LS	£ T4		£ T7		£ T7		£ T7		£ T5	
mm	mm	mm	mm	mm	mm										
9.80	10	89	47	35	40	205.67	09800	85.81	09800	85.81	09800	85.81	09800	159.26	098
9.90	10	89	47	35	40	205.67	09900	85.81	09900	85.81	09900	85.81	09900	159.26	099
10.00	10	89	47	35	40	205.67	10000	85.81	10000	85.81	10000	85.81	10000	159.26	100
10.10	12	102	55	40	45	259.07	10100	119.81	10100	119.81	10100	119.81	10100	220.96	101
10.20	12	102	55	40	45	259.07	10200	119.81	10200	119.81	10200	119.81	10200	220.96	102
10.30	12	102	55	40	45	259.07	10300	119.81	10300	119.81	10300	119.81	10300	220.96	103
10.40	12	102	55	40	45	259.07	10400	119.81	10400	119.81	10400	119.81	10400	220.96	104
10.50	12	102	55	40	45	259.07	10500	119.81	10500	119.81	10500	119.81	10500	220.96	105
10.55	12	102	55	40	45			119.81	10550	119.81	10550	119.81	10550	220.96	932
10.60	12	102	55	40	45	259.07	10600	119.81	10600	119.81	10600	119.81	10600	220.96	106
10.70	12	102	55	40	45	259.07	10700	119.81	10700	119.81	10700	119.81	10700	220.96	107
10.75	12	102	55	40	45			119.81	10750	119.81	10750	119.81	10750		
10.80	12	102	55	40	45	259.07	10800	119.81	10800	119.81	10800	119.81	10800	220.96	108
10.90	12	102	55	40	45	259.07	10900	119.81	10900	119.81	10900	119.81	10900	220.96	109
11.00	12	102	55	40	45	259.07	11000	119.81	11000	119.81	11000	119.81	11000	220.96	110
11.10	12	102	55	40	45	259.07	11100	119.81	11100	119.81	11100	119.81	11100	220.96	111
11.20	12	102	55	40	45	259.07	11200	119.81	11200	119.81	11200	119.81	11200	220.96	112
11.25	12	102	55	40	45			119.81	11250	119.81	11250	119.81	11250	220.96	912
11.30	12	102	55	40	45	259.07	11300	119.81	11300	119.81	11300	119.81	11300	220.96	113
11.35	12	102	55	40	45			119.81	11350	119.81	11350	119.81	11350	220.96	913
11.40	12	102	55	40	45	259.07	11400	119.81	11400	119.81	11400	119.81	11400	220.96	114
11.45	12	102	55	40	45			119.81	11450	119.81	11450	119.81	11450	220.96	914
11.50	12	102	55	40	45	259.07	11500	119.81	11500	119.81	11500	119.81	11500	220.96	115
11.60	12	102	55	40	45	259.07	11600	119.81	11600	119.81	11600	119.81	11600	220.96	116
11.70	12	102	55	40	45	259.07	11700	119.81	11700	119.81	11700	119.81	11700	220.96	117
11.80	12	102	55	40	45	259.07	11800	119.81	11800	119.81	11800	119.81	11800	220.96	118
11.90	12	102	55	40	45	259.07	11900	119.81	11900	119.81	11900	119.81	11900	220.96	119
12.00	12	102	55	40	45	259.07	12000	119.81	12000	119.81	12000	119.81	12000	220.96	120
12.15	14	107	60	43	45			169.70	12150	169.70	12150	169.70	12150	311.09	921
12.25	14	107	60	43	45			169.70	12250	169.70	12250	169.70	12250		
12.50	14	107	60	43	45	423.21	12500	169.70	12500	169.70	12500	169.70	12500	311.09	125
12.55	14	107	60	43	45			169.70	12550	169.70	12550	169.70	12550	311.09	925
12.70	14	107	60	43	45			169.70	12700	169.70	12700	169.70	12700		
12.80	14	107	60	43	45	423.21	12800	169.70	12800	169.70	12800	169.70	12800	311.09	128
12.90	14	107	60	43	45			169.70	12900	169.70	12900	169.70	12900		
13.00	14	107	60	43	45	423.21	13000	169.70	13000	169.70	13000	169.70	13000	311.09	130
13.10	14	107	60	43	45			169.70	13100	169.70	13100	169.70	13100		
13.30	14	107	60	43	45			169.70	13300	169.70	13300	169.70	13300		
13.35	14	107	60	43	45			169.70	13350	169.70	13350	169.70	13350	311.09	933
13.50	14	107	60	43	45	423.21	13500	169.70	13500	169.70	13500	169.70	13500	311.09	135
13.70	14	107	60	43	45			169.70	13700	169.70	13700	169.70	13700		
13.80	14	107	60	43	45	423.21	13800	169.70	13800	169.70	13800	169.70	13800	311.09	138
P						●		●		●		●		○	
M						●								●	
K						●		●		●		●		○	
N														○	
S														●	
H								○		○		○			
O															

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Ø DC_{m7} for Type UNI and VA / Ø DC_{h7} for Type Speed UNI

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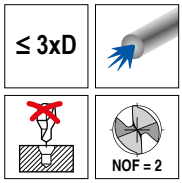
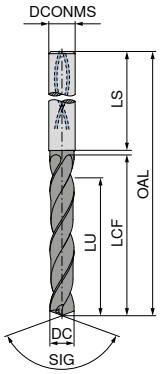
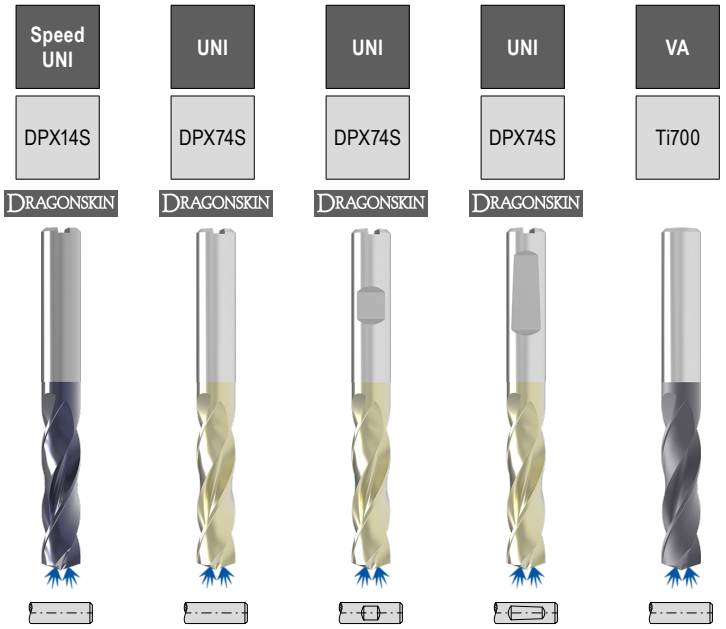
WTX – High Performance Drill, DIN 6537





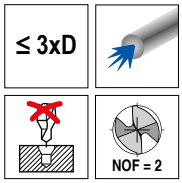


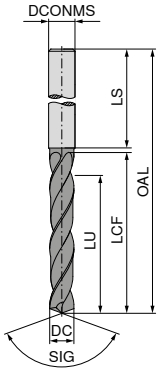
						SIG 145° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide	
						10 781 ...		11 780 ...		11 781 ...		11 779 ...		10 734 ...	
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T5	
14.00	14	107	60	43	45	423.21	14000	169.70	14000	169.70	14000	169.70	14000	311.09	140
14.20	16	115	65	45	48			199.71	14200	199.71	14200	199.71	14200		
14.50	16	115	65	45	48	531.96	14500	199.71	14500	199.71	14500	199.71	14500	394.22	145
14.80	16	115	65	45	48	531.96	14800	199.71	14800	199.71	14800	199.71	14800	394.22	148
15.00	16	115	65	45	48	531.96	15000	199.71	15000	199.71	15000	199.71	15000	394.22	150
15.10	16	115	65	45	48			199.71	15100	199.71	15100	199.71	15100		
15.25	16	115	65	45	48			199.71	15250	199.71	15250	199.71	15250		
15.30	16	115	65	45	48			199.71	15300	199.71	15300	199.71	15300		
15.35	16	115	65	45	48			199.71	15350	199.71	15350	199.71	15350	394.22	953
15.50	16	115	65	45	48	531.96	15500	199.71	15500	199.71	15500	199.71	15500	394.22	155
15.60	16	115	65	45	48			199.71	15600	199.71	15600	199.71	15600		
15.80	16	115	65	45	48	531.96	15800	199.71	15800	199.71	15800	199.71	15800	394.22	158
16.00	16	115	65	45	48	531.96	16000	199.71	16000	199.71	16000	199.71	16000	394.22	160
16.05	18	123	73	51	48			324.12	16050	324.12	16050	324.12	16050	541.26	960
16.50	18	123	73	51	48	715.88	16500	324.12	16500	324.12	16500	324.12	16500	541.26	165
16.80	18	123	73	51	48	715.88	16800	324.12	16800	324.12	16800	324.12	16800	541.26	168
16.90	18	123	73	51	48			324.12	16900	324.12	16900	324.12	16900		
17.00	18	123	73	51	48	715.88	17000	324.12	17000	324.12	17000	324.12	17000	541.26	170
17.50	18	123	73	51	48	715.88	17500	324.12	17500	324.12	17500	324.12	17500	541.26	175
17.60	18	123	73	51	48			324.12	17600	324.12	17600	324.12	17600		
17.80	18	123	73	51	48	715.88	17800	324.12	17800	324.12	17800	324.12	17800	541.26	178
18.00	18	123	73	51	48	715.88	18000	324.12	18000	324.12	18000	324.12	18000	541.26	180
18.50	20	131	79	55	50	872.13	18500	349.09	18500	349.09	18500	349.09	18500	671.94	185
18.80	20	131	79	55	50	872.13	18800	349.09	18800	349.09	18800	349.09	18800	671.94	188
18.90	20	131	79	55	50			349.09	18900	349.09	18900	349.09	18900		
19.00	20	131	79	55	50	872.13	19000	349.09	19000	349.09	19000	349.09	19000	671.94	190
19.35	20	131	79	55	50			349.09	19350	349.09	19350	349.09	19350	671.94	993
19.50	20	131	79	55	50	872.13	19500	349.09	19500	349.09	19500	349.09	19500	671.94	195
19.60	20	131	79	55	50			349.09	19600	349.09	19600	349.09	19600		
19.80	20	131	79	55	50	872.13	19800	349.09	19800	349.09	19800	349.09	19800	671.94	198
20.00	20	131	79	55	50	872.13	20000	349.09	20000	349.09	20000	349.09	20000	671.94	200
20.50	25	151	93	66	56			770.72	20500	770.72	20500	770.72	20500		
21.00	25	151	93	66	56			770.72	21000	770.72	21000	770.72	21000		
21.50	25	151	93	66	56			770.72	21500	770.72	21500	770.72	21500		
22.00	25	151	93	66	56			770.72	22000	770.72	22000	770.72	22000		
22.50	25	153	96	72	56			770.72	22500	770.72	22500	770.72	22500		
23.00	25	153	96	72	56			770.72	23000	770.72	23000	770.72	23000		
23.50	25	153	96	72	56			770.72	23500	770.72	23500	770.72	23500		
24.00	25	153	96	72	56			770.72	24000	770.72	24000	770.72	24000		
24.50	25	153	96	75	56			770.72	24500	770.72	24500	770.72	24500		
25.00	25	153	96	75	56			770.72	25000	770.72	25000	770.72	25000		
P						●		●		●		●		○	
M						●								●	
K						●		●		●		●		○	
N														○	
S														●	
H								○		○		○			
O															

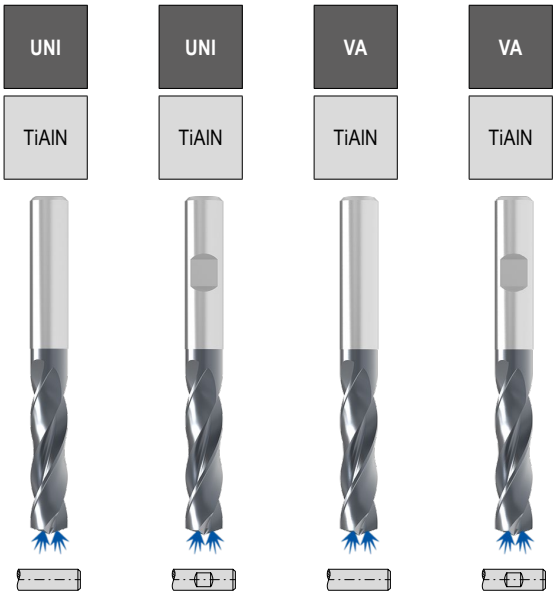
→ v_c Page 110–114

Ø DC_{m7} for Type UNI and VA / Ø DC_{h7} for Type Speed UNI

High Performance Drill, DIN 6537







SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 700 ... £ T1/9C		11 701 ... £ T1/9C		11 713 ... £ T1/9C		11 714 ... £ T1/9C	
1.00	4	45	7	5.5	28	32.99	01000			38.75	01000		
1.10	4	45	7	5.3	28	32.99	01100			38.75	01100		
1.20	4	45	7	5.2	28	32.99	01200			38.75	01200		
1.30	4	45	7	5.0	28	32.99	01300			38.75	01300		
1.40	4	45	7	4.9	28	32.99	01400			38.75	01400		
1.50	4	55	14	11.7	28	32.99	01500			38.75	01500		
1.60	4	55	14	11.6	28	32.99	01600			38.75	01600		
1.70	4	55	14	11.4	28	32.99	01700			38.75	01700		
1.80	4	55	14	11.3	28	32.99	01800			38.75	01800		
1.90	4	55	14	11.1	28	32.99	01900			38.75	01900		
2.00	4	55	20	17.0	28	32.99	02000			38.75	02000		
2.10	4	55	20	16.8	28	32.99	02100			38.75	02100		
2.20	4	55	20	16.7	28	32.99	02200			38.75	02200		
2.30	4	55	20	16.5	28	32.99	02300			38.75	02300		
2.40	4	55	20	16.4	28	32.99	02400			38.75	02400		
2.50	4	55	20	16.2	28	32.99	02500			38.75	02500		
2.60	4	55	20	16.1	28	32.99	02600			38.75	02600		
2.70	4	55	20	15.9	28	32.99	02700			38.75	02700		
2.80	4	55	20	15.8	28	32.99	02800			38.75	02800		
2.90	4	55	20	15.6	28	32.99	02900			38.75	02900		
3.00	6	62	20	15.5	36	27.90	03000	27.90	03000	33.69	03000	33.69	03000
3.10	6	62	20	15.3	36	27.90	03100	27.90	03100	33.69	03100	33.69	03100
3.20	6	62	20	15.2	36	27.90	03200	27.90	03200	33.69	03200	33.69	03200
3.25	6	62	20	15.1	36	27.90	03250	27.90	03250				
3.30	6	62	20	15.0	36	27.90	03300	27.90	03300	33.69	03300	33.69	03300
3.40	6	62	20	14.9	36	27.90	03400	27.90	03400	33.69	03400	33.69	03400
3.50	6	62	20	14.7	36	27.90	03500	27.90	03500	33.69	03500	33.69	03500
3.60	6	62	20	14.6	36	27.90	03600	27.90	03600	33.69	03600	33.69	03600
3.70	6	62	20	14.4	36	27.90	03700	27.90	03700	33.69	03700	33.69	03700
3.80	6	66	24	18.3	36	27.90	03800	27.90	03800	33.69	03800	33.69	03800
3.90	6	66	24	18.1	36	27.90	03900	27.90	03900	33.69	03900	33.69	03900
4.00	6	66	24	18.0	36	27.90	04000	27.90	04000	33.69	04000	33.69	04000
4.10	6	66	24	17.8	36	27.90	04100	27.90	04100	33.69	04100	33.69	04100
4.20	6	66	24	17.7	36	27.90	04200	27.90	04200	33.69	04200	33.69	04200
4.30	6	66	24	17.5	36	27.90	04300	27.90	04300	33.69	04300	33.69	04300
4.40	6	66	24	17.4	36	27.90	04400	27.90	04400	33.69	04400	33.69	04400
4.50	6	66	24	17.2	36	27.90	04500	27.90	04500	33.69	04500	33.69	04500
4.60	6	66	24	17.1	36	27.90	04600	27.90	04600	33.69	04600	33.69	04600
4.65	6	66	24	17.0	36	27.90	04650	27.90	04650				
4.70	6	66	24	16.9	36	27.90	04700	27.90	04700	33.69	04700	33.69	04700
4.80	6	66	28	20.8	36	27.90	04800	27.90	04800	33.69	04800	33.69	04800

P	●	●	○	○
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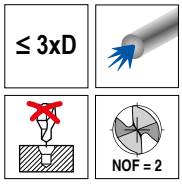
S			○	○
H				
O			○	○

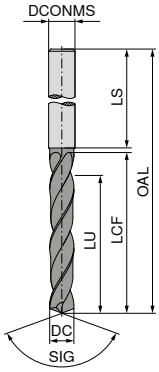
→ v_c Page 129+133

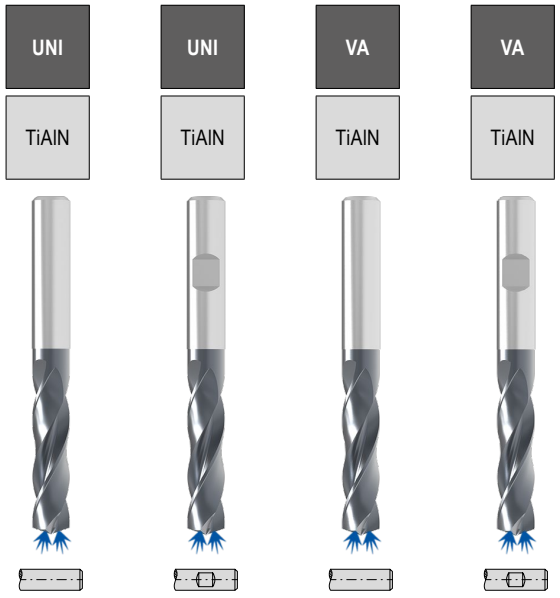
Ø DC_{h7} for Type UNI / **Ø DC_{m7}** for Type VA

Continued on next page

High Performance Drill, DIN 6537







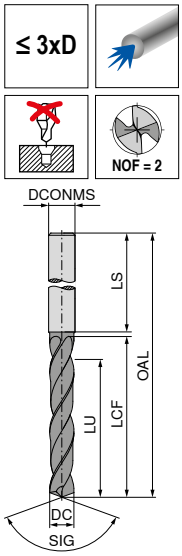
						SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide
						11 700 ...	**11 701 ...**	**11 713 ...**	**11 714 ...**
DC $_{m7/h7}$ **mm**	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T1/9C	£ T1/9C	£ T1/9C	£ T1/9C
4.90	6	66	28	20.6	36	27.90 **04900**	27.90 **04900**	33.69 **04900**	33.69 **04900**
5.00	6	66	28	20.5	36	27.90 **05000**	27.90 **05000**	33.69 **05000**	33.69 **05000**
5.10	6	66	28	20.3	36	27.90 **05100**	27.90 **05100**	33.69 **05100**	33.69 **05100**
5.20	6	66	28	20.2	36	27.90 **05200**	27.90 **05200**	33.69 **05200**	33.69 **05200**
5.30	6	66	28	20.0	36	27.90 **05300**	27.90 **05300**	33.69 **05300**	33.69 **05300**
5.40	6	66	28	19.9	36	27.90 **05400**	27.90 **05400**	33.69 **05400**	33.69 **05400**
5.50	6	66	28	19.7	36	27.90 **05500**	27.90 **05500**	33.69 **05500**	33.69 **05500**
5.55	6	66	28	19.6	36	27.90 **05550**	27.90 **05550**		
5.60	6	66	28	19.6	36	27.90 **05600**	27.90 **05600**	33.69 **05600**	33.69 **05600**
5.65	6	66	28	19.5	36	27.90 **05650**	27.90 **05650**		
5.70	6	66	28	19.4	36	27.90 **05700**	27.90 **05700**	33.69 **05700**	33.69 **05700**
5.80	6	66	28	19.3	36	27.90 **05800**	27.90 **05800**	33.69 **05800**	33.69 **05800**
5.90	6	66	28	19.1	36	27.90 **05900**	27.90 **05900**	33.69 **05900**	33.69 **05900**
6.00	6	66	28	19.0	36	27.90 **06000**	27.90 **06000**	33.69 **06000**	33.69 **06000**
6.10	8	79	34	24.8	36	39.33 **06100**	39.33 **06100**	46.03 **06100**	46.03 **06100**
6.20	8	79	34	24.7	36	39.33 **06200**	39.33 **06200**	46.03 **06200**	46.03 **06200**
6.30	8	79	34	24.5	36	39.33 **06300**	39.33 **06300**	46.03 **06300**	46.03 **06300**
6.40	8	79	34	24.4	36	39.33 **06400**	39.33 **06400**	46.03 **06400**	46.03 **06400**
6.50	8	79	34	24.2	36	39.33 **06500**	39.33 **06500**	46.03 **06500**	46.03 **06500**
6.60	8	79	34	24.1	36	39.33 **06600**	39.33 **06600**	46.03 **06600**	46.03 **06600**
6.70	8	79	34	23.9	36	39.33 **06700**	39.33 **06700**	46.03 **06700**	46.03 **06700**
6.80	8	79	34	23.8	36	39.33 **06800**	39.33 **06800**	46.03 **06800**	46.03 **06800**
6.90	8	79	34	23.6	36	39.33 **06900**	39.33 **06900**	46.03 **06900**	46.03 **06900**
7.00	8	79	34	23.5	36	39.33 **07000**	39.33 **07000**	46.03 **07000**	46.03 **07000**
7.10	8	79	41	30.3	36	39.33 **07100**	39.33 **07100**	46.03 **07100**	46.03 **07100**
7.20	8	79	41	30.2	36	39.33 **07200**	39.33 **07200**	46.03 **07200**	46.03 **07200**
7.30	8	79	41	30.0	36	39.33 **07300**	39.33 **07300**	46.03 **07300**	46.03 **07300**
7.40	8	79	41	29.9	36	39.33 **07400**	39.33 **07400**	46.03 **07400**	46.03 **07400**
7.50	8	79	41	29.7	36	39.33 **07500**	39.33 **07500**	46.03 **07500**	46.03 **07500**
7.55	8	79	41	29.6	36	39.33 **07550**	39.33 **07550**		
7.60	8	79	41	29.6	36	39.33 **07600**	39.33 **07600**	46.03 **07600**	46.03 **07600**
7.65	8	79	41	29.5	36	39.33 **07650**	39.33 **07650**		
7.70	8	79	41	29.4	36	39.33 **07700**	39.33 **07700**	46.03 **07700**	46.03 **07700**
7.80	8	79	41	29.3	36	39.33 **07800**	39.33 **07800**	46.03 **07800**	46.03 **07800**
7.90	8	79	41	29.1	36	39.33 **07900**	39.33 **07900**	46.03 **07900**	46.03 **07900**
8.00	8	79	41	29.0	36	39.33 **08000**	39.33 **08000**	46.03 **08000**	46.03 **08000**
8.10	10	89	47	34.8	40	44.40 **08100**	44.40 **08100**	52.17 **08100**	52.17 **08100**
8.20	10	89	47	34.7	40	44.40 **08200**	44.40 **08200**	52.17 **08200**	52.17 **08200**
8.30	10	89	47	34.5	40	44.40 **08300**	44.40 **08300**	52.17 **08300**	52.17 **08300**
8.40	10	89	47	34.4	40	44.40 **08400**	44.40 **08400**	52.17 **08400**	52.17 **08400**
8.50	10	89	47	34.2	40	44.40 **08500**	44.40 **08500**	52.17 **08500**	52.17 **08500**
P						●	●	○	○
M						●	●	●	●
K						●	●		
N						○	○	●	●
S								○	○
H									
O								○	○

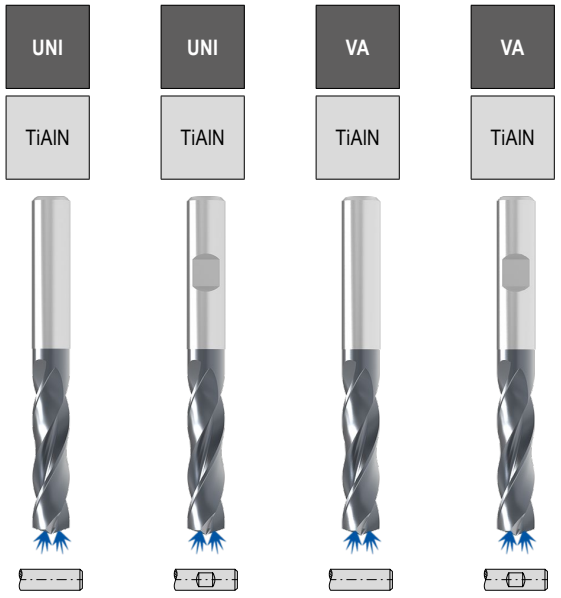
→ v_c Page 129+133

Ø DC_{h7} for Type UNI / **Ø DC_{m7}** for Type VA

Continued on next page

High Performance Drill, DIN 6537





SIG 140° Solid carbide | SIG 140° Solid carbide | SIG 140° Solid carbide | SIG 140° Solid carbide

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 700 ... £ T1/9C		11 701 ... £ T1/9C		11 713 ... £ T1/9C		11 714 ... £ T1/9C	
8.60	10	89	47	34.1	40	44.40	08600	44.40	08600	52.17	08600	52.17	08600
8.70	10	89	47	33.9	40	44.40	08700	44.40	08700	52.17	08700	52.17	08700
8.80	10	89	47	33.8	40	44.40	08800	44.40	08800	52.17	08800	52.17	08800
8.90	10	89	47	33.6	40	44.40	08900	44.40	08900	52.17	08900	52.17	08900
9.00	10	89	47	33.5	40	44.40	09000	44.40	09000	52.17	09000	52.17	09000
9.10	10	89	47	33.3	40	44.40	09100	44.40	09100	52.17	09100	52.17	09100
9.20	10	89	47	33.2	40	44.40	09200	44.40	09200	52.17	09200	52.17	09200
9.30	10	89	47	33.0	40	44.40	09300	44.40	09300	52.17	09300	52.17	09300
9.40	10	89	47	32.9	40	44.40	09400	44.40	09400	52.17	09400	52.17	09400
9.50	10	89	47	32.7	40	44.40	09500	44.40	09500	52.17	09500	52.17	09500
9.60	10	89	47	32.6	40	44.40	09600	44.40	09600	52.17	09600	52.17	09600
9.70	10	89	47	32.4	40	44.40	09700	44.40	09700	52.17	09700	52.17	09700
9.80	10	89	47	32.3	40	44.40	09800	44.40	09800	52.17	09800	52.17	09800
9.90	10	89	47	32.1	40	44.40	09900	44.40	09900	52.17	09900	52.17	09900
10.00	10	89	47	32.0	40	44.40	10000	44.40	10000	52.17	10000	52.17	10000
10.10	12	102	55	39.8	45	63.43	10100	63.43	10100	75.17	10100	75.17	10100
10.20	12	102	55	39.7	45	63.43	10200	63.43	10200	75.17	10200	75.17	10200
10.30	12	102	55	39.5	45	63.43	10300	63.43	10300	75.17	10300	75.17	10300
10.40	12	102	55	39.4	45	63.43	10400	63.43	10400	75.17	10400	75.17	10400
10.50	12	102	55	39.2	45	63.43	10500	63.43	10500	75.17	10500	75.17	10500
10.60	12	102	55	39.1	45	63.43	10600	63.43	10600	75.17	10600	75.17	10600
10.70	12	102	55	38.9	45	63.43	10700	63.43	10700	75.17	10700	75.17	10700
10.80	12	102	55	38.8	45	63.43	10800	63.43	10800	75.17	10800	75.17	10800
10.90	12	102	55	38.6	45	63.43	10900	63.43	10900	75.17	10900	75.17	10900
11.00	12	102	55	38.5	45	63.43	11000	63.43	11000	75.17	11000	75.17	11000
11.10	12	102	55	38.3	45	63.43	11100	63.43	11100	75.17	11100	75.17	11100
11.20	12	102	55	38.2	45	63.43	11200	63.43	11200	75.17	11200	75.17	11200
11.30	12	102	55	38.0	45	63.43	11300	63.43	11300	75.17	11300	75.17	11300
11.40	12	102	55	37.9	45	63.43	11400	63.43	11400	75.17	11400	75.17	11400
11.50	12	102	55	37.7	45	63.43	11500	63.43	11500	75.17	11500	75.17	11500
11.60	12	102	55	37.6	45	63.43	11600	63.43	11600	75.17	11600	75.17	11600
11.70	12	102	55	37.4	45	63.43	11700	63.43	11700	75.17	11700	75.17	11700
11.80	12	102	55	37.3	45	63.43	11800	63.43	11800	75.17	11800	75.17	11800
11.90	12	102	55	37.1	45	63.43	11900	63.43	11900	75.17	11900	75.17	11900
12.00	12	102	55	37.0	45	63.43	12000	63.43	12000	75.17	12000	75.17	12000
12.20	14	107	60	41.7	45	85.00	12200	85.00	12200	100.71	12200	100.71	12200
12.30	14	107	60	41.5	45	85.00	12300	85.00	12300	100.71	12300	100.71	12300
12.50	14	107	60	41.2	45	85.00	12500	85.00	12500	100.71	12500	100.71	12500
12.70	14	107	60	40.9	45	85.00	12700	85.00	12700	100.71	12700	100.71	12700
12.80	14	107	60	40.8	45	85.00	12800	85.00	12800	100.71	12800	100.71	12800
12.90	14	107	60	40.6	45	85.00	12900	85.00	12900	100.71	12900	100.71	12900

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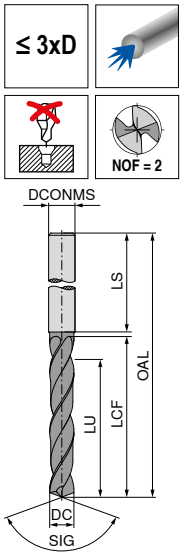
S			○	○
H				
O			○	○

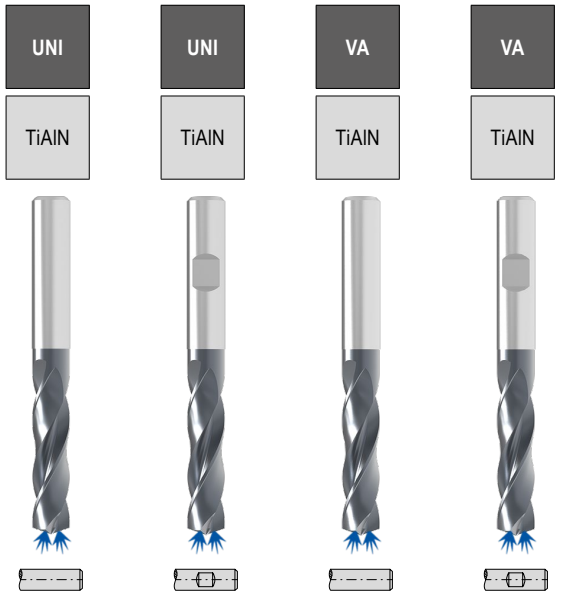
→ v_c Page 129+133

Ø DC_{h7} for Type UNI / Ø DC_{m7} for Type VA

Continued on next page

High Performance Drill, DIN 6537





SIG 140° Solid carbide | SIG 140° Solid carbide | SIG 140° Solid carbide | SIG 140° Solid carbide

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 700 ... £ T1/9C		11 701 ... £ T1/9C		11 713 ... £ T1/9C		11 714 ... £ T1/9C	
13.00	14	107	60	40.5	45	85.00	**13000**	85.00	**13000**	100.71	**13000**	100.71	**13000**
13.50	14	107	60	39.7	45	85.00	**13500**	85.00	**13500**	100.71	**13500**	100.71	**13500**
13.70	14	107	60	39.4	45					100.71	**13700**	100.71	**13700**
13.80	14	107	60	39.3	45	85.00	**13800**	85.00	**13800**	100.71	**13800**	100.71	**13800**
14.00	14	107	60	39.0	45	85.00	**14000**	85.00	**14000**	100.71	**14000**	100.71	**14000**
14.20	16	115	65	43.7	48	110.38	**14200**	110.38	**14200**	130.06	**14200**	130.06	**14200**
14.40	16	115	65	43.4	48	110.38	**14400**	110.38	**14400**	130.06	**14400**	130.06	**14400**
14.50	16	115	65	43.2	48	110.38	**14500**	110.38	**14500**	130.06	**14500**	130.06	**14500**
14.70	16	115	65	42.9	48					130.06	**14700**	130.06	**14700**
14.80	16	115	65	42.8	48	110.38	**14800**	110.38	**14800**	130.06	**14800**	130.06	**14800**
15.00	16	115	65	42.5	48	110.38	**15000**	110.38	**15000**	130.06	**15000**	130.06	**15000**
15.10	16	115	65	42.3	48	110.38	**15100**	110.38	**15100**	130.06	**15100**	130.06	**15100**
15.20	16	115	65	42.2	48	110.38	**15200**	110.38	**15200**	130.06	**15200**	130.06	**15200**
15.50	16	115	65	41.7	48	110.38	**15500**	110.38	**15500**	130.06	**15500**	130.06	**15500**
15.70	16	115	65	41.4	48					130.06	**15700**	130.06	**15700**
15.80	16	115	65	41.3	48	110.38	**15800**	110.38	**15800**	130.06	**15800**	130.06	**15800**
16.00	16	115	65	41.0	48	110.38	**16000**	110.38	**16000**	130.06	**16000**	130.06	**16000**
16.50	18	123	73	48.2	48	166.19	**16500**	166.19	**16500**	197.32	**16500**	197.32	**16500**
17.00	18	123	73	47.5	48	166.19	**17000**	166.19	**17000**	197.32	**17000**	197.32	**17000**
17.50	18	123	73	46.7	48	166.19	**17500**	166.19	**17500**	197.32	**17500**	197.32	**17500**
18.00	18	123	73	46.0	48	166.19	**18000**	166.19	**18000**	197.32	**18000**	197.32	**18000**
18.50	20	131	79	51.2	50	183.95	**18500**	183.95	**18500**	217.41	**18500**	217.41	**18500**
18.90	20	131	79	50.6	50	183.95	**18900**	183.95	**18900**	217.41	**18900**	217.41	**18900**
19.00	20	131	79	50.5	50	183.95	**19000**	183.95	**19000**	217.41	**19000**	217.41	**19000**
19.30	20	131	79	50.0	50	183.95	**19300**	183.95	**19300**	217.41	**19300**	217.41	**19300**
19.50	20	131	79	49.7	50	183.95	**19500**	183.95	**19500**	217.41	**19500**	217.41	**19500**
20.00	20	131	79	49.0	50	183.95	**20000**	183.95	**20000**	217.41	**20000**	217.41	**20000**

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K	●	●		
N	○	○	●	●
S			○	○
H				
O			○	○

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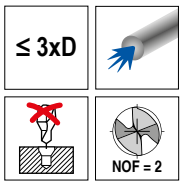
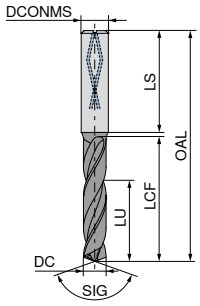
Ø DC_{h7} for Type UNI / **Ø DC_{m7}** for Type VA

WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials





Ti

DPA54

DRAGONSKIN



SIG 140°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 786 ... £ T4/9F	
3.00	6	62	20	14	36	75.84	030
3.10	6	62	20	14	36	75.84	031
3.20	6	62	20	14	36	75.84	032
3.30	6	62	20	14	36	75.84	033
3.40	6	62	20	14	36	75.84	034
3.50	6	62	20	14	36	75.84	035
3.60	6	62	20	14	36	75.84	036
3.70	6	62	20	14	36	75.84	037
3.80	6	66	24	17	36	75.84	038
3.90	6	66	24	17	36	75.84	039
3.97	6	66	24	17	36	75.84	900
4.00	6	66	24	17	36	75.84	040
4.10	6	66	24	17	36	75.84	041
4.20	6	66	24	17	36	75.84	042
4.23	6	66	24	17	36	75.84	901
4.30	6	66	24	17	36	75.84	043
4.40	6	66	24	17	36	75.84	044
4.50	6	66	24	17	36	75.84	045
4.60	6	66	24	17	36	75.84	046
4.70	6	66	24	17	36	75.84	047
4.80	6	66	28	20	36	75.84	048
4.90	6	66	28	20	36	75.84	049
5.00	6	66	28	20	36	75.84	050
5.10	6	66	28	20	36	75.84	051
5.20	6	66	28	20	36	75.84	052
5.30	6	66	28	20	36	75.84	053
5.40	6	66	28	20	36	75.84	054
5.50	6	66	28	20	36	75.84	055
5.56	6	66	28	20	36	75.84	902
5.60	6	66	28	20	36	75.84	056
5.70	6	66	28	20	36	75.84	057
5.80	6	66	28	20	36	75.84	058
5.90	6	66	28	20	36	75.84	059
6.00	6	66	28	20	36	75.84	060
6.10	8	79	34	24	36	101.76	061
6.20	8	79	34	24	36	101.76	062
6.30	8	79	34	24	36	101.76	063
6.35	8	79	34	24	36	101.76	903
6.40	8	79	34	24	36	101.76	064
6.50	8	79	34	24	36	101.76	065
6.60	8	79	34	24	36	101.76	066
6.70	8	79	34	24	36	101.76	067
6.80	8	79	34	24	36	101.76	068
6.90	8	79	34	24	36	101.76	069
7.00	8	79	34	24	36	101.76	070
7.10	8	79	41	29	36	101.76	071
7.20	8	79	41	29	36	101.76	072
7.30	8	79	41	29	36	101.76	073
7.40	8	79	41	29	36	101.76	074
7.50	8	79	41	29	36	101.76	075
7.60	8	79	41	29	36	101.76	076

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 786 ... £ T4/9F	
7.70	8	79	41	29	36	101.76	077
7.80	8	79	41	29	36	101.76	078
7.90	8	79	41	29	36	101.76	079
7.94	8	79	41	29	36	101.76	904
8.00	8	79	41	29	36	101.76	080
8.10	10	89	47	35	40	123.05	081
8.20	10	89	47	35	40	123.05	082
8.30	10	89	47	35	40	123.05	083
8.40	10	89	47	35	40	123.05	084
8.50	10	89	47	35	40	123.05	085
8.60	10	89	47	35	40	123.05	086
8.70	10	89	47	35	40	123.05	087
8.80	10	89	47	35	40	123.05	088
8.90	10	89	47	35	40	123.05	089
9.00	10	89	47	35	40	123.05	090
9.10	10	89	47	35	40	123.05	091
9.20	10	89	47	35	40	123.05	092
9.30	10	89	47	35	40	123.05	093
9.40	10	89	47	35	40	123.05	094
9.50	10	89	47	35	40	123.05	095
9.53	10	89	47	35	40	123.33	905
9.60	10	89	47	35	40	123.05	096
9.70	10	89	47	35	40	123.05	097
9.80	10	89	47	35	40	123.05	098
9.90	10	89	47	35	40	123.05	099
10.00	10	89	47	35	40	123.05	100
10.10	12	102	55	40	45	177.60	101
10.20	12	102	55	40	45	177.60	102
10.30	12	102	55	40	45	177.60	103
10.40	12	102	55	40	45	177.60	104
10.50	12	102	55	40	45	177.60	105
10.60	12	102	55	40	45	177.60	106
10.70	12	102	55	40	45	177.60	107
10.80	12	102	55	40	45	177.60	108
10.90	12	102	55	40	45	177.60	109
11.00	12	102	55	40	45	177.60	110
11.10	12	102	55	40	45	177.60	111
11.11	12	102	55	40	45	177.60	906
11.20	12	102	55	40	45	177.60	112
11.30	12	102	55	40	45	177.60	113
11.40	12	102	55	40	45	177.60	114
11.50	12	102	55	40	45	177.60	115
11.60	12	102	55	40	45	177.60	116
11.70	12	102	55	40	45	177.60	117
11.80	12	102	55	40	45	177.60	118
11.90	12	102	55	40	45	177.60	119
12.00	12	102	55	40	45	177.60	120
12.10	14	107	60	43	45	230.40	121
12.20	14	107	60	43	45	230.40	122
12.30	14	107	60	43	45	230.40	123
12.40	14	107	60	43	45	230.40	124
12.50	14	107	60	43	45	230.40	125
12.60	14	107	60	43	45	230.40	126
12.70	14	107	60	43	45	230.40	907
12.80	14	107	60	43	45	230.40	128
12.90	14	107	60	43	45	230.40	129
13.00	14	107	60	43	45	230.40	130
13.10	14	107	60	43	45	230.40	131
13.20	14	107	60	43	45	230.40	132
13.30	14	107	60	43	45	230.40	133
13.40	14	107	60	43	45	230.40	134
13.50	14	107	60	43	45	230.40	135
13.60	14	107	60	43	45	230.40	136
13.70	14	107	60	43	45	230.40	137
13.80	14	107	60	43	45	230.40	138
13.90	14	107	60	43	45	230.40	139

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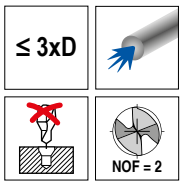
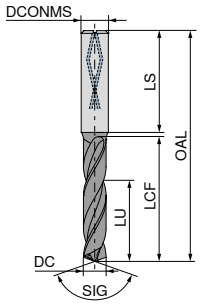
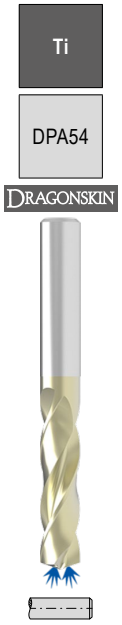
Continued on next page

WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials







SIG 140°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 786 ... £ T4/9F	
14.0	14	107	60	43	45	230.40	140
14.1	16	115	65	45	48	273.60	141
14.2	16	115	65	45	48	273.60	142
14.3	16	115	65	45	48	273.60	143
14.4	16	115	65	45	48	273.60	144
14.5	16	115	65	45	48	273.60	145
14.6	16	115	65	45	48	273.60	146
14.7	16	115	65	45	48	273.60	147
14.8	16	115	65	45	48	273.60	148
14.9	16	115	65	45	48	273.60	149
15.0	16	115	65	45	48	273.60	150
15.1	16	115	65	45	48	273.60	151
15.2	16	115	65	45	48	273.60	152
15.3	16	115	65	45	48	273.60	153
15.4	16	115	65	45	48	273.60	154
15.5	16	115	65	45	48	273.60	155
15.6	16	115	65	45	48	273.60	156
15.7	16	115	65	45	48	273.60	157
15.8	16	115	65	45	48	273.60	158
15.9	16	115	65	45	48	273.60	159
16.0	16	115	65	45	48	273.60	160
16.1	18	123	73	51	48	273.60	161
16.2	18	123	73	51	48	273.60	162
16.3	18	123	73	51	48	273.60	163
16.4	18	123	73	51	48	273.60	164
16.5	18	123	73	51	48	384.00	165
16.6	18	123	73	51	48	384.00	166
16.7	18	123	73	51	48	384.00	167
16.8	18	123	73	51	48	384.00	168
16.9	18	123	73	51	48	384.00	169
17.0	18	123	73	51	48	384.00	170
17.1	18	123	73	51	48	384.00	171
17.2	18	123	73	51	48	384.00	172
17.3	18	123	73	51	48	384.00	173
17.4	18	123	73	51	48	384.00	174
17.5	18	123	73	51	48	384.00	175
17.6	18	123	73	51	48	384.00	176
17.7	18	123	73	51	48	384.00	177
17.8	18	123	73	51	48	384.00	178
17.9	18	123	73	51	48	384.00	179
18.0	18	123	73	51	48	384.00	180
18.1	20	131	79	55	50	480.01	181
18.2	20	131	79	55	50	480.01	182
18.3	20	131	79	55	50	480.01	183
18.4	20	131	79	55	50	480.01	184
18.5	20	131	79	55	50	480.01	185
18.6	20	131	79	55	50	480.01	186
18.7	20	131	79	55	50	480.01	187
18.8	20	131	79	55	50	480.01	188
18.9	20	131	79	55	50	480.01	189
19.0	20	131	79	55	50	480.01	190
19.1	20	131	79	55	50	480.01	191
19.2	20	131	79	55	50	480.01	192
19.3	20	131	79	55	50	480.01	193
19.4	20	131	79	55	50	480.01	194
19.5	20	131	79	55	50	480.01	195
19.6	20	131	79	55	50	480.01	196
19.7	20	131	79	55	50	480.01	197
19.8	20	131	79	55	50	480.01	198
19.9	20	131	79	55	50	480.01	199
20.0	20	131	79	55	50	480.01	200

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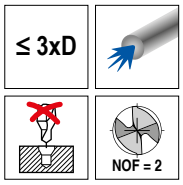
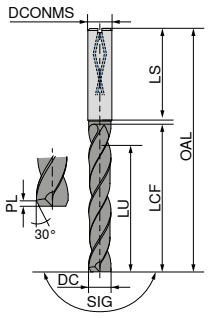
WTX – High Performance Drill, DIN 6537

▲ universal application
▲ four guidance lands
▲ polished chip flutes
▲ Type ALU 3xD on request
▲ PL = corner chamfers





180

Ti800





SIG 180°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	10 720 ... £ T4	
3.00	6	62	20	14	36	0.15	98.41	030
3.10	6	62	20	14	36	0.16	98.41	031
3.20	6	62	20	14	36	0.16	98.41	032
3.30	6	62	20	14	36	0.17	98.41	033
3.40	6	62	20	14	36	0.17	98.41	034
3.50	6	62	20	14	36	0.18	98.41	035
3.60	6	62	20	14	36	0.18	98.41	036
3.70	6	62	20	14	36	0.19	98.41	037
3.80	6	66	24	17	36	0.19	98.41	038
3.90	6	66	24	17	36	0.20	98.41	039
4.00	6	66	24	17	36	0.20	98.41	040
4.10	6	66	24	17	36	0.21	98.41	041
4.20	6	66	24	17	36	0.21	98.41	042
4.30	6	66	24	17	36	0.22	98.41	043
4.40	6	66	24	17	36	0.22	98.41	044
4.50	6	66	24	17	36	0.23	98.41	045
4.60	6	66	24	17	36	0.23	98.41	046
4.65	6	66	24	17	36	0.23	98.41	900
4.70	6	66	24	17	36	0.24	98.41	047
4.80	6	66	28	20	36	0.24	98.41	048
4.90	6	66	28	20	36	0.25	98.41	049
5.00	6	66	28	20	36	0.25	98.41	050
5.10	6	66	28	20	36	0.26	98.41	051
5.20	6	66	28	20	36	0.26	98.41	052
5.30	6	66	28	20	36	0.27	98.41	053
5.40	6	66	28	20	36	0.27	98.41	054
5.50	6	66	28	20	36	0.28	98.41	055
5.55	6	66	28	20	36	0.28	98.41	902
5.60	6	66	28	20	36	0.28	98.41	056
5.70	6	66	28	20	36	0.29	98.41	057
5.80	6	66	28	20	36	0.29	98.41	058
5.90	6	66	28	20	36	0.30	98.41	059
6.00	6	66	28	20	36	0.30	98.41	060
6.10	8	79	34	24	36	0.31	120.72	061
6.20	8	79	34	24	36	0.31	120.72	062
6.30	8	79	34	24	36	0.32	120.72	063
6.40	8	79	34	24	36	0.32	120.72	064
6.50	8	79	34	24	36	0.33	120.72	065
6.60	8	79	34	24	36	0.33	120.72	066
6.70	8	79	34	24	36	0.34	120.72	067
6.80	8	79	34	24	36	0.34	120.72	068
6.90	8	79	34	24	36	0.35	120.72	069
7.00	8	79	34	24	36	0.35	120.72	070
7.10	8	79	41	29	36	0.36	120.72	071
7.20	8	79	41	29	36	0.36	120.72	072
7.30	8	79	41	29	36	0.37	120.72	073
7.40	8	79	41	29	36	0.37	120.72	074
7.50	8	79	41	29	36	0.38	120.72	075
7.60	8	79	41	29	36	0.38	120.72	076
7.70	8	79	41	29	36	0.39	120.72	077
7.80	8	79	41	29	36	0.39	120.72	078
7.90	8	79	41	29	36	0.40	120.72	079
8.00	8	79	41	29	36	0.40	120.72	080
8.10	10	89	47	35	40	0.41	166.79	081

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	10 720 ... £ T4	
8.20	10	89	47	35	40	0.41	166.79	082
8.30	10	89	47	35	40	0.42	166.79	083
8.40	10	89	47	35	40	0.42	166.79	084
8.50	10	89	47	35	40	0.43	166.79	085
8.60	10	89	47	35	40	0.43	166.79	086
8.70	10	89	47	35	40	0.44	166.79	087
8.80	10	89	47	35	40	0.44	166.79	088
8.90	10	89	47	35	40	0.45	166.79	089
9.00	10	89	47	35	40	0.45	166.79	090
9.10	10	89	47	35	40	0.46	166.79	091
9.20	10	89	47	35	40	0.46	166.79	092
9.30	10	89	47	35	40	0.47	166.79	093
9.40	10	89	47	35	40	0.47	166.79	094
9.50	10	89	47	35	40	0.48	166.79	095
9.60	10	89	47	35	40	0.48	166.79	096
9.70	10	89	47	35	40	0.49	166.79	097
9.80	10	89	47	35	40	0.49	166.79	098
9.90	10	89	47	35	40	0.50	166.79	099
10.00	10	89	47	35	40	0.50	166.79	100
10.10	12	100	53	38	45	0.51	174.90	101
10.20	12	100	53	38	45	0.51	210.10	102
10.30	12	100	53	38	45	0.52	210.10	103
10.40	12	100	53	38	45	0.52	210.10	104
10.50	12	100	53	38	45	0.53	210.10	105
10.60	12	100	53	38	45	0.53	210.10	106
10.70	12	100	53	38	45	0.54	210.10	107
10.80	12	100	53	38	45	0.54	210.10	108
10.90	12	100	53	38	45	0.55	210.10	109
11.00	12	100	53	38	45	0.55	210.10	110
11.10	12	100	53	38	45	0.56	210.10	111
11.20	12	100	53	38	45	0.56	210.10	112
11.30	12	100	53	38	45	0.57	210.10	113
11.40	12	100	53	38	45	0.57	210.10	114
11.50	12	100	53	38	45	0.58	210.10	115
11.60	12	100	53	38	45	0.58	210.10	116
11.70	12	100	53	38	45	0.59	210.10	117
11.80	12	100	53	38	45	0.59	210.10	118
11.90	12	100	53	38	45	0.60	210.10	119
12.00	12	100	53	38	45	0.60	210.10	120
12.50	14	105	58	41	45	0.63	340.95	125
12.80	14	105	58	41	45	0.64	340.95	128
13.00	14	105	58	41	45	0.65	340.95	130
13.50	14	105	58	41	45	0.68	340.95	135
13.80	14	105	58	41	45	0.69	340.95	138
14.00	14	105	58	41	45	0.70	340.95	140
14.50	16	113	63	43	48	0.73	357.50	145
14.80	16	113	63	43	48	0.74	444.16	148
15.00	16	113	63	43	48	0.75	444.16	150
15.50	16	113	63	43	48	0.78	444.16	155
15.80	16	113	63	43	48	0.79	444.16	158
16.00	16	113	63	43	48	0.80	444.16	160
16.50	18	121	71	49	48	0.83	474.34	165
16.80	18	121	71	49	48	0.84	578.69	168
17.00	18	121	71	49	48	0.85	578.69	170
17.50	18	121	71	49	48	0.88	578.69	175
17.80	18	121	71	49	48	0.89	578.69	178
18.00	18	121	71	49	48	0.90	578.69	180
18.50	20	129	77	53	50	0.93	578.69	185
18.80	20	129	77	53	50	0.94	578.69	188
19.00	20	129	77	53	50	0.95	578.69	190
19.50	20	129	77	53	50	0.98	578.69	195
19.80	20	129	77	53	50	0.99	578.69	198
20.00	20	129	77	53	50	1.00	578.69	200

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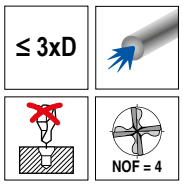
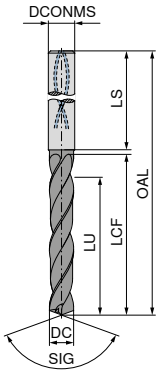
→ Machining information: Page 127

WTX – High-feed drills, DIN 6537

- ▲ Four fluted high-feed drill
- ▲ Specially designed for steel and cast iron machining
- ▲ Has four spiral coolant holes
- ▲ Innovative cutting edge geometry guarantees high positioning accuracy
- ▲ Outstanding drilling quality in terms of tolerance, surface finish and position





HFDS

DPX14S

DRAGONSKIN



SIG 130°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 797 ... £ T4	
6.0	8	79	41	29	36	108.25	06000
6.1	10	89	47	35	40	147.55	06100
6.2	10	89	47	35	40	147.55	06200
6.3	10	89	47	35	40	147.55	06300
6.4	10	89	47	35	40	147.55	06400
6.5	10	89	47	35	40	147.55	06500
6.6	10	89	47	35	40	147.55	06600
6.7	10	89	47	35	40	147.55	06700
6.8	10	89	47	35	40	147.55	06800
6.9	10	89	47	35	40	147.55	06900
7.0	10	89	47	35	40	147.55	07000
7.1	10	89	47	35	40	147.55	07100
7.2	10	89	47	35	40	147.55	07200
7.3	10	89	47	35	40	147.55	07300
7.4	10	89	47	35	40	147.55	07400
7.5	10	89	47	35	40	147.55	07500
7.6	10	89	47	35	40	147.55	07600
7.7	10	89	47	35	40	147.55	07700
7.8	10	89	47	35	40	147.55	07800
7.9	10	89	47	35	40	147.55	07900
8.0	10	89	47	35	40	147.55	08000
8.1	12	102	55	40	45	200.16	08100
8.2	12	102	55	40	45	200.16	08200
8.3	12	102	55	40	45	200.16	08300
8.4	12	102	55	40	45	200.16	08400
8.5	12	102	55	40	45	200.16	08500
8.6	12	102	55	40	45	200.16	08600
8.7	12	102	55	40	45	200.16	08700
8.8	12	102	55	40	45	200.16	08800
8.9	12	102	55	40	45	200.16	08900
9.0	12	102	55	40	45	200.16	09000
9.1	12	102	55	40	45	200.16	09100
9.2	12	102	55	40	45	200.16	09200
9.3	12	102	55	40	45	200.16	09300
9.4	12	102	55	40	45	200.16	09400
9.5	12	102	55	40	45	200.16	09500
9.6	12	102	55	40	45	200.16	09600
9.7	12	102	55	40	45	200.16	09700
9.8	12	102	55	40	45	200.16	09800
9.9	12	102	55	40	45	200.16	09900
10.0	12	102	55	40	45	200.16	10000
10.2	14	107	60	43	45	265.65	10200
10.5	14	107	60	43	45	265.65	10500
11.0	14	107	60	43	45	265.65	11000
11.5	14	107	60	43	45	265.65	11500
12.0	14	107	60	43	45	265.65	12000
12.5	16	115	65	45	48	360.75	12500
13.0	16	115	65	45	48	360.75	13000

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 797 ... £ T4	
14.0	16	115	65	45	48	360.75	14000
14.3	18	123	73	51	48	449.41	14300
14.5	18	123	73	51	48	449.41	14500
15.0	18	123	73	51	48	449.41	15000
16.0	18	123	73	51	48	449.41	16000

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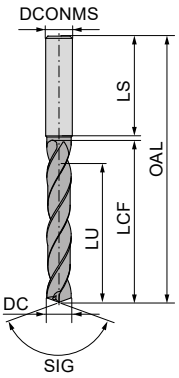
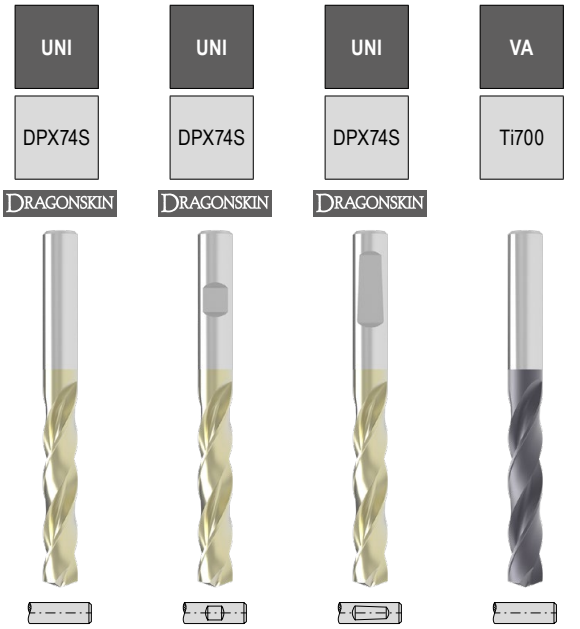
→ v_c Page 125

WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2





SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 783 ... £ T7	11 784 ... £ T7	11 782 ... £ T7	10 740 ... £ T4
3.00	6	66	28	23	36	47.92 03000	47.92 03000	47.92 03000	92.31 030
3.10	6	66	28	23	36	47.92 03100	47.92 03100	47.92 03100	92.31 031
3.15	6	66	28	23	36	47.92 03150	47.92 03150	47.92 03150	
3.20	6	66	28	23	36	47.92 03200	47.92 03200	47.92 03200	92.31 032
3.22	6	66	28	23	36	47.92 03220	47.92 03220	47.92 03220	
3.25	6	66	28	23	36	47.92 03250	47.92 03250	47.92 03250	
3.30	6	66	28	23	36	47.92 03300	47.92 03300	47.92 03300	92.31 033
3.40	6	66	28	23	36	47.92 03400	47.92 03400	47.92 03400	92.31 034
3.50	6	66	28	23	36	47.92 03500	47.92 03500	47.92 03500	92.31 035
3.60	6	66	28	23	36	47.92 03600	47.92 03600	47.92 03600	92.31 036
3.70	6	66	28	23	36	47.92 03700	47.92 03700	47.92 03700	92.31 037
3.80	6	74	36	29	36	47.92 03800	47.92 03800	47.92 03800	92.31 038
3.85	6	74	36	29	36	47.92 03850	47.92 03850	47.92 03850	
3.90	6	74	36	29	36	47.92 03900	47.92 03900	47.92 03900	92.31 039
4.00	6	74	36	29	36	47.92 04000	47.92 04000	47.92 04000	92.31 040
4.10	6	74	36	29	36	47.92 04100	47.92 04100	47.92 04100	92.31 041
4.20	6	74	36	29	36	47.92 04200	47.92 04200	47.92 04200	92.31 042
4.25	6	74	36	29	36	47.92 04250	47.92 04250	47.92 04250	
4.30	6	74	36	29	36	47.92 04300	47.92 04300	47.92 04300	92.31 043
4.35	6	74	36	29	36	47.92 04350	47.92 04350	47.92 04350	
4.40	6	74	36	29	36	47.92 04400	47.92 04400	47.92 04400	92.31 044
4.45	6	74	36	29	36	47.92 04450	47.92 04450	47.92 04450	
4.50	6	74	36	29	36	47.92 04500	47.92 04500	47.92 04500	92.31 045
4.60	6	74	36	29	36	47.92 04600	47.92 04600	47.92 04600	92.31 046
4.65	6	74	36	29	36	47.92 04650	47.92 04650	47.92 04650	
4.70	6	74	36	29	36	47.92 04700	47.92 04700	47.92 04700	92.31 047
4.80	6	82	44	35	36	47.92 04800	47.92 04800	47.92 04800	92.31 048
4.90	6	82	44	35	36	47.92 04900	47.92 04900	47.92 04900	92.31 049
4.95	6	82	44	35	36	47.92 04950	47.92 04950	47.92 04950	
5.00	6	82	44	35	36	47.92 05000	47.92 05000	47.92 05000	92.31 050
5.05	6	82	44	35	36	47.92 05050	47.92 05050	47.92 05050	
5.10	6	82	44	35	36	47.92 05100	47.92 05100	47.92 05100	92.31 051
5.20	6	82	44	35	36	47.92 05200	47.92 05200	47.92 05200	92.31 052
5.30	6	82	44	35	36	47.92 05300	47.92 05300	47.92 05300	92.31 053
5.40	6	82	44	35	36	47.92 05400	47.92 05400	47.92 05400	92.31 054
5.50	6	82	44	35	36	47.92 05500	47.92 05500	47.92 05500	92.31 055
5.55	6	82	44	35	36	47.92 05550	47.92 05550	47.92 05550	
5.60	6	82	44	35	36	47.92 05600	47.92 05600	47.92 05600	92.31 056
5.70	6	82	44	35	36	47.92 05700	47.92 05700	47.92 05700	92.31 057
5.75	6	82	44	35	36	47.92 05750	47.92 05750	47.92 05750	
5.80	6	82	44	35	36	47.92 05800	47.92 05800	47.92 05800	92.31 058
5.90	6	82	44	35	36	47.92 05900	47.92 05900	47.92 05900	92.31 059

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→ v_c Page 111+112

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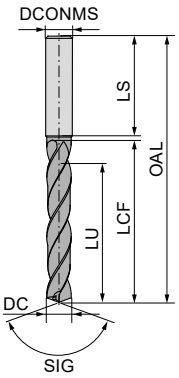
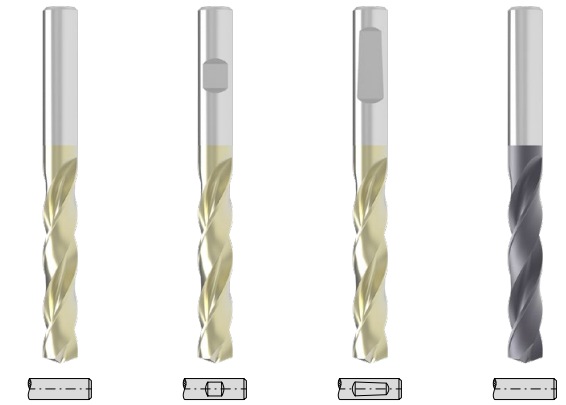
WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



UNI	UNI	UNI	VA
DPX74S	DPX74S	DPX74S	Ti700
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	



SIG 140°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 783 ... £ T7		11 784 ... £ T7		11 782 ... £ T7		10 740 ... £ T4	
5.95	6	82	44	35	36	47.92	05950	47.92	05950	47.92	05950		
6.00	6	82	44	35	36	47.92	06000	47.92	06000	47.92	06000	111.68	060
6.10	8	91	53	43	36	52.05	06100	52.05	06100	52.05	06100	111.68	061
6.20	8	91	53	43	36	52.05	06200	52.05	06200	52.05	06200	111.68	062
6.30	8	91	53	43	36	52.05	06300	52.05	06300	52.05	06300	111.68	063
6.40	8	91	53	43	36	52.05	06400	52.05	06400	52.05	06400	111.68	064
6.50	8	91	53	43	36	52.05	06500	52.05	06500	52.05	06500	111.68	065
6.60	8	91	53	43	36	52.05	06600	52.05	06600	52.05	06600	111.68	066
6.70	8	91	53	43	36	52.05	06700	52.05	06700	52.05	06700	111.68	067
6.80	8	91	53	43	36	52.05	06800	52.05	06800	52.05	06800	111.68	068
6.90	8	91	53	43	36	52.05	06900	52.05	06900	52.05	06900	111.68	069
7.00	8	91	53	43	36	52.05	07000	52.05	07000	52.05	07000	111.68	070
7.10	8	91	53	43	36	52.05	07100	52.05	07100	52.05	07100	111.68	071
7.20	8	91	53	43	36	52.05	07200	52.05	07200	52.05	07200	111.68	072
7.30	8	91	53	43	36	52.05	07300	52.05	07300	52.05	07300	111.68	073
7.40	8	91	53	43	36	52.05	07400	52.05	07400	52.05	07400	111.68	074
7.45	8	91	53	43	36	52.05	07450	52.05	07450	52.05	07450		
7.50	8	91	53	43	36	52.05	07500	52.05	07500	52.05	07500	111.68	075
7.60	8	91	53	43	36	52.05	07600	52.05	07600	52.05	07600	111.68	076
7.70	8	91	53	43	36	52.05	07700	52.05	07700	52.05	07700	111.68	077
7.80	8	91	53	43	36	52.05	07800	52.05	07800	52.05	07800	111.68	078
7.90	8	91	53	43	36	52.05	07900	52.05	07900	52.05	07900	111.68	079
8.00	8	91	53	43	36	52.05	08000	52.05	08000	52.05	08000	111.68	080
8.10	10	103	61	49	40	55.96	08100	55.96	08100	55.96	08100	130.66	081
8.20	10	103	61	49	40	55.96	08200	55.96	08200	55.96	08200	130.66	082
8.30	10	103	61	49	40	55.96	08300	55.96	08300	55.96	08300	130.66	083
8.40	10	103	61	49	40	55.96	08400	55.96	08400	55.96	08400	130.66	084
8.50	10	103	61	49	40	55.96	08500	55.96	08500	55.96	08500	130.66	085
8.60	10	103	61	49	40	55.96	08600	55.96	08600	55.96	08600	130.66	086
8.70	10	103	61	49	40	55.96	08700	55.96	08700	55.96	08700	130.66	087
8.80	10	103	61	49	40	55.96	08800	55.96	08800	55.96	08800	130.66	088
8.90	10	103	61	49	40	55.96	08900	55.96	08900	55.96	08900	130.66	089
9.00	10	103	61	49	40	55.96	09000	55.96	09000	55.96	09000	130.66	090
9.10	10	103	61	49	40	55.96	09100	55.96	09100	55.96	09100	130.66	091
9.20	10	103	61	49	40	55.96	09200	55.96	09200	55.96	09200	130.66	092
9.30	10	103	61	49	40	55.96	09300	55.96	09300	55.96	09300	130.66	093
9.35	10	103	61	49	40	55.96	09350	55.96	09350	55.96	09350		
9.40	10	103	61	49	40	55.96	09400	55.96	09400	55.96	09400	130.66	094
9.45	10	103	61	49	40	55.96	09450	55.96	09450	55.96	09450		
9.50	10	103	61	49	40	55.96	09500	55.96	09500	55.96	09500	130.66	095
9.60	10	103	61	49	40	55.96	09600	55.96	09600	55.96	09600	130.66	096
9.70	10	103	61	49	40	55.96	09700	55.96	09700	55.96	09700	130.66	097

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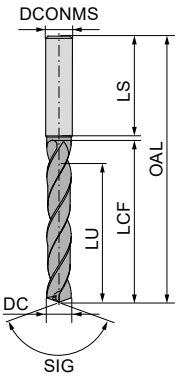
WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2





SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 783 ... £ T7		11 784 ... £ T7		11 782 ... £ T7		10 740 ... £ T4	
9.80	10	103	61	49	40	55.96	09800	55.96	09800	55.96	09800	130.66	098
9.90	10	103	61	49	40	55.96	09900	55.96	09900	55.96	09900	130.66	099
10.00	10	103	61	49	40	55.96	10000	55.96	10000	55.96	10000	130.66	100
10.10	12	118	71	56	45	81.21	10100	81.21	10100	81.21	10100	185.22	101
10.20	12	118	71	56	45	81.21	10200	81.21	10200	81.21	10200	185.22	102
10.30	12	118	71	56	45	81.21	10300	81.21	10300	81.21	10300	185.22	103
10.40	12	118	71	56	45	81.21	10400	81.21	10400	81.21	10400	185.22	104
10.50	12	118	71	56	45	81.21	10500	81.21	10500	81.21	10500	185.22	105
10.55	12	118	71	56	45	81.21	10550	81.21	10550	81.21	10550		
10.60	12	118	71	56	45	81.21	10600	81.21	10600	81.21	10600	185.22	106
10.70	12	118	71	56	45	81.21	10700	81.21	10700	81.21	10700	185.22	107
10.75	12	118	71	56	45	81.21	10750	81.21	10750	81.21	10750		
10.80	12	118	71	56	45	81.21	10800	81.21	10800	81.21	10800	185.22	108
10.90	12	118	71	56	45	81.21	10900	81.21	10900	81.21	10900	185.22	109
11.00	12	118	71	56	45	81.21	11000	81.21	11000	81.21	11000	185.22	110
11.10	12	118	71	56	45	81.21	11100	81.21	11100	81.21	11100	185.22	111
11.20	12	118	71	56	45	81.21	11200	81.21	11200	81.21	11200	185.22	112
11.25	12	118	71	56	45	81.21	11250	81.21	11250	81.21	11250		
11.30	12	118	71	56	45	81.21	11300	81.21	11300	81.21	11300	185.22	113
11.35	12	118	71	56	45	81.21	11350	81.21	11350	81.21	11350		
11.40	12	118	71	56	45	81.21	11400	81.21	11400	81.21	11400	185.22	114
11.45	12	118	71	56	45	81.21	11450	81.21	11450	81.21	11450		
11.50	12	118	71	56	45	81.21	11500	81.21	11500	81.21	11500	185.22	115
11.60	12	118	71	56	45	81.21	11600	81.21	11600	81.21	11600	185.22	116
11.70	12	118	71	56	45	81.21	11700	81.21	11700	81.21	11700	185.22	117
11.80	12	118	71	56	45	81.21	11800	81.21	11800	81.21	11800	185.22	118
11.90	12	118	71	56	45	81.21	11900	81.21	11900	81.21	11900	185.22	119
12.00	12	118	71	56	45	81.21	12000	81.21	12000	81.21	12000	185.22	120
12.15	14	124	77	60	45	108.95	12150	108.95	12150	108.95	12150		
12.25	14	124	77	60	45	108.95	12250	108.95	12250	108.95	12250		
12.50	14	124	77	60	45	108.95	12500	108.95	12500	108.95	12500	244.78	125
12.55	14	124	77	60	45	108.95	12550	108.95	12550	108.95	12550		
12.70	14	124	77	60	45	108.95	12700	108.95	12700	108.95	12700		
12.80	14	124	77	60	45	108.95	12800	108.95	12800	108.95	12800	244.78	128
12.90	14	124	77	60	45	108.95	12900	108.95	12900	108.95	12900		
13.00	14	124	77	60	45	108.95	13000	108.95	13000	108.95	13000	244.78	130
13.10	14	124	77	60	45	108.95	13100	108.95	13100	108.95	13100		
13.30	14	124	77	60	45	108.95	13300	108.95	13300	108.95	13300		
13.35	14	124	77	60	45	108.95	13350	108.95	13350	108.95	13350		
13.50	14	124	77	60	45	108.95	13500	108.95	13500	108.95	13500	244.78	135
13.70	14	124	77	60	45	108.95	13700	108.95	13700	108.95	13700		
13.80	14	124	77	60	45	108.95	13800	108.95	13800	108.95	13800	244.78	138

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N				○
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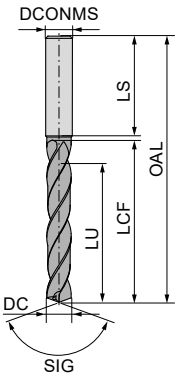
WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2





SIG 140°
Solid carbide

SIG 140°
Solid carbide

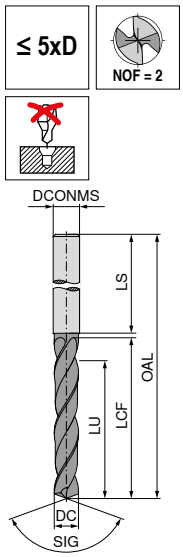
SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 783 ... £ T7		11 784 ... £ T7		11 782 ... £ T7		10 740 ... £ T4	
14.00	14	124	77	60	45	108.95	14000	108.95	14000	108.95	14000	304.07	140
14.20	16	133	83	63	48	139.87	14200	139.87	14200	139.87	14200		
14.50	16	133	83	63	48	139.87	14500	139.87	14500	139.87	14500	319.28	145
14.80	16	133	83	63	48	139.87	14800	139.87	14800	139.87	14800	319.28	148
15.00	16	133	83	63	48	139.87	15000	139.87	15000	139.87	15000	319.28	150
15.10	16	133	83	63	48	139.87	15100	139.87	15100	139.87	15100		
15.25	16	133	83	63	48	139.87	15250	139.87	15250	139.87	15250		
15.30	16	133	83	63	48	139.87	15300	139.87	15300	139.87	15300		
15.35	16	133	83	63	48	139.87	15350	139.87	15350	139.87	15350		
15.50	16	133	83	63	48	139.87	15500	139.87	15500	139.87	15500	319.28	155
15.60	16	133	83	63	48	139.87	15600	139.87	15600	139.87	15600		
15.80	16	133	83	63	48	139.87	15800	139.87	15800	139.87	15800	319.28	158
16.00	16	133	83	63	48	139.87	16000	139.87	16000	139.87	16000	319.28	160
16.05	18	143	93	71	48	237.66	16050	237.66	16050	237.66	16050		
16.50	18	143	93	71	48	237.66	16500	237.66	16500	237.66	16500	466.17	165
16.80	18	143	93	71	48	237.66	16800	237.66	16800	237.66	16800	466.17	168
16.90	18	143	93	71	48	237.66	16900	237.66	16900	237.66	16900		
17.00	18	143	93	71	48	237.66	17000	237.66	17000	237.66	17000	466.17	170
17.50	18	143	93	71	48	237.66	17500	237.66	17500	237.66	17500	466.17	175
17.60	18	143	93	71	48	237.66	17600	237.66	17600	237.66	17600		
17.80	18	143	93	71	48	237.66	17800	237.66	17800	237.66	17800	466.17	178
18.00	18	143	93	71	48	237.66	18000	237.66	18000	237.66	18000	586.40	180
18.50	20	153	101	77	50	266.65	18500	266.65	18500	266.65	18500	615.76	185
18.80	20	153	101	77	50	266.65	18800	266.65	18800	266.65	18800	615.76	188
18.90	20	153	101	77	50	266.65	18900	266.65	18900	266.65	18900		
19.00	20	153	101	77	50	266.65	19000	266.65	19000	266.65	19000	615.76	190
19.35	20	153	101	77	50	266.65	19350	266.65	19350	266.65	19350		
19.50	20	153	101	77	50	266.65	19500	266.65	19500	266.65	19500	615.76	195
19.60	20	153	101	77	50	266.65	19600	266.65	19600	266.65	19600		
19.80	20	153	101	77	50	266.65	19800	266.65	19800	266.65	19800	615.76	198
20.00	20	153	101	77	50	266.65	20000	266.65	20000	266.65	20000	858.61	200
P						●		●		●		○	
M												●	
K						●		●		●		○	
N												○	
S												●	
H						○		○		○			
O													

→ v_c Page 111+112

High Performance Drill, DIN 6537





SIG 140°
Solid carbide



SIG 140°
Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 710 ... £ T1/9C		11 709 ... £ T1/9C	
3.00	6	66	28	23.5	36	31.72	03000	31.72	03000
3.10	6	66	28	23.3	36	31.72	03100	31.72	03100
3.20	6	66	28	23.2	36	31.72	03200	31.72	03200
3.25	6	66	28	23.1	36	31.72	03250	31.72	03250
3.30	6	66	28	23.0	36	31.72	03300	31.72	03300
3.40	6	66	28	22.9	36	31.72	03400	31.72	03400
3.50	6	66	28	22.7	36	31.72	03500	31.72	03500
3.60	6	66	28	22.6	36	31.72	03600	31.72	03600
3.70	6	66	28	22.4	36	31.72	03700	31.72	03700
3.80	6	74	36	30.3	36	31.72	03800	31.72	03800
3.90	6	74	36	30.1	36	31.72	03900	31.72	03900
4.00	6	74	36	30.0	36	31.72	04000	31.72	04000
4.10	6	74	36	29.8	36	31.72	04100	31.72	04100
4.20	6	74	36	29.7	36	31.72	04200	31.72	04200
4.30	6	74	36	29.5	36	31.72	04300	31.72	04300
4.40	6	74	36	29.4	36	31.72	04400	31.72	04400
4.50	6	74	36	29.2	36	31.72	04500	31.72	04500
4.60	6	74	36	29.1	36	31.72	04600	31.72	04600
4.65	6	74	36	29.0	36	31.72	04650	31.72	04650
4.70	6	74	36	28.9	36	31.72	04700	31.72	04700
4.80	6	82	44	36.8	36	31.72	04800	31.72	04800
4.90	6	82	44	36.6	36	31.72	04900	31.72	04900
5.00	6	82	44	36.5	36	31.72	05000	31.72	05000
5.10	6	82	44	36.3	36	31.72	05100	31.72	05100
5.20	6	82	44	36.2	36	31.72	05200	31.72	05200
5.30	6	82	44	36.0	36	31.72	05300	31.72	05300
5.40	6	82	44	35.9	36	31.72	05400	31.72	05400
5.50	6	82	44	35.7	36	31.72	05500	31.72	05500
5.55	6	82	44	35.6	36	31.72	05550	31.72	05550
5.60	6	82	44	35.6	36	31.72	05600	31.72	05600
5.65	6	82	44	35.5	36	31.72	05650	31.72	05650
5.70	6	82	44	35.4	36	31.72	05700	31.72	05700
5.80	6	82	44	35.3	36	31.72	05800	31.72	05800
5.90	6	82	44	35.1	36	31.72	05900	31.72	05900
6.00	6	82	44	35.0	36	31.72	06000	31.72	06000
6.10	8	91	53	43.8	36	31.72	06100	31.72	06100
6.20	8	91	53	43.7	36	31.72	06200	31.72	06200
6.30	8	91	53	43.5	36	31.72	06300	31.72	06300
6.40	8	91	53	43.4	36	31.72	06400	31.72	06400
6.50	8	91	53	43.2	36	31.72	06500	31.72	06500
6.60	8	91	53	43.1	36	31.72	06600	31.72	06600
6.70	8	91	53	42.9	36	31.72	06700	31.72	06700
6.80	8	91	53	42.8	36	31.72	06800	31.72	06800
6.90	8	91	53	42.6	36	31.72	06900	31.72	06900
7.00	8	91	53	42.5	36	31.72	07000	31.72	07000
7.10	8	91	53	42.3	36	31.72	07100	31.72	07100
7.20	8	91	53	42.2	36	31.72	07200	31.72	07200
7.30	8	91	53	42.0	36	31.72	07300	31.72	07300
7.40	8	91	53	41.9	36	31.72	07400	31.72	07400
7.50	8	91	53	41.7	36	31.72	07500	31.72	07500
7.55	8	91	53	41.6	36	31.72	07550	31.72	07550
7.60	8	91	53	41.6	36	31.72	07600	31.72	07600
7.65	8	91	53	41.5	36	31.72	07650	31.72	07650
7.70	8	91	53	41.4	36	31.72	07700	31.72	07700
7.80	8	91	53	41.3	36	31.72	07800	31.72	07800
7.90	8	91	53	41.1	36	31.72	07900	31.72	07900
8.00	8	91	53	41.0	36	31.72	08000	31.72	08000
8.10	10	103	61	48.8	40	34.25	08100	34.25	08100
8.20	10	103	61	48.7	40	34.25	08200	34.25	08200
8.30	10	103	61	48.5	40	34.25	08300	34.25	08300
8.40	10	103	61	48.4	40	34.25	08400	34.25	08400
8.50	10	103	61	48.2	40	34.25	08500	34.25	08500
8.60	10	103	61	48.1	40	34.25	08600	34.25	08600
8.70	10	103	61	47.9	40	34.25	08700	34.25	08700
8.80	10	103	61	47.8	40	34.25	08800	34.25	08800
8.90	10	103	61	47.6	40	34.25	08900	34.25	08900
9.00	10	103	61	47.5	40	34.25	09000	34.25	09000
9.10	10	103	61	47.3	40	34.25	09100	34.25	09100
9.20	10	103	61	47.2	40	34.25	09200	34.25	09200
9.30	10	103	61	47.0	40	34.25	09300	34.25	09300
9.40	10	103	61	46.9	40	34.25	09400	34.25	09400
9.50	10	103	61	46.7	40	34.25	09500	34.25	09500
9.60	10	103	61	46.6	40	34.25	09600	34.25	09600
9.70	10	103	61	46.4	40	34.25	09700	34.25	09700
9.80	10	103	61	46.3	40	34.25	09800	34.25	09800
9.90	10	103	61	46.1	40	34.25	09900	34.25	09900
10.00	10	103	61	46.0	40	34.25	10000	34.25	10000
10.10	12	118	71	55.8	45	52.02	10100	52.02	10100
10.20	12	118	71	55.7	45	52.02	10200	52.02	10200
10.30	12	118	71	55.5	45	52.02	10300	52.02	10300
10.40	12	118	71	55.4	45	52.02	10400	52.02	10400
10.50	12	118	71	55.2	45	52.02	10500	52.02	10500
10.60	12	118	71	55.1	45	52.02	10600	52.02	10600
10.70	12	118	71	54.9	45	52.02	10700	52.02	10700
10.80	12	118	71	54.8	45	52.02	10800	52.02	10800
10.90	12	118	71	54.6	45	52.02	10900	52.02	10900
11.00	12	118	71	54.5	45	52.02	11000	52.02	11000
11.10	12	118	71	54.3	45	52.02	11100	52.02	11100
11.20	12	118	71	54.2	45	52.02	11200	52.02	11200
11.30	12	118	71	54.0	45	52.02	11300	52.02	11300
11.40	12	118	71	53.9	45	52.02	11400	52.02	11400
11.50	12	118	71	53.7	45	52.02	11500	52.02	11500
11.60	12	118	71	53.6	45	52.02	11600	52.02	11600
11.70	12	118	71	53.4	45	52.02	11700	52.02	11700
11.80	12	118	71	53.3	45	52.02	11800	52.02	11800
11.90	12	118	71	53.1	45	52.02	11900	52.02	11900
12.00	12	118	71	53.0	45	52.02	12000	52.02	12000
12.10	14	124	77	58.8	45	68.51	12100	68.51	12100
12.20	14	124	77	58.7	45	68.51	12200	68.51	12200
12.50	14	124	77	58.2	45	68.51	12500	68.51	12500
12.70	14	124	77	57.9	45	75.77	12700	75.77	12700
12.80	14	124	77	57.8	45	68.51	12800	68.51	12800
13.00	14	124	77	57.5	45	68.51	13000	68.51	13000
13.20	14	124	77	57.2	45	68.51	13200	68.51	13200
13.50	14	124	77	56.7	45	68.51	13500	68.51	13500
13.80	14	124	77	56.3	45	68.51	13800	68.51	13800
14.00	14	124	77	56.0	45	68.51	14000	68.51	14000
14.20	16	133	83	61.7	48	88.81	14200	88.81	14200
14.40	16	133	83	61.4	48	88.81	14400	88.81	14400
14.50	16	133	83	61.2	48	88.81	14500	88.81	14500
14.80	16	133	83	60.8	48	88.81	14800	88.81	14800
15.00	16	133	83	60.5	48	88.81	15000	88.81	15000
15.20	16	133	83	60.2	48	88.81	15200	88.81	15200
15.50	16	133	83	59.7	48	88.81	15500	88.81	15500
15.80	16	133	83	59.3	48	88.81	15800	88.81	15800
16.00	16	133	83	59.0	48	88.81	16000	88.81	16000
16.50	18	143	93	68.2	48	144.64	16500	144.64	16500
17.00	18	143	93	67.5	48	144.64	17000	144.64	17000
17.50	18	143	93	66.7	48	144.64	17500	144.64	17500
18.00	18	143	93	66.0	48	144.64	18000	144.64	18000
18.50	20	153	101	73.2	50	154.78	18500	154.78	18500
18.90	20	153	101	72.6	50	154.78	18900	154.78	18900
19.00	20	153	101	72.5	50	154.78	19000	154.78	19000
19.50	20	153	101	71.7	50	154.78	19500	154.78	19500
20.00	20	153	101	71.0	50	154.78	20000	154.78	20000

P	●	●
M		
K	●	●
N		
S		
H		
O		

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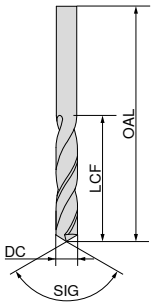
Twist drill similar to DIN 338

▲ Helix angle 30°
▲ Shank Ø h7

2

≤ 5xD

NOF = 2



N



SIG 118°
Solid carbide

DC h7 mm	OAL mm	LCF mm	10 710 ... £ T3	
0.5	22	6	7.57	005
0.6	24	7	7.57	006
0.7	28	9	7.57	007
0.8	30	10	7.57	008
0.9	32	11	7.57	009
1.0	34	12	7.57	010
1.1	36	14	8.73	011
1.2	38	16	8.73	012
1.3	38	16	8.73	013
1.4	40	18	8.73	014
1.5	40	18	8.73	015
1.6	43	20	8.73	016
1.7	43	20	9.66	017
1.8	46	22	10.26	018
1.9	46	22	10.26	019
2.0	49	24	12.55	020
2.1	49	24	12.89	021
2.2	53	27	12.89	022
2.3	53	27	12.89	023
2.4	57	30	12.89	024
2.5	57	30	15.00	025
2.6	57	30	15.00	026
2.7	61	33	16.48	027
2.8	61	33	17.48	028
2.9	61	33	17.48	029
3.0	61	33	17.42	030
3.1	65	36	17.42	031
3.2	65	36	17.42	032
3.3	65	36	19.34	033
3.4	70	39	19.34	034
3.5	70	39	21.29	035
3.6	70	39	21.29	036
3.7	70	39	21.29	037
3.8	75	43	21.29	038
3.9	75	43	21.29	039
4.0	75	43	25.38	040
4.1	75	43	24.16	041
4.2	75	43	26.17	042
4.3	80	47	27.48	043
4.4	80	47	27.48	044
4.5	80	47	29.46	045
4.6	80	47	29.46	046
4.7	80	47	29.46	047
4.8	86	52	30.00	048
4.9	86	52	30.00	049
5.0	86	52	35.05	050
5.1	86	52	35.05	051
5.2	86	52	35.05	052
5.3	86	52	36.70	053
5.4	93	57	43.17	054
5.5	93	57	43.17	055
5.6	93	57	43.17	056
5.7	93	57	43.17	057
5.8	93	57	43.17	058
5.9	93	57	43.17	059
6.0	93	57	47.05	060
6.1	101	63	49.27	061
6.2	101	63	49.27	062
6.3	101	63	49.27	063
6.4	101	63	49.27	064
6.5	101	63	56.32	065
6.6	109	69	56.32	066
6.8	109	69	64.38	068
7.0	109	69	64.38	070
7.5	109	69	69.69	075
7.8	117	75	76.84	078
8.0	117	75	76.84	080
8.5	117	75	86.37	085
8.8	125	81	104.71	088
9.0	125	81	104.71	090
9.5	125	81	113.77	095
9.8	133	87	125.64	098
10.0	133	87	125.64	100
10.2	133	87	131.94	102
10.5	133	87	137.08	105
11.0	142	94	159.84	110
11.5	142	94	177.51	115
12.0	151	101	207.05	120
13.0	151	101	225.04	130
14.0	160	108	241.22	140
16.0	178	120	327.60	160

P	○
M	
K	●
N	●
S	○
H	
O	

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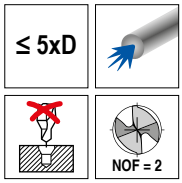
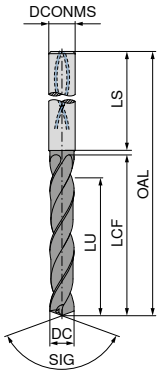
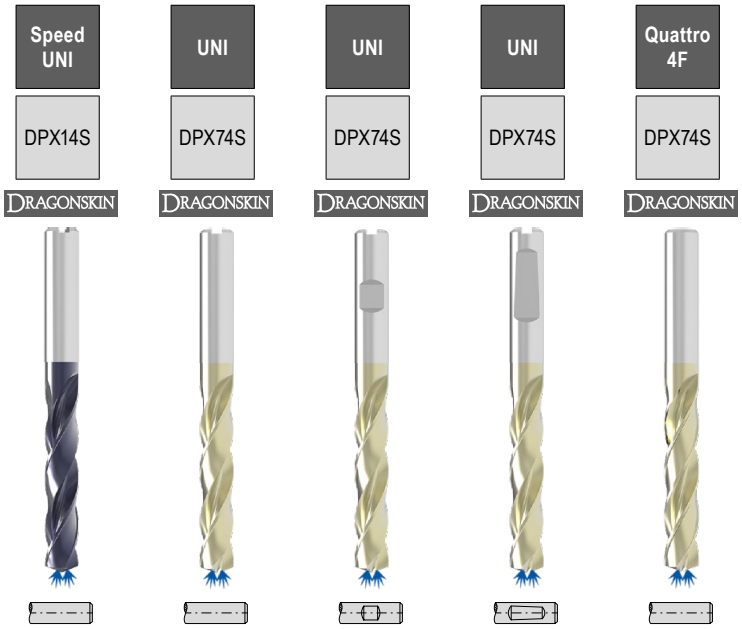
WTX – High Performance Drill, DIN 6537







						SIG 145° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide
						10 771 ...	11 786 ...	11 787 ...	11 785 ...	10 735 ...
DC $_{m7/h7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	£ T4	£ T7	£ T7	£ T7	£ T4
mm	mm	mm	mm	mm	mm					
3.00	6	66	28	23	36	147.07 03000	75.41 03000	75.41 03000	71.14 03000	147.27 03000
3.10	6	66	28	23	36	147.07 03100	75.41 03100	75.41 03100	71.14 03100	147.27 03100
3.15	6	66	28	23	36		75.41 03150	75.41 03150	71.14 03150	
3.20	6	66	28	23	36	147.07 03200	75.41 03200	75.41 03200	71.14 03200	147.27 03200
3.22	6	66	28	23	36		75.41 03220	75.41 03220	71.14 03220	
3.25	6	66	28	23	36		75.41 03250	75.41 03250	71.14 03250	
3.30	6	66	28	23	36	147.07 03300	75.41 03300	75.41 03300	71.14 03300	147.27 03300
3.40	6	66	28	23	36	147.07 03400	75.41 03400	75.41 03400	71.14 03400	147.27 03400
3.50	6	66	28	23	36	147.07 03500	75.41 03500	75.41 03500	71.14 03500	147.27 03500
3.60	6	66	28	23	36	147.07 03600	75.41 03600	75.41 03600	71.14 03600	147.27 03600
3.70	6	66	28	23	36	147.07 03700	75.41 03700	75.41 03700	71.14 03700	147.27 03700
3.80	6	74	36	29	36	147.07 03800	75.41 03800	75.41 03800	71.14 03800	147.27 03800
3.85	6	74	36	29	36		75.41 03850	75.41 03850	71.14 03850	
3.90	6	74	36	29	36	147.07 03900	75.41 03900	75.41 03900	71.14 03900	147.27 03900
4.00	6	74	36	29	36	147.07 04000	75.41 04000	75.41 04000	71.14 04000	147.27 04000
4.10	6	74	36	29	36	147.07 04100	75.41 04100	75.41 04100	71.14 04100	147.27 04100
4.20	6	74	36	29	36	147.07 04200	75.41 04200	75.41 04200	71.14 04200	147.27 04200
4.25	6	74	36	29	36		75.41 04250	75.41 04250	71.14 04250	
4.30	6	74	36	29	36	147.07 04300	75.41 04300	75.41 04300	71.14 04300	147.27 04300
4.35	6	74	36	29	36		75.41 04350	75.41 04350	71.14 04350	
4.40	6	74	36	29	36	147.07 04400	75.41 04400	75.41 04400	71.14 04400	147.27 04400
4.45	6	74	36	29	36		75.41 04450	75.41 04450	71.14 04450	
4.50	6	74	36	29	36	147.07 04500	75.41 04500	75.41 04500	71.14 04500	147.27 04500
4.60	6	74	36	29	36	147.07 04600	75.41 04600	75.41 04600	71.14 04600	147.27 04600
4.65	6	74	36	29	36	147.07 04650	75.41 04650	75.41 04650	71.14 04650	
4.70	6	74	36	29	36	147.07 04700	75.41 04700	75.41 04700	71.14 04700	147.27 04700
4.80	6	82	44	35	36	147.07 04800	75.41 04800	75.41 04800	71.14 04800	147.27 04800
4.90	6	82	44	35	36	147.07 04900	75.41 04900	75.41 04900	71.14 04900	147.27 04900
4.95	6	82	44	35	36		75.41 04950	75.41 04950	71.14 04950	
5.00	6	82	44	35	36	147.07 05000	75.41 05000	75.41 05000	71.14 05000	147.27 05000
5.05	6	82	44	35	36		75.41 05050	75.41 05050	71.14 05050	
5.10	6	82	44	35	36	147.07 05100	75.41 05100	75.41 05100	71.14 05100	147.27 05100
5.20	6	82	44	35	36	147.07 05200	75.41 05200	75.41 05200	71.14 05200	147.27 05200
5.30	6	82	44	35	36	147.07 05300	75.41 05300	75.41 05300	71.14 05300	147.27 05300
P						●	●	●	●	●
M						●				
K						●	●	●	●	●
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H							○	○	○	○
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Ø DC_{m7} for Type UNI and Quattro 4F/ Ø DC_{h7} for Type Speed UNI

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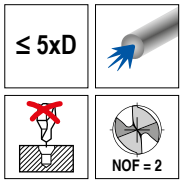
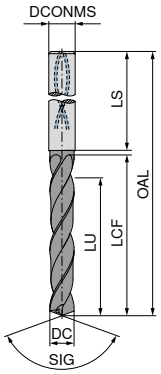
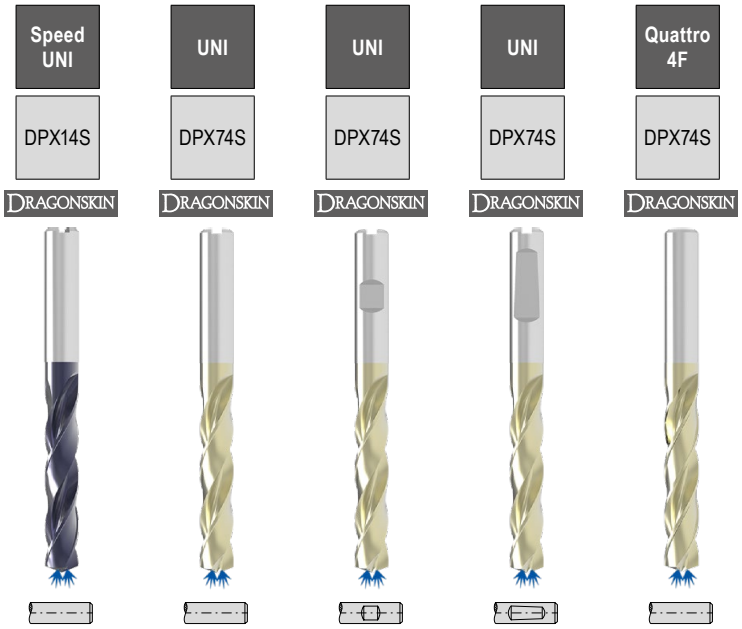
WTX – High Performance Drill, DIN 6537







						SIG 145° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide
						10 771 ...	**11 786 ...**	**11 787 ...**	**11 785 ...**	**10 735 ...**
DC $_{m7/h7}$ **mm**	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T4	£ T7	£ T7	£ T7	£ T4
5.40	6	82	44	35	36	147.07 **05400**	75.41 **05400**	75.41 **05400**	71.14 **05400**	147.27 **05400**
5.50	6	82	44	35	36	147.07 **05500**	75.41 **05500**	75.41 **05500**	71.14 **05500**	147.27 **05500**
5.55	6	82	44	35	36	147.07 **05550**	88.28 **05550**	88.28 **05550**	71.14 **05550**	
5.60	6	82	44	35	36	147.07 **05600**	75.41 **05600**	75.41 **05600**	71.14 **05600**	147.27 **05600**
5.70	6	82	44	35	36	147.07 **05700**	75.41 **05700**	75.41 **05700**	71.14 **05700**	147.27 **05700**
5.75	6	82	44	35	36		75.41 **05750**	75.41 **05750**	71.14 **05750**	
5.80	6	82	44	35	36	147.07 **05800**	75.41 **05800**	75.41 **05800**	71.14 **05800**	147.27 **05800**
5.90	6	82	44	35	36	147.07 **05900**	75.41 **05900**	75.41 **05900**	71.14 **05900**	147.27 **05900**
5.95	6	82	44	35	36		75.41 **05950**	75.41 **05950**	71.14 **05950**	
6.00	6	82	44	35	36	147.07 **06000**	75.41 **06000**	75.41 **06000**	71.14 **06000**	147.27 **06000**
6.10	8	91	53	43	36	164.47 **06100**	85.01 **06100**	85.01 **06100**	81.21 **06100**	172.21 **06100**
6.20	8	91	53	43	36	164.47 **06200**	85.01 **06200**	85.01 **06200**	81.21 **06200**	172.21 **06200**
6.30	8	91	53	43	36	164.47 **06300**	85.01 **06300**	85.01 **06300**	81.21 **06300**	172.21 **06300**
6.40	8	91	53	43	36	164.47 **06400**	85.01 **06400**	85.01 **06400**	81.21 **06400**	172.21 **06400**
6.50	8	91	53	43	36	164.47 **06500**	85.01 **06500**	85.01 **06500**	81.21 **06500**	172.21 **06500**
6.60	8	91	53	43	36	164.47 **06600**	85.01 **06600**	85.01 **06600**	81.21 **06600**	172.21 **06600**
6.70	8	91	53	43	36	164.47 **06700**	85.01 **06700**	85.01 **06700**	81.21 **06700**	172.21 **06700**
6.80	8	91	53	43	36	164.47 **06800**	85.01 **06800**	85.01 **06800**	81.21 **06800**	172.21 **06800**
6.90	8	91	53	43	36	164.47 **06900**	85.01 **06900**	85.01 **06900**	81.21 **06900**	172.21 **06900**
7.00	8	91	53	43	36	164.47 **07000**	85.01 **07000**	85.01 **07000**	81.21 **07000**	172.21 **07000**
7.10	8	91	53	43	36	164.47 **07100**	85.01 **07100**	85.01 **07100**	81.21 **07100**	172.21 **07100**
7.20	8	91	53	43	36	164.47 **07200**	85.01 **07200**	85.01 **07200**	81.21 **07200**	172.21 **07200**
7.30	8	91	53	43	36	164.47 **07300**	85.01 **07300**	85.01 **07300**	81.21 **07300**	172.21 **07300**
7.40	8	91	53	43	36	164.47 **07400**	85.01 **07400**	85.01 **07400**	81.21 **07400**	172.21 **07400**
7.45	8	91	53	43	36		85.01 **07450**	85.01 **07450**	85.01 **07450**	
7.50	8	91	53	43	36	164.47 **07500**	85.01 **07500**	85.01 **07500**	81.21 **07500**	172.21 **07500**
7.60	8	91	53	43	36	164.47 **07600**	85.01 **07600**	85.01 **07600**	81.21 **07600**	172.21 **07600**
7.70	8	91	53	43	36	164.47 **07700**	85.01 **07700**	85.01 **07700**	81.21 **07700**	172.21 **07700**
7.80	8	91	53	43	36	164.47 **07800**	85.01 **07800**	85.01 **07800**	81.21 **07800**	172.21 **07800**
7.90	8	91	53	43	36	164.47 **07900**	85.01 **07900**	85.01 **07900**	81.21 **07900**	172.21 **07900**
8.00	8	91	53	43	36	164.47 **08000**	85.01 **08000**	85.01 **08000**	81.21 **08000**	172.21 **08000**
8.10	10	103	61	49	40	236.11 **08100**	98.53 **08100**	98.53 **08100**	91.65 **08100**	214.43 **08100**
8.20	10	103	61	49	40	236.11 **08200**	98.53 **08200**	98.53 **08200**	91.65 **08200**	214.43 **08200**
8.30	10	103	61	49	40	236.11 **08300**	98.53 **08300**	98.53 **08300**	91.65 **08300**	214.43 **08300**
P						●	●	●	●	●
M						●				
K						●	●	●	●	●
N										
S										
H							○	○	○	○
O										

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Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

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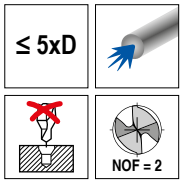
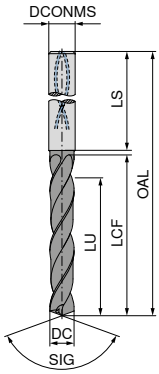
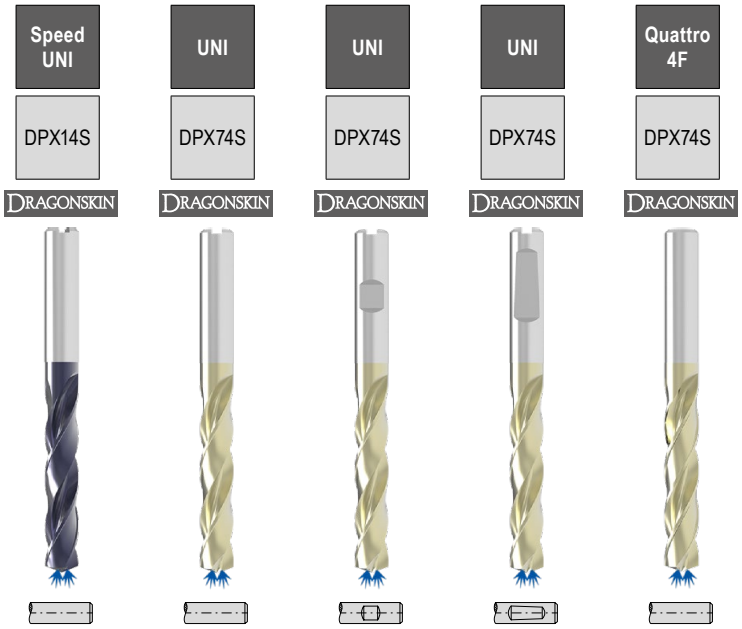
WTX – High Performance Drill, DIN 6537







						SIG 145° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide	
						10 771 ...		**11 786 ...**		**11 787 ...**		**11 785 ...**		**10 735 ...**	
DC $_{m7/h7}$ **mm**	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T4	
8.40	10	103	61	49	40	236.11	**08400**	98.53	**08400**	98.53	**08400**	91.65	**08400**	214.43	**08400**
8.50	10	103	61	49	40	236.11	**08500**	98.53	**08500**	98.53	**08500**	91.65	**08500**	214.43	**08500**
8.60	10	103	61	49	40	236.11	**08600**	98.53	**08600**	98.53	**08600**	91.65	**08600**	214.43	**08600**
8.70	10	103	61	49	40	236.11	**08700**	98.53	**08700**	98.53	**08700**	91.65	**08700**	214.43	**08700**
8.80	10	103	61	49	40	236.11	**08800**	98.53	**08800**	98.53	**08800**	91.65	**08800**	214.43	**08800**
8.90	10	103	61	49	40	236.11	**08900**	98.53	**08900**	98.53	**08900**	91.65	**08900**	214.43	**08900**
9.00	10	103	61	49	40	236.11	**09000**	98.53	**09000**	98.53	**09000**	91.65	**09000**	214.43	**09000**
9.10	10	103	61	49	40	236.11	**09100**	98.53	**09100**	98.53	**09100**	91.65	**09100**	214.43	**09100**
9.20	10	103	61	49	40	236.11	**09200**	98.53	**09200**	98.53	**09200**	91.65	**09200**	214.43	**09200**
9.30	10	103	61	49	40	236.11	**09300**	98.53	**09300**	98.53	**09300**	91.65	**09300**	214.43	**09300**
9.35	10	103	61	49	40			98.53	**09350**	98.53	**09350**	91.65	**09350**		
9.40	10	103	61	49	40	236.11	**09400**	98.53	**09400**	98.53	**09400**	91.65	**09400**	214.43	**09400**
9.45	10	103	61	49	40			98.53	**09450**	98.53	**09450**	91.65	**09450**		
9.50	10	103	61	49	40	236.11	**09500**	98.53	**09500**	98.53	**09500**	91.65	**09500**	214.43	**09500**
9.60	10	103	61	49	40	236.11	**09600**	98.53	**09600**	98.53	**09600**	91.65	**09600**	214.43	**09600**
9.70	10	103	61	49	40	236.11	**09700**	98.53	**09700**	98.53	**09700**	91.65	**09700**	214.43	**09700**
9.80	10	103	61	49	40	236.11	**09800**	98.53	**09800**	98.53	**09800**	91.65	**09800**	214.43	**09800**
9.90	10	103	61	49	40	236.11	**09900**	98.53	**09900**	98.53	**09900**	91.65	**09900**	214.43	**09900**
10.00	10	103	61	49	40	236.11	**10000**	98.53	**10000**	98.53	**10000**	91.65	**10000**	214.43	**10000**
10.10	12	118	71	56	45	332.83	**10100**	139.55	**10100**	139.55	**10100**	131.96	**10100**	304.19	**10100**
10.20	12	118	71	56	45	332.83	**10200**	139.55	**10200**	139.55	**10200**	131.96	**10200**	304.19	**10200**
10.30	12	118	71	56	45	332.83	**10300**	139.55	**10300**	139.55	**10300**	131.96	**10300**	304.19	**10300**
10.40	12	118	71	56	45	332.83	**10400**	139.55	**10400**	139.55	**10400**	131.96	**10400**	304.19	**10400**
10.50	12	118	71	56	45	332.83	**10500**	139.55	**10500**	139.55	**10500**	131.96	**10500**	304.19	**10500**
10.55	12	118	71	56	45			139.55	**10550**	139.55	**10550**	131.96	**10550**		
10.60	12	118	71	56	45	332.83	**10600**	139.55	**10600**	139.55	**10600**	131.96	**10600**	304.19	**10600**
10.70	12	118	71	56	45	332.83	**10700**	139.55	**10700**	139.55	**10700**	131.96	**10700**	304.19	**10700**
10.75	12	118	71	56	45			139.55	**10750**	139.55	**10750**	131.96	**10750**		
10.80	12	118	71	56	45	332.83	**10800**	139.55	**10800**	139.55	**10800**	131.96	**10800**	304.19	**10800**
10.90	12	118	71	56	45	332.83	**10900**	139.55	**10900**	139.55	**10900**	131.96	**10900**	304.19	**10900**
11.00	12	118	71	56	45	332.83	**11000**	139.55	**11000**	139.55	**11000**	131.96	**11000**	304.19	**11000**
11.10	12	118	71	56	45	332.83	**11100**	139.55	**11100**	139.55	**11100**	131.96	**11100**	304.19	**11100**
11.20	12	118	71	56	45	332.83	**11200**	139.55	**11200**	139.55	**11200**	131.96	**11200**	304.19	**11200**
11.25	12	118	71	56	45			139.55	**11250**	139.55	**11250**	131.96	**11250**		
P						●		●		●		●		●	
M						●									
K						●		●		●		●		●	
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Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

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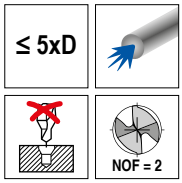
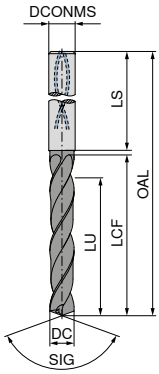
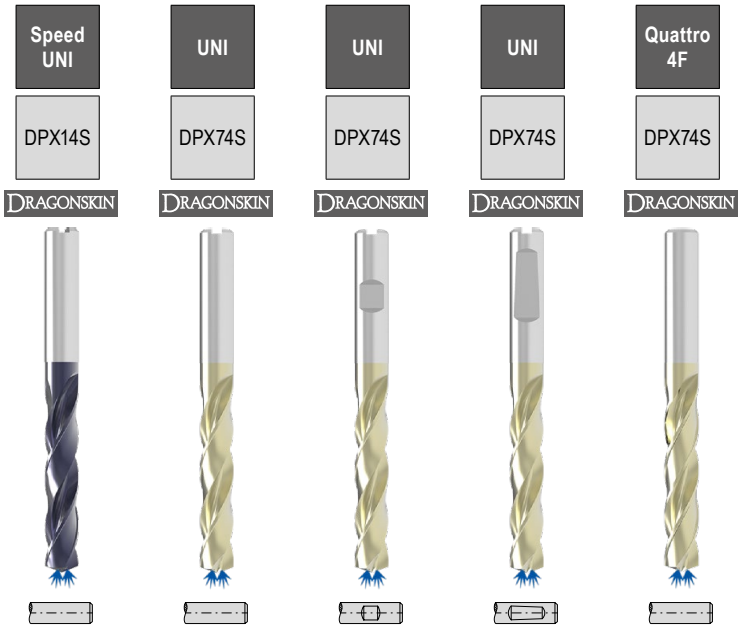
WTX – High Performance Drill, DIN 6537







	SIG 145° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide	SIG 140° Solid carbide
	10 771 ...	**11 786 ...**	**11 787 ...**	**11 785 ...**	**10 735 ...**
DC $_{m7/h7}$ **mm**	£ T4	£ T7	£ T7	£ T7	£ T4
11.30	332.83 **11300**	139.55 **11300**	139.55 **11300**	131.96 **11300**	304.19 **11300**
11.35		139.55 **11350**	139.55 **11350**	131.96 **11350**	
11.40	332.83 **11400**	139.55 **11400**	139.55 **11400**	131.96 **11400**	304.19 **11400**
11.45		139.55 **11450**	139.55 **11450**	131.96 **11450**	
11.50	332.83 **11500**	139.55 **11500**	139.55 **11500**	131.96 **11500**	304.19 **11500**
11.60	332.83 **11600**	139.55 **11600**	139.55 **11600**	131.96 **11600**	304.19 **11600**
11.70	332.83 **11700**	139.55 **11700**	139.55 **11700**	131.96 **11700**	304.19 **11700**
11.80	332.83 **11800**	139.55 **11800**	139.55 **11800**	131.96 **11800**	304.19 **11800**
11.90	332.83 **11900**	139.55 **11900**	139.55 **11900**	131.96 **11900**	304.19 **11900**
12.00	332.83 **12000**	139.55 **12000**	139.55 **12000**	131.96 **12000**	304.19 **12000**
12.15		188.13 **12150**	188.13 **12150**	174.76 **12150**	
12.20	452.80 **12200**				
12.25		188.13 **12250**	188.13 **12250**	174.76 **12250**	
12.50	452.80 **12500**	188.13 **12500**	188.13 **12500**	174.76 **12500**	411.38 **12500**
12.55		188.13 **12550**	188.13 **12550**	174.76 **12550**	
12.70		188.13 **12700**	188.13 **12700**	174.76 **12700**	
12.80	452.80 **12800**	188.13 **12800**	188.13 **12800**	174.76 **12800**	411.38 **12800**
12.90		174.76 **12900**	174.76 **12900**	174.76 **12900**	
13.00	452.80 **13000**	188.13 **13000**	188.13 **13000**	174.76 **13000**	411.38 **13000**
13.10		188.13 **13100**	188.13 **13100**	174.76 **13100**	
13.30		174.76 **13300**	174.76 **13300**	174.76 **13300**	
13.35		174.76 **13350**	174.76 **13350**	174.76 **13350**	
13.50	452.80 **13500**	188.13 **13500**	188.13 **13500**	174.76 **13500**	411.38 **13500**
13.70		188.13 **13700**	188.13 **13700**	174.76 **13700**	
13.80	452.80 **13800**	188.13 **13800**	188.13 **13800**	174.76 **13800**	411.38 **13800**
14.00	452.80 **14000**	188.13 **14000**	188.13 **14000**	174.76 **14000**	411.38 **14000**
14.20	565.05 **14200**	218.25 **14200**	218.25 **14200**	218.25 **14200**	
14.50	565.05 **14500**	235.16 **14500**	235.16 **14500**	218.25 **14500**	513.58 **14500**
14.80	565.05 **14800**	235.16 **14800**	235.16 **14800**	218.25 **14800**	513.58 **14800**
15.00	565.05 **15000**	235.16 **15000**	235.16 **15000**	218.25 **15000**	513.58 **15000**
15.10		235.16 **15100**	235.16 **15100**	218.25 **15100**	
15.20	565.05 **15200**				
15.25		235.16 **15250**	235.16 **15250**	218.25 **15250**	
15.30		228.64 **15300**	228.64 **15300**	218.25 **15300**	
P	●	●	●	●	●
M	●				
K	●	●	●	●	●
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H		○	○	○	○
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Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

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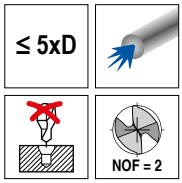
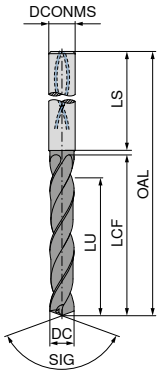
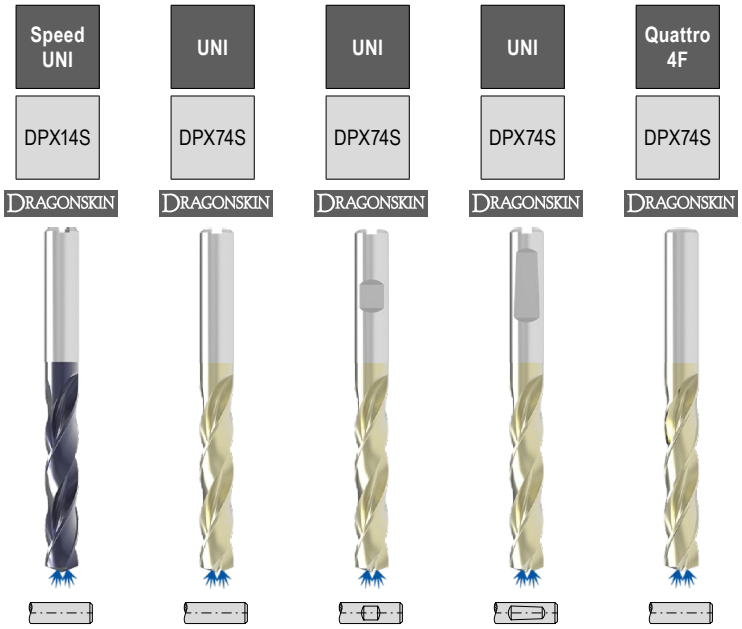
WTX – High Performance Drill, DIN 6537







						SIG 145° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide	
						10 771 ...		11 786 ...		11 787 ...		11 785 ...		10 735 ...	
DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T4	
15.35	16	133	83	63	48			228.64	15350	228.64	15350	218.25	15350		
15.50	16	133	83	63	48	565.05	15500	235.16	15500	235.16	15500	218.25	15500	513.58	15500
15.60	16	133	83	63	48			235.16	15600	235.16	15600	218.25	15600		
15.80	16	133	83	63	48	565.05	15800	235.16	15800	235.16	15800	218.25	15800	513.58	15800
16.00	16	133	83	63	48	565.05	16000	235.16	16000	235.16	16000	218.25	16000	513.58	16000
16.05	18	143	93	71	48			365.72	16050	365.72	16050	339.42	16050		
16.50	18	143	93	71	48	743.07	16500	365.72	16500	365.72	16500	339.42	16500	675.55	16500
16.80	18	143	93	71	48	743.07	16800	365.72	16800	365.72	16800	339.42	16800	675.55	16800
16.90	18	143	93	71	48			365.72	16900	365.72	16900	339.42	16900		
17.00	18	143	93	71	48	743.07	17000	365.72	17000	365.72	17000	339.42	17000	675.55	17000
17.50	18	143	93	71	48	743.07	17500	365.72	17500	365.72	17500	339.42	17500	675.55	17500
17.60	18	143	93	71	48			365.72	17600	365.72	17600	339.42	17600		
17.80	18	143	93	71	48	743.07	17800	365.72	17800	365.72	17800	339.42	17800	675.55	17800
18.00	18	143	93	71	48	743.07	18000	365.72	18000	365.72	18000	339.42	18000	675.55	18000
18.50	20	153	101	77	50			423.45	18500	423.45	18500	375.79	18500		
18.80	20	153	101	77	50			423.45	18800	423.45	18800	375.79	18800		
18.90	20	153	101	77	50			423.45	18900	423.45	18900	375.79	18900		
19.00	20	153	101	77	50			423.45	19000	423.45	19000	375.79	19000		
19.35	20	153	101	77	50			423.45	19350	423.45	19350	375.79	19350		
19.50	20	153	101	77	50			423.45	19500	423.45	19500	375.79	19500		
19.60	20	153	101	77	50			423.45	19600	423.45	19600	375.79	19600		
19.80	20	153	101	77	50			423.45	19800	423.45	19800	375.79	19800		
20.00	20	153	101	77	50			423.45	20000	423.45	20000	375.79	20000		
20.50	25	200	135	110	56			1,088.35	20500	1,088.35	20500	727.37	20500		
21.00	25	200	135	110	56			1,088.35	21000	1,088.35	21000	727.37	21000		
21.50	25	200	135	110	56			1,088.35	21500	1,088.35	21500	727.37	21500		
22.00	25	200	135	110	56			1,088.35	22000	1,088.35	22000	727.37	22000		
22.50	25	200	140	120	56			1,088.35	22500	1,088.35	22500	727.37	22500		
23.00	25	200	140	120	56			1,088.35	23000	1,088.35	23000	727.37	23000		
23.50	25	200	140	120	56			1,088.35	23500	1,088.35	23500	727.37	23500		
24.00	25	200	140	120	56			1,088.35	24000	1,088.35	24000	727.37	24000		
24.50	25	200	140	120	56			1,088.35	24500	1,088.35	24500	727.37	24500		
25.00	25	200	140	120	56			1,088.35	25000	1,088.35	25000	727.37	25000		
P						●		●		●		●		●	
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K						●		●		●		●		●	
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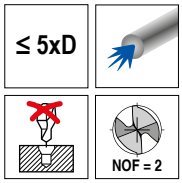
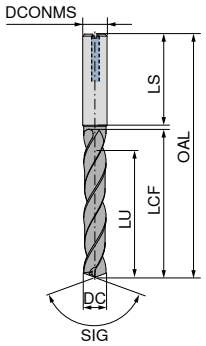
→ v_c Page 111–120

Ø DC_{m7} for Type UNI and Quattro 4F/ Ø DC_{h7} for Type Speed UNI

WTX – High Performance Drill, DIN 6537





Speed VA | Ti800



SIG 135°
Solid carbide

VA | Ti700



SIG 140°
Solid carbide

AL | DLC | DRAGONSKIN



SIG 135°
Solid carbide

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 773 ... £ T4		10 745 ... £ T4		10 791 ... £ T4/9F	
2.50	4	57	21	17	28					108.60	02500
2.60	4	57	21	17	28					108.60	02600
2.70	4	57	21	17	28					108.60	02700
2.80	4	57	21	17	28					108.60	02800
2.90	4	57	21	17	28					108.60	02900
3.00	6	66	28	23	36	148.92	030	130.66	030	108.60	03000
3.10	6	66	28	23	36	148.92	031	130.66	031	108.60	03100
3.15	6	66	28	23	36			130.66	831		
3.20	6	66	28	23	36	148.92	032	130.66	032	108.60	03200
3.22	6	66	28	23	36			130.66	832		
3.25	6	66	28	23	36			130.66	890		
3.30	6	66	28	23	36	148.92	033	130.66	033	108.60	03300
3.40	6	66	28	23	36	148.92	034	130.66	034	108.60	03400
3.50	6	66	28	23	36	148.92	035	130.66	035	108.60	03500
3.60	6	66	28	23	36	148.92	036	130.66	036	108.60	03600
3.70	6	66	28	23	36	148.92	037	130.66	037	108.60	03700
3.80	6	74	36	29	36	148.92	038	130.66	038	104.80	03800
3.85	6	74	36	29	36			130.66	838		
3.90	6	74	36	29	36	148.92	039	130.66	039	104.80	03900
4.00	6	74	36	29	36	148.92	040	130.66	040	104.80	04000
4.10	6	74	36	29	36	148.92	041	130.66	041	104.80	04100
4.20	6	74	36	29	36	148.92	042	130.66	042	104.80	04200
4.30	6	74	36	29	36	148.92	043	130.66	043	104.80	04300
4.35	6	74	36	29	36			130.66	843		
4.40	6	74	36	29	36	148.92	044	130.66	044	104.80	04400
4.45	6	74	36	29	36			130.66	844		
4.50	6	74	36	29	36	148.92	045	130.66	045	104.80	04500
4.60	6	74	36	29	36	148.92	046	130.66	046	104.80	04600
4.65	6	74	36	29	36	148.92	900	130.66	900		
4.70	6	74	36	29	36	148.92	047	130.66	047	104.80	04700
4.80	6	82	44	35	36	148.92	048	130.66	048	105.28	04800
4.90	6	82	44	35	36	148.92	049	130.66	049	105.28	04900
5.00	6	82	44	35	36	148.92	050	130.66	050	105.28	05000
5.10	6	82	44	35	36	148.92	051	130.66	051	105.28	05100
5.20	6	82	44	35	36	148.92	052	130.66	052	105.28	05200
5.30	6	82	44	35	36	148.92	053	130.66	053	105.28	05300
5.40	6	82	44	35	36	148.92	054	130.66	054	105.28	05400

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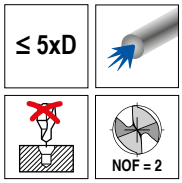
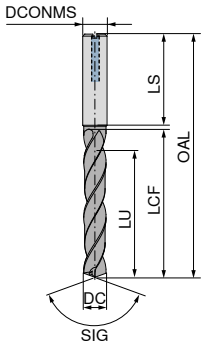
→ v_c Page 112–122

Ø DC_{m7} for Type VA / Ø DC_{h7} for Type Speed VA and AL

Continued on next page

WTX – High Performance Drill, DIN 6537





Speed VA | VA | AL

Ti800 | Ti700 | DLC

DRAGONSKIN



SIG 135° Solid carbide | SIG 140° Solid carbide | SIG 135° Solid carbide

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 773 ... £ T4		10 745 ... £ T4		10 791 ... £ T4/9F	
5.50	6	82	44	35	36	148.92	055	130.66	055	105.28	05500
5.55	6	82	44	35	36	148.92	902				
5.60	6	82	44	35	36	148.92	056	130.66	056	105.28	05600
5.70	6	82	44	35	36	148.92	057	130.66	057	105.28	05700
5.75	6	82	44	35	36			130.66	916		
5.80	6	82	44	35	36	148.92	058	130.66	058	105.28	05800
5.90	6	82	44	35	36	148.92	059	130.66	059	105.28	05900
5.95	6	82	44	35	36			130.66	959		
6.00	6	82	44	35	36	148.92	060	130.66	060	105.28	06000
6.10	8	91	53	43	36	166.71	061	154.45	061	117.49	06100
6.20	8	91	53	43	36	166.71	062	154.45	062	117.49	06200
6.30	8	91	53	43	36	166.71	063	154.45	063	117.49	06300
6.40	8	91	53	43	36	166.71	064	154.45	064	117.49	06400
6.50	8	91	53	43	36	166.71	065	154.45	065	117.49	06500
6.60	8	91	53	43	36	166.71	066	154.45	066	117.49	06600
6.70	8	91	53	43	36	166.71	067	154.45	067	117.49	06700
6.80	8	91	53	43	36	166.71	068	154.45	068	117.49	06800
6.90	8	91	53	43	36	166.71	069	154.45	069	117.49	06900
7.00	8	91	53	43	36	166.71	070	154.45	070	117.49	07000
7.10	8	91	53	43	36	166.71	071	154.45	071	117.49	07100
7.20	8	91	53	43	36	166.71	072	154.45	072	117.49	07200
7.30	8	91	53	43	36	166.71	073	154.45	073	117.49	07300
7.40	8	91	53	43	36	166.71	074	154.45	074	117.49	07400
7.45	8	91	53	43	36			154.45	924		
7.50	8	91	53	43	36	166.71	075	154.45	075	117.49	07500
7.60	8	91	53	43	36	166.71	076	154.45	076	117.49	07600
7.70	8	91	53	43	36	166.71	077	154.45	077	117.49	07700
7.80	8	91	53	43	36	166.71	078	154.45	078	117.49	07800
7.90	8	91	53	43	36	166.71	079	154.45	079	117.49	07900
8.00	8	91	53	43	36	166.71	080	154.45	080	117.49	08000
8.10	10	103	61	49	40	241.25	081	194.52	081	137.59	08100
8.20	10	103	61	49	40	241.25	082	194.52	082	137.59	08200
8.30	10	103	61	49	40	241.25	083	194.52	083	137.59	08300
8.40	10	103	61	49	40	241.25	084	194.52	084	137.59	08400
8.50	10	103	61	49	40	241.25	085	194.52	085	137.59	08500
8.60	10	103	61	49	40	241.25	086	194.52	086	137.59	08600
8.70	10	103	61	49	40	241.25	087	194.52	087	137.59	08700

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→ v_c Page 112–122

Ø DC_{m7} for Type VA / Ø DC_{h7} for Type Speed VA and AL

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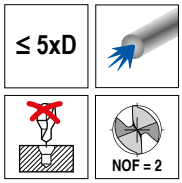
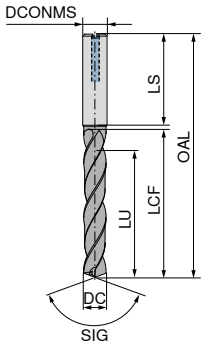
WTX – High Performance Drill, DIN 6537





Speed VA | VA | AL

Ti800 | Ti700 | DLC

DRAGONSKIN



SIG 135°
Solid carbide

SIG 140°
Solid carbide

SIG 135°
Solid carbide

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 773 ... £ T4		10 745 ... £ T4		10 791 ... £ T4/9F	
8.80	10	103	61	49	40	241.25	088	194.52	088	137.59	08800
8.90	10	103	61	49	40	241.25	089	194.52	089	137.59	08900
9.00	10	103	61	49	40	241.25	090	194.52	090	137.59	09000
9.10	10	103	61	49	40	241.25	091	194.52	091	137.59	09100
9.20	10	103	61	49	40	241.25	092	194.52	092	137.59	09200
9.30	10	103	61	49	40	241.25	093	194.52	093	137.59	09300
9.35	10	103	61	49	40			194.52	930		
9.40	10	103	61	49	40	241.25	094	194.52	094	137.59	09400
9.45	10	103	61	49	40			194.52	994		
9.50	10	103	61	49	40	241.25	095	194.52	095	137.59	09500
9.60	10	103	61	49	40	241.25	096	194.52	096	137.59	09600
9.70	10	103	61	49	40	241.25	097	194.52	097	137.59	09700
9.80	10	103	61	49	40	241.25	098	194.52	098	137.59	09800
9.90	10	103	61	49	40	241.25	099	194.52	099	137.59	09900
10.00	10	103	61	49	40	241.25	100	194.52	100	137.59	10000
10.10	12	118	71	56	45	338.16	101	264.16	101	191.98	10100
10.20	12	118	71	56	45	338.16	102	264.16	102	191.98	10200
10.30	12	118	71	56	45	338.16	103	264.16	103	191.98	10300
10.40	12	118	71	56	45	338.16	104	264.16	104	191.98	10400
10.50	12	118	71	56	45	338.16	105	264.16	105	191.98	10500
10.55	12	118	71	56	45			264.16	932		
10.60	12	118	71	56	45	338.16	106	264.16	106	191.98	10600
10.70	12	118	71	56	45	338.16	107	264.16	107	191.98	10700
10.80	12	118	71	56	45	338.16	108	264.16	108	191.98	10800
10.90	12	118	71	56	45	338.16	109	264.16	109		
11.00	12	118	71	56	45	338.16	110	264.16	110	191.98	11000
11.10	12	118	71	56	45	338.16	111	264.16	111	191.98	11100
11.20	12	118	71	56	45	338.16	112	264.16	112	191.98	11200
11.25	12	118	71	56	45			264.16	912		
11.30	12	118	71	56	45	338.16	113	264.16	113	191.98	11300
11.35	12	118	71	56	45			264.16	913		
11.40	12	118	71	56	45	338.16	114	264.16	114	191.98	11400
11.45	12	118	71	56	45			264.16	914		
11.50	12	118	71	56	45	338.16	115	264.16	115	191.98	11500
11.60	12	118	71	56	45	338.16	116	264.16	116		
11.70	12	118	71	56	45	338.16	117	264.16	117	191.98	11700
11.80	12	118	71	56	45	338.16	118	264.16	118	191.98	11800

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→ v_c Page 112–122

Ø DC_{m7} for Type VA / **Ø DC_{h7}** for Type Speed VA and AL

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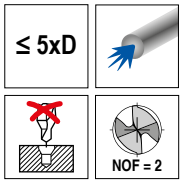
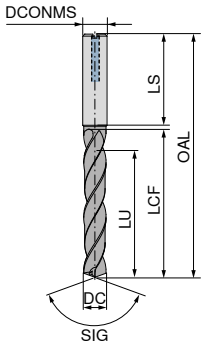
WTX – High Performance Drill, DIN 6537





Speed VA | VA | AL

Ti800 | Ti700 | DLC

DRAGONSKIN



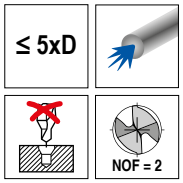
SIG 135° Solid carbide | SIG 140° Solid carbide | SIG 135° Solid carbide

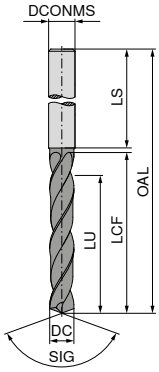
DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 773 ... £ T4		10 745 ... £ T4		10 791 ... £ T4/9F	
11.90	12	118	71	56	45	338.16	119	264.16	119		
12.00	12	118	71	56	45	338.16	120	264.16	120	191.98	12000
12.15	14	124	77	60	45			364.01	921		
12.20	14	124	77	60	45	458.80	12200			266.47	12200
12.50	14	124	77	60	45	458.80	125	364.01	125	266.47	12500
12.55	14	124	77	60	45			364.01	925		
12.60	14	124	77	60	45					266.47	12600
12.80	14	124	77	60	45	458.80	128	364.01	128	266.47	12800
13.00	14	124	77	60	45	458.80	130	364.01	130	266.47	13000
13.35	14	124	77	60	45			364.01	933		
13.50	14	124	77	60	45	458.80	135	364.01	135	266.47	13500
13.80	14	124	77	60	45	458.80	138	364.01	138	266.47	13800
14.00	14	124	77	60	45	458.80	140	364.01	140	266.47	14000
14.20	16	133	83	63	48					325.84	14200
14.50	16	133	83	63	48	573.50	145	458.60	145	325.84	14500
14.80	16	133	83	63	48	573.50	148	458.60	148	325.84	14800
15.00	16	133	83	63	48	573.50	150	458.60	150	325.84	15000
15.20	16	133	83	63	48					325.84	15200
15.35	16	133	83	63	48			458.60	953		
15.50	16	133	83	63	48	573.50	155	458.60	155	325.84	15500
15.80	16	133	83	63	48	573.50	158	458.60	158	325.84	15800
16.00	16	133	83	63	48	573.50	160	458.60	160	325.84	16000
16.05	18	143	93	71	48			633.16	960		
16.50	18	143	93	71	48	755.45	165	633.16	165	452.40	16500
16.80	18	143	93	71	48	755.45	168	633.16	168		
17.00	18	143	93	71	48	755.45	170	633.16	170	452.40	17000
17.50	18	143	93	71	48	755.45	175	633.16	175	452.40	17500
17.80	18	143	93	71	48	755.45	178	633.16	178		
18.00	18	143	93	71	48	755.45	180	633.16	180	452.40	18000
18.50	20	153	101	77	50	976.93	185	750.23	185	558.66	18500
18.80	20	153	101	77	50	976.93	188	750.23	188		
19.00	20	153	101	77	50	976.93	190	750.23	190	558.66	19000
19.35	20	153	101	77	50			750.23	993		
19.50	20	153	101	77	50	976.93	195	750.23	195	558.66	19500
19.80	20	153	101	77	50	976.93	198	750.23	198		
20.00	20	153	101	77	50	976.93	200	750.23	200	558.66	20000
P						●		○			
M						●		●			
K						●		○			
N						○		○		●	
S						●		●			
H											
O											

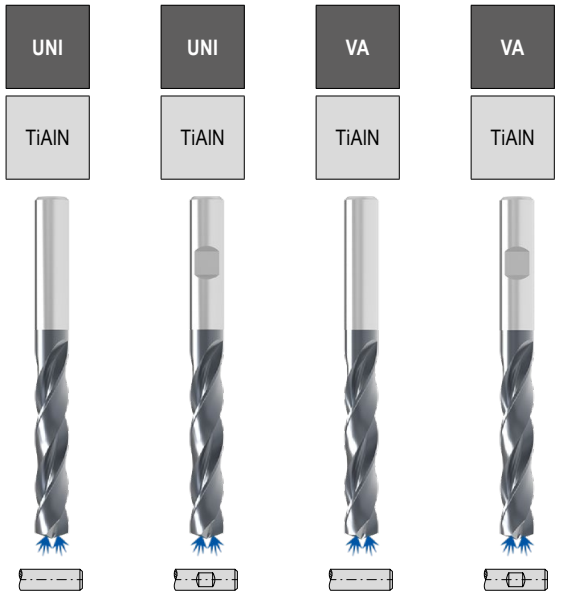
→ v_c Page 112–122

Ø DC_{m7} for Type VA / **Ø DC_{h7}** for Type Speed VA and AL

High Performance Drill, DIN 6537







SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 702 ... £ T1/9C		11 703 ... £ T1/9C		11 715 ... £ T1/9C		11 716 ... £ T1/9C	
1.00	4	55	8	6.5	28	38.06	01000			45.15	01000		
1.10	4	55	12	10.3	28	38.06	01100			45.15	01100		
1.20	4	55	12	10.2	28	38.06	01200			45.15	01200		
1.30	4	55	12	10.0	28	38.06	01300			45.15	01300		
1.40	4	55	12	9.9	28	38.06	01400			45.15	01400		
1.50	4	55	12	9.7	28	38.06	01500			45.15	01500		
1.60	4	55	16	13.6	28	38.06	01600			45.15	01600		
1.70	4	55	16	13.4	28	38.06	01700			45.15	01700		
1.80	4	55	16	13.3	28	38.06	01800			45.15	01800		
1.90	4	55	16	13.1	28	38.06	01900			45.15	01900		
2.00	4	57	21	18.0	28	38.06	02000			45.15	02000		
2.10	4	57	21	17.8	28	38.06	02100			45.15	02100		
2.20	4	57	21	17.7	28	38.06	02200			45.15	02200		
2.30	4	57	21	17.5	28	38.06	02300			45.15	02300		
2.40	4	57	21	17.4	28	38.06	02400			45.15	02400		
2.50	4	57	21	17.2	28	38.06	02500			45.15	02500		
2.60	4	57	21	17.1	28	38.06	02600			45.15	02600		
2.70	4	57	21	16.9	28	38.06	02700			45.15	02700		
2.80	4	57	21	16.8	28	38.06	02800			45.15	02800		
2.90	4	57	21	16.6	28	38.06	02900			45.15	02900		
3.00	6	66	28	23.5	36	38.06	03000	38.06	03000	44.41	03000	44.41	03000
3.10	6	66	28	23.3	36	38.06	03100	38.06	03100	44.41	03100	44.41	03100
3.20	6	66	28	23.2	36	38.06	03200	38.06	03200	44.41	03200	44.41	03200
3.25	6	66	28	23.1	36	38.06	03250	38.06	03250				
3.30	6	66	28	23.0	36	38.06	03300	38.06	03300	44.41	03300	44.41	03300
3.40	6	66	28	22.9	36	38.06	03400	38.06	03400	44.41	03400	44.41	03400
3.50	6	66	28	22.7	36	38.06	03500	38.06	03500	44.41	03500	44.41	03500
3.60	6	66	28	22.6	36	38.06	03600	38.06	03600	44.41	03600	44.41	03600
3.70	6	66	28	22.4	36	38.06	03700	38.06	03700	44.41	03700	44.41	03700
3.80	6	74	36	30.3	36	38.06	03800	38.06	03800	44.41	03800	44.41	03800
3.85	6	74	36	30.2	36	38.06	03850	38.06	03850				
3.90	6	74	36	30.1	36	38.06	03900	38.06	03900	44.41	03900	44.41	03900
4.00	6	74	36	30.0	36	38.06	04000	38.06	04000	44.41	04000	44.41	04000
4.10	6	74	36	29.8	36	38.06	04100	38.06	04100	44.41	04100	44.41	04100
4.20	6	74	36	29.7	36	38.06	04200	38.06	04200	44.41	04200	44.41	04200
4.30	6	74	36	29.5	36	38.06	04300	38.06	04300	44.41	04300	44.41	04300
4.40	6	74	36	29.4	36	38.06	04400	38.06	04400	44.41	04400	44.41	04400
4.50	6	74	36	29.2	36	38.06	04500	38.06	04500	44.41	04500	44.41	04500
4.60	6	74	36	29.1	36	38.06	04600	38.06	04600	44.41	04600	44.41	04600
4.65	6	74	36	29.0	36	38.06	04650	38.06	04650				
4.70	6	74	36	28.9	36	38.06	04700	38.06	04700	44.41	04700	44.41	04700
4.80	6	82	44	36.8	36	38.06	04800	38.06	04800	44.41	04800	44.41	04800
4.90	6	82	44	36.6	36	38.06	04900	38.06	04900	44.41	04900	44.41	04900
5.00	6	82	44	36.5	36	38.06	05000	38.06	05000	44.41	05000	44.41	05000
5.10	6	82	44	36.3	36	38.06	05100	38.06	05100	44.41	05100	44.41	05100

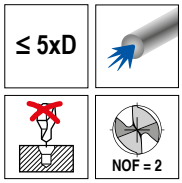
P	●	●	○	○
M	●	●	●	●
K	●	●		
N	○	○	●	●
S			○	○
H				
O			○	○

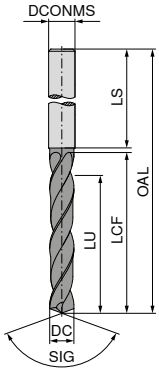
→ v_c Page 129+133

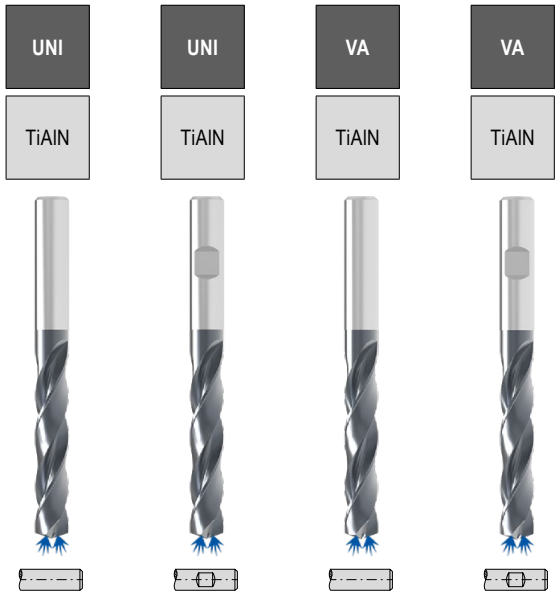
Ø DC_{h7} for Type UNI / Ø DC_{m7} for Type VA

Continued on next page

High Performance Drill, DIN 6537







SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 702 ... £ T1/9C	11 703 ... £ T1/9C	11 715 ... £ T1/9C	11 716 ... £ T1/9C
5.20	6	82	44	36.2	36	38.06 05200	38.06 05200	44.41 05200	44.41 05200
5.30	6	82	44	36.0	36	38.06 05300	38.06 05300	44.41 05300	44.41 05300
5.40	6	82	44	35.9	36	38.06 05400	38.06 05400	44.41 05400	44.41 05400
5.50	6	82	44	35.7	36	38.06 05500	38.06 05500	44.41 05500	44.41 05500
5.55	6	82	44	35.6	36	38.06 05550	38.06 05550		
5.60	6	82	44	35.6	36	38.06 05600	38.06 05600	44.41 05600	44.41 05600
5.65	6	82	44	35.5	36	38.06 05650	38.06 05650		
5.70	6	82	44	35.4	36	38.06 05700	38.06 05700	44.41 05700	44.41 05700
5.80	6	82	44	35.3	36	38.06 05800	38.06 05800	44.41 05800	44.41 05800
5.90	6	82	44	35.1	36	38.06 05900	38.06 05900	44.41 05900	44.41 05900
6.00	6	82	44	35.0	36	38.06 06000	38.06 06000	44.41 06000	44.41 06000
6.10	8	91	53	43.8	36	43.13 06100	43.13 06100	51.03 06100	51.03 06100
6.20	8	91	53	43.7	36	43.13 06200	43.13 06200	51.03 06200	51.03 06200
6.30	8	91	53	43.5	36	43.13 06300	43.13 06300	51.03 06300	51.03 06300
6.40	8	91	53	43.4	36	43.13 06400	43.13 06400	51.03 06400	51.03 06400
6.50	8	91	53	43.2	36	43.13 06500	43.13 06500	51.03 06500	51.03 06500
6.60	8	91	53	43.1	36	43.13 06600	43.13 06600	51.03 06600	51.03 06600
6.70	8	91	53	42.9	36	43.13 06700	43.13 06700	51.03 06700	51.03 06700
6.80	8	91	53	42.8	36	43.13 06800	43.13 06800	51.03 06800	51.03 06800
6.90	8	91	53	42.6	36	43.13 06900	43.13 06900	51.03 06900	51.03 06900
7.00	8	91	53	42.5	36	43.13 07000	43.13 07000	51.03 07000	51.03 07000
7.10	8	91	53	42.3	36	43.13 07100	43.13 07100	51.03 07100	51.03 07100
7.20	8	91	53	42.2	36	43.13 07200	43.13 07200	51.03 07200	51.03 07200
7.30	8	91	53	42.0	36	43.13 07300	43.13 07300	51.03 07300	51.03 07300
7.40	8	91	53	41.9	36	43.13 07400	43.13 07400	51.03 07400	51.03 07400
7.45	8	91	53	41.8	36			51.03 07450	51.03 07450
7.50	8	91	53	41.7	36	43.13 07500	43.13 07500	51.03 07500	51.03 07500
7.55	8	91	53	41.6	36	43.13 07550	43.13 07550	51.03 07550	51.03 07550
7.60	8	91	53	41.6	36	43.13 07600	43.13 07600	51.03 07600	51.03 07600
7.65	8	91	53	41.5	36	43.13 07650	43.13 07650		
7.70	8	91	53	41.4	36	43.13 07700	43.13 07700	51.03 07700	51.03 07700
7.80	8	91	53	41.3	36	43.13 07800	43.13 07800	51.03 07800	51.03 07800
7.90	8	91	53	41.1	36	43.13 07900	43.13 07900	51.03 07900	51.03 07900
8.00	8	91	53	41.0	36	43.13 08000	43.13 08000	51.03 08000	51.03 08000
8.10	10	103	61	48.8	40	49.48 08100	49.48 08100	58.35 08100	58.35 08100
8.20	10	103	61	48.7	40	49.48 08200	49.48 08200	58.35 08200	58.35 08200
8.30	10	103	61	48.5	40	49.48 08300	49.48 08300	58.35 08300	58.35 08300
8.40	10	103	61	48.4	40	49.48 08400	49.48 08400	58.35 08400	58.35 08400
8.50	10	103	61	48.2	40	49.48 08500	49.48 08500	58.35 08500	58.35 08500
8.60	10	103	61	48.1	40	49.48 08600	49.48 08600	58.35 08600	58.35 08600
8.70	10	103	61	47.9	40	49.48 08700	49.48 08700	58.35 08700	58.35 08700
8.80	10	103	61	47.8	40	49.48 08800	49.48 08800	58.35 08800	58.35 08800
8.90	10	103	61	47.6	40	49.48 08900	49.48 08900	58.35 08900	58.35 08900
9.00	10	103	61	47.5	40	49.48 09000	49.48 09000	58.35 09000	58.35 09000
9.10	10	103	61	47.3	40	49.48 09100	49.48 09100	58.35 09100	58.35 09100

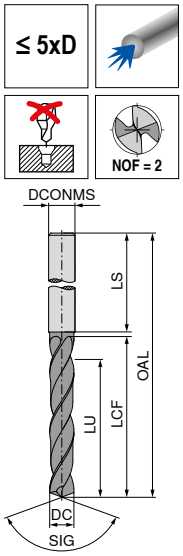
P	●	●	○	○
M	●	●	●	●
K	●	●		
N	○	○	●	●
S			○	○
H				
O			○	○

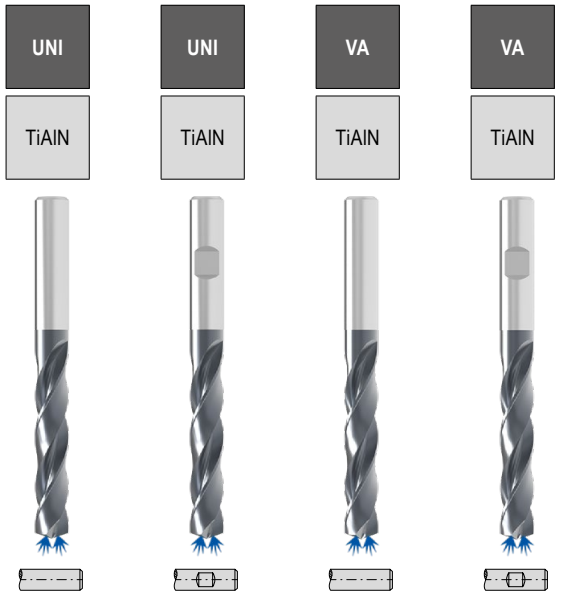
→ v_c Page 129+133

Ø DC_{h7} for Type UNI / Ø DC_{m7} for Type VA

Continued on next page

High Performance Drill, DIN 6537





SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 702 ... £ T1/9C		11 703 ... £ T1/9C		11 715 ... £ T1/9C		11 716 ... £ T1/9C	
9.20	10	103	61	47.2	40	49.48	**09200**	49.48	**09200**	58.35	**09200**	58.35	**09200**
9.30	10	103	61	47.0	40	49.48	**09300**	49.48	**09300**	58.35	**09300**	58.35	**09300**
9.40	10	103	61	46.9	40	49.48	**09400**	49.48	**09400**	58.35	**09400**	58.35	**09400**
9.50	10	103	61	46.7	40	49.48	**09500**	49.48	**09500**	58.35	**09500**	58.35	**09500**
9.55	10	103	61	46.6	40	49.48	**09550**	49.48	**09550**				
9.60	10	103	61	46.6	40	49.48	**09600**	49.48	**09600**	58.35	**09600**	58.35	**09600**
9.70	10	103	61	46.4	40	49.48	**09700**	49.48	**09700**	58.35	**09700**	58.35	**09700**
9.80	10	103	61	46.3	40	49.48	**09800**	49.48	**09800**	58.35	**09800**	58.35	**09800**
9.90	10	103	61	46.1	40	49.48	**09900**	49.48	**09900**	58.35	**09900**	58.35	**09900**
10.00	10	103	61	46.0	40	49.48	**10000**	49.48	**10000**	58.35	**10000**	58.35	**10000**
10.10	12	118	71	55.8	45	73.58	**10100**	73.58	**10100**	86.82	**10100**	86.82	**10100**
10.20	12	118	71	55.7	45	73.58	**10200**	73.58	**10200**	86.82	**10200**	86.82	**10200**
10.30	12	118	71	55.5	45	73.58	**10300**	73.58	**10300**	86.82	**10300**	86.82	**10300**
10.40	12	118	71	55.4	45	73.58	**10400**	73.58	**10400**	86.82	**10400**	86.82	**10400**
10.50	12	118	71	55.2	45	73.58	**10500**	73.58	**10500**	86.82	**10500**	86.82	**10500**
10.60	12	118	71	55.1	45	73.58	**10600**	73.58	**10600**	86.82	**10600**	86.82	**10600**
10.70	12	118	71	54.9	45	73.58	**10700**	73.58	**10700**	86.82	**10700**	86.82	**10700**
10.80	12	118	71	54.8	45	73.58	**10800**	73.58	**10800**	86.82	**10800**	86.82	**10800**
10.90	12	118	71	54.6	45	73.58	**10900**	73.58	**10900**	86.82	**10900**	86.82	**10900**
11.00	12	118	71	54.5	45	73.58	**11000**	73.58	**11000**	86.82	**11000**	86.82	**11000**
11.10	12	118	71	54.3	45	73.58	**11100**	73.58	**11100**	86.82	**11100**	86.82	**11100**
11.20	12	118	71	54.2	45	73.58	**11200**	73.58	**11200**	86.82	**11200**	86.82	**11200**
11.30	12	118	71	54.0	45	73.58	**11300**	73.58	**11300**	86.82	**11300**	86.82	**11300**
11.40	12	118	71	53.9	45	73.58	**11400**	73.58	**11400**	86.82	**11400**	86.82	**11400**
11.50	12	118	71	53.7	45	73.58	**11500**	73.58	**11500**	86.82	**11500**	86.82	**11500**
11.60	12	118	71	53.6	45	73.58	**11600**	73.58	**11600**	86.82	**11600**	86.82	**11600**
11.70	12	118	71	53.4	45	73.58	**11700**	73.58	**11700**	86.82	**11700**	86.82	**11700**
11.80	12	118	71	53.3	45	73.58	**11800**	73.58	**11800**	86.82	**11800**	86.82	**11800**
11.90	12	118	71	53.1	45	73.58	**11900**	73.58	**11900**	86.82	**11900**	86.82	**11900**
12.00	12	118	71	53.0	45	73.58	**12000**	73.58	**12000**	86.82	**12000**	86.82	**12000**
12.10	14	124	77	58.8	45	93.89	**12100**	93.89	**12100**	110.69	**12100**	110.69	**12100**
12.20	14	124	77	58.7	45	93.89	**12200**	93.89	**12200**	110.69	**12200**	110.69	**12200**
12.40	14	124	77	58.4	45	93.89	**12400**	93.89	**12400**	110.69	**12400**	110.69	**12400**
12.50	14	124	77	58.2	45	93.89	**12500**	93.89	**12500**	110.69	**12500**	110.69	**12500**
12.60	14	124	77	58.1	45	93.89	**12600**	93.89	**12600**	110.69	**12600**	110.69	**12600**
12.70	14	124	77	57.9	45	108.40	**12700**	108.40	**12700**	110.69	**12700**	110.69	**12700**
12.80	14	124	77	57.8	45	93.89	**12800**	93.89	**12800**	110.69	**12800**	110.69	**12800**
13.00	14	124	77	57.5	45	93.89	**13000**	93.89	**13000**	110.69	**13000**	110.69	**13000**
13.10	14	124	77	57.3	45	93.89	**13100**	93.89	**13100**	110.69	**13100**	110.69	**13100**
13.20	14	124	77	57.2	45	93.89	**13200**	93.89	**13200**	110.69	**13200**	110.69	**13200**
13.30	14	124	77	57.0	45	93.89	**13300**	93.89	**13300**	110.69	**13300**	110.69	**13300**
13.50	14	124	77	56.7	45	93.89	**13500**	93.89	**13500**	110.69	**13500**	110.69	**13500**
13.70	14	124	77	56.4	45					110.69	**13700**	110.69	**13700**
13.80	14	124	77	56.3	45	93.89	**13800**	93.89	**13800**	110.69	**13800**	110.69	**13800**
14.00	14	124	77	56.0	45	93.89	**14000**	93.89	**14000**	110.69	**14000**	110.69	**14000**

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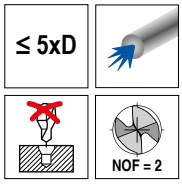
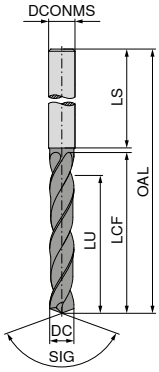
→ v_c Page 129+133

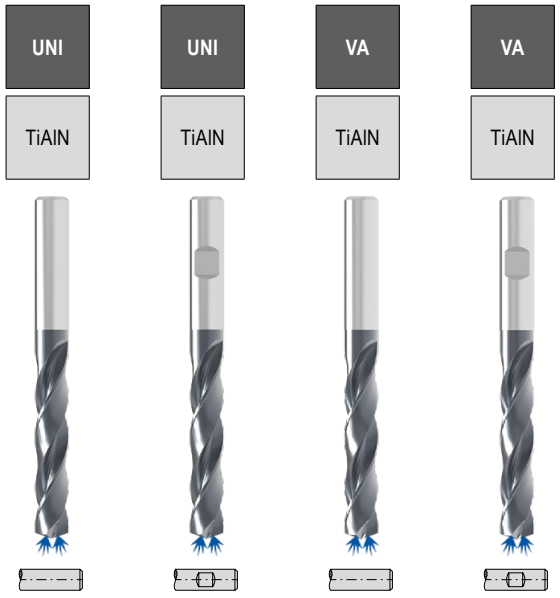
Ø DC_{h7} for Type UNI / **Ø DC_{m7}** for Type VA

Continued on next page

High Performance Drill, DIN 6537







SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

SIG 140°
Solid carbide

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	11 702 ... £ T1/9C		11 703 ... £ T1/9C		11 715 ... £ T1/9C		11 716 ... £ T1/9C	
14.20	16	133	83	61.7	48	120.52	**14200**	120.52	**14200**	141.98	**14200**	141.98	**14200**
14.30	16	133	83	61.5	48	120.52	**14300**	120.52	**14300**	141.98	**14300**	141.98	**14300**
14.40	16	133	83	61.4	48	120.52	**14400**	120.52	**14400**	141.98	**14400**	141.98	**14400**
14.50	16	133	83	61.2	48	120.52	**14500**	120.52	**14500**	141.98	**14500**	141.98	**14500**
14.70	16	133	83	60.9	48					141.98	**14700**	141.98	**14700**
14.80	16	133	83	60.8	48	120.52	**14800**	120.52	**14800**	141.98	**14800**	141.98	**14800**
15.00	16	133	83	60.5	48	120.52	**15000**	120.52	**15000**	141.98	**15000**	141.98	**15000**
15.10	16	133	83	60.3	48	120.52	**15100**	120.52	**15100**	141.98	**15100**	141.98	**15100**
15.20	16	133	83	60.2	48	120.52	**15200**	120.52	**15200**	141.98	**15200**	141.98	**15200**
15.25	16	133	83	60.1	48	120.52	**15250**	120.52	**15250**				
15.30	16	133	83	60.0	48	120.52	**15300**	120.52	**15300**	141.98	**15300**	141.98	**15300**
15.50	16	133	83	59.7	48	120.52	**15500**	120.52	**15500**	141.98	**15500**	141.98	**15500**
15.70	16	133	83	59.4	48					141.98	**15700**	141.98	**15700**
15.80	16	133	83	59.3	48	120.52	**15800**	120.52	**15800**	141.98	**15800**	141.98	**15800**
16.00	16	133	83	59.0	48	120.52	**16000**	120.52	**16000**	141.98	**16000**	141.98	**16000**
16.20	18	143	93	68.7	48	185.22	**16200**	185.22	**16200**	219.58	**16200**	219.58	**16200**
16.30	18	143	93	68.5	48	185.22	**16300**	185.22	**16300**	219.58	**16300**	219.58	**16300**
16.50	18	143	93	68.2	48	185.22	**16500**	185.22	**16500**	219.58	**16500**	219.58	**16500**
16.80	18	143	93	67.8	48	185.22	**16800**	185.22	**16800**	219.58	**16800**	219.58	**16800**
17.00	18	143	93	67.5	48	185.22	**17000**	185.22	**17000**	219.58	**17000**	219.58	**17000**
17.30	18	143	93	67.0	48	185.22	**17300**	185.22	**17300**	219.58	**17300**	219.58	**17300**
17.50	18	143	93	66.7	48	185.22	**17500**	185.22	**17500**	219.58	**17500**	219.58	**17500**
18.00	18	143	93	66.0	48	185.22	**18000**	185.22	**18000**	219.58	**18000**	219.58	**18000**
18.50	20	153	101	73.2	50	201.71	**18500**	201.71	**18500**	238.86	**18500**	238.86	**18500**
18.90	20	153	101	72.6	50	201.71	**18900**	201.71	**18900**	238.86	**18900**	238.86	**18900**
19.00	20	153	101	72.5	50	201.71	**19000**	201.71	**19000**	238.86	**19000**	238.86	**19000**
19.20	20	153	101	72.2	50	201.71	**19200**	201.71	**19200**	238.86	**19200**	238.86	**19200**
19.30	20	153	101	72.0	50	201.71	**19300**	201.71	**19300**	238.86	**19300**	238.86	**19300**
19.50	20	153	101	71.7	50	201.71	**19500**	201.71	**19500**	238.86	**19500**	238.86	**19500**
19.70	20	153	101	71.4	50	201.71	**19700**	201.71	**19700**	238.86	**19700**	238.86	**19700**
20.00	20	153	101	71.0	50	201.71	**20000**	201.71	**20000**	238.86	**20000**	238.86	**20000**

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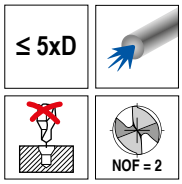
→ v_c Page 129+133

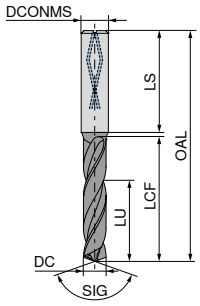
Ø DC_{h7} for Type UNI / **Ø DC_{m7}** for Type VA

WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials

2





Ti

DPA54

DRAGONSKIN



SIG 140°

Solid carbide

10 787 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4/9F	
3.00	6	66	28	23	36	96.49	030
3.10	6	66	28	23	36	96.49	031
3.20	6	66	28	23	36	96.49	032
3.30	6	66	28	23	36	96.49	033
3.40	6	66	28	23	36	96.49	034
3.50	6	66	28	23	36	96.49	035
3.60	6	66	28	23	36	96.49	036
3.70	6	66	28	23	36	96.49	037
3.80	6	74	36	29	36	96.49	038
3.90	6	74	36	29	36	96.49	039
3.97	6	74	36	29	36	96.49	900
4.00	6	74	36	29	36	96.49	040
4.10	6	74	36	29	36	96.49	041
4.20	6	74	36	29	36	96.49	042
4.23	6	74	36	29	36	96.49	901
4.30	6	74	36	29	36	96.49	043
4.40	6	74	36	29	36	96.49	044
4.50	6	74	36	29	36	96.49	045
4.60	6	74	36	29	36	96.49	046
4.70	6	74	36	29	36	96.49	047
4.80	6	82	44	35	36	96.49	048
4.90	6	82	44	35	36	96.49	049
5.00	6	82	44	35	36	96.49	050
5.10	6	82	44	35	36	96.49	051
5.20	6	82	44	35	36	96.49	052
5.30	6	82	44	35	36	96.49	053
5.40	6	82	44	35	36	96.49	054
5.50	6	82	44	35	36	96.49	055
5.56	6	82	44	35	36	96.49	902
5.60	6	82	44	35	36	96.49	056
5.70	6	82	44	35	36	96.49	057
5.80	6	82	44	35	36	96.49	058
5.90	6	82	44	35	36	96.49	059
6.00	6	82	44	35	36	96.49	060
6.10	8	91	53	43	36	107.67	061
6.20	8	91	53	43	36	107.67	062
6.30	8	91	53	43	36	107.67	063
6.35	8	91	53	43	36	107.67	903
6.40	8	91	53	43	36	107.67	064
6.50	8	91	53	43	36	107.67	065
6.60	8	91	53	43	36	107.67	066
6.70	8	91	53	43	36	107.67	067
6.80	8	91	53	43	36	107.67	068
6.90	8	91	53	43	36	107.67	069
7.00	8	91	53	43	36	107.67	070
7.10	8	91	53	43	36	107.67	071
7.20	8	91	53	43	36	107.67	072
7.30	8	91	53	43	36	107.67	073
7.40	8	91	53	43	36	107.67	074
7.50	8	91	53	43	36	107.67	075
7.60	8	91	53	43	36	107.67	076

10 787 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4/9F	
7.70	8	91	53	43	36	107.67	077
7.80	8	91	53	43	36	107.67	078
7.90	8	91	53	43	36	107.67	079
7.94	8	91	53	43	36	107.67	904
8.00	8	91	53	43	36	107.67	080
8.10	10	103	61	49	40	126.08	081
8.20	10	103	61	49	40	126.08	082
8.30	10	103	61	49	40	126.08	083
8.40	10	103	61	49	40	126.08	084
8.50	10	103	61	49	40	126.08	085
8.60	10	103	61	49	40	126.08	086
8.70	10	103	61	49	40	126.08	087
8.80	10	103	61	49	40	126.08	088
8.90	10	103	61	49	40	126.08	089
9.00	10	103	61	49	40	126.08	090
9.10	10	103	61	49	40	126.08	091
9.20	10	103	61	49	40	126.08	092
9.30	10	103	61	49	40	126.08	093
9.40	10	103	61	49	40	126.08	094
9.50	10	103	61	49	40	126.08	095
9.53	10	103	61	49	40	126.08	905
9.60	10	103	61	49	40	126.08	096
9.70	10	103	61	49	40	126.08	097
9.80	10	103	61	49	40	126.08	098
9.90	10	103	61	49	40	126.08	099
10.00	10	103	61	49	40	126.08	100
10.10	12	118	71	54	45	176.02	101
10.20	12	118	71	54	45	176.02	102
10.30	12	118	71	54	45	176.02	103
10.40	12	118	71	54	45	176.02	104
10.50	12	118	71	54	45	176.02	105
10.60	12	118	71	54	45	176.02	106
10.70	12	118	71	54	45	176.02	107
10.80	12	118	71	54	45	176.02	108
10.90	12	118	71	54	45	176.02	109
11.00	12	118	71	54	45	176.02	110
11.10	12	118	71	54	45	176.02	111
11.11	12	118	71	54	45	176.02	906
11.20	12	118	71	54	45	176.02	112
11.30	12	118	71	54	45	176.02	113
11.40	12	118	71	54	45	176.02	114
11.50	12	118	71	54	45	176.02	115
11.60	12	118	71	54	45	176.02	116
11.70	12	118	71	54	45	176.02	117
11.80	12	118	71	54	45	176.02	118
11.90	12	118	71	54	45	176.02	119
12.00	12	118	71	54	45	176.02	120
12.10	14	124	77	58	45	244.82	121
12.20	14	124	77	58	45	244.82	122
12.30	14	124	77	58	45	244.82	123
12.40	14	124	77	58	45	244.82	124
12.50	14	124	77	58	45	244.82	125
12.60	14	124	77	58	45	244.82	126
12.70	14	124	77	58	45	244.82	907
12.80	14	124	77	58	45	244.82	128
12.90	14	124	77	58	45	244.82	129
13.00	14	124	77	58	45	244.82	130
13.10	14	124	77	58	45	244.82	131
13.20	14	124	77	58	45	244.82	132
13.30	14	124	77	58	45	244.82	133
13.40	14	124	77	58	45	244.82	134
13.50	14	124	77	58	45	244.82	135
13.60	14	124	77	58	45	244.82	136
13.70	14	124	77	58	45	244.82	137
13.80	14	124	77	58	45	244.82	138
13.90	14	124	77	58	45	244.82	139

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→ v_c Page 109

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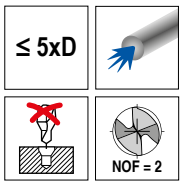
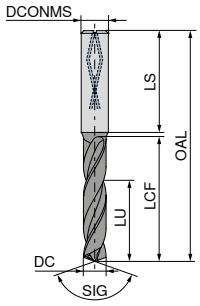
WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials





Ti

DPA54

DRAGONSKIN



SIG 140°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 787 ... £ T4/9F	
14.0	14	124	77	58	45	244.82	140
14.1	16	133	83	61	48	299.19	141
14.2	16	133	83	61	48	299.19	142
14.3	16	133	83	61	48	299.19	143
14.4	16	133	83	61	48	299.19	144
14.5	16	133	83	61	48	299.19	145
14.6	16	133	83	61	48	299.19	146
14.7	16	133	83	61	48	299.19	147
14.8	16	133	83	61	48	299.19	148
14.9	16	133	83	61	48	299.19	149
15.0	16	133	83	61	48	299.19	150
15.1	16	133	83	61	48	299.19	151
15.2	16	133	83	61	48	299.19	152
15.3	16	133	83	61	48	299.19	153
15.4	16	133	83	61	48	299.19	154
15.5	16	133	83	61	48	299.19	155
15.6	16	133	83	61	48	299.19	156
15.7	16	133	83	61	48	299.19	157
15.8	16	133	83	61	48	299.19	158
15.9	16	133	83	61	48	299.19	159
16.0	16	133	83	61	48	299.19	160
16.1	18	143	93	69	48	299.19	161
16.2	18	143	93	69	48	299.19	162
16.3	18	143	93	69	48	299.19	163
16.4	18	143	93	69	48	299.19	164
16.5	18	143	93	69	48	414.40	165
16.6	18	143	93	69	48	414.40	166
16.7	18	143	93	69	48	414.40	167
16.8	18	143	93	69	48	414.40	168
16.9	18	143	93	69	48	414.40	169
17.0	18	143	93	69	48	414.40	170
17.1	18	143	93	69	48	414.40	171
17.2	18	143	93	69	48	414.40	172
17.3	18	143	93	69	48	414.40	173
17.4	18	143	93	69	48	414.40	174
17.5	18	143	93	69	48	414.40	175
17.6	18	143	93	69	48	414.40	176
17.7	18	143	93	69	48	414.40	177
17.8	18	143	93	69	48	414.40	178
17.9	18	143	93	69	48	414.40	179
18.0	18	143	93	69	48	414.40	180
18.1	20	153	101	75	50	511.99	181
18.2	20	153	101	75	50	511.99	182
18.3	20	153	101	75	50	511.99	183
18.4	20	153	101	75	50	511.99	184
18.5	20	153	101	75	50	511.99	185
18.6	20	153	101	75	50	511.99	186
18.7	20	153	101	75	50	511.99	187
18.8	20	153	101	75	50	511.99	188
18.9	20	153	101	75	50	511.99	189
19.0	20	153	101	75	50	511.99	190
19.1	20	153	101	75	50	511.99	191
19.2	20	153	101	75	50	511.99	192
19.3	20	153	101	75	50	511.99	193
19.4	20	153	101	75	50	511.99	194
19.5	20	153	101	75	50	511.99	195
19.6	20	153	101	75	50	511.99	196
19.7	20	153	101	75	50	511.99	197
19.8	20	153	101	75	50	511.99	198
19.9	20	153	101	75	50	511.99	199
20.0	20	153	101	75	50	511.99	200

	10 787 ...
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→ v_c Page 109

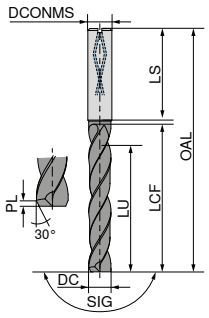
WTX – High Performance Drill, DIN 6537

▲ universal application
▲ four guidance lands
▲ polished chip flutes
▲ Type ALU 5xD on request
▲ PL = corner chamfers

2

≤ 5xD

NOF = 2



180

Ti800



SIG 180°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	10 721 ... £ T4	
3.00	6	66	28	23	36	0.15	120.92	030
3.10	6	66	28	23	36	0.16	120.92	031
3.20	6	66	28	23	36	0.16	120.92	032
3.30	6	66	28	23	36	0.17	120.92	033
3.40	6	66	28	23	36	0.17	120.92	034
3.50	6	66	28	23	36	0.18	120.92	035
3.60	6	66	28	23	36	0.18	120.92	036
3.70	6	66	28	23	36	0.19	120.92	037
3.80	6	74	36	29	36	0.19	120.92	038
3.90	6	74	36	29	36	0.20	120.92	039
4.00	6	74	36	29	36	0.20	120.92	040
4.10	6	74	36	29	36	0.21	120.92	041
4.20	6	74	36	29	36	0.21	120.92	042
4.30	6	74	36	29	36	0.22	120.92	043
4.40	6	74	36	29	36	0.22	120.92	044
4.50	6	74	36	29	36	0.23	120.92	045
4.60	6	74	36	29	36	0.23	120.92	046
4.65	6	74	36	29	36	0.23	120.92	900
4.70	6	74	36	29	36	0.24	120.92	047
4.80	6	82	44	35	36	0.24	120.92	048
4.90	6	82	44	35	36	0.25	120.92	049
5.00	6	82	44	35	36	0.25	120.92	050
5.10	6	82	44	35	36	0.26	120.92	051
5.20	6	82	44	35	36	0.26	120.92	052
5.30	6	82	44	35	36	0.27	120.92	053
5.40	6	82	44	35	36	0.27	120.92	054
5.50	6	82	44	35	36	0.28	120.92	055
5.55	6	82	44	35	36	0.28	120.92	902
5.60	6	82	44	35	36	0.28	120.92	056
5.70	6	82	44	35	36	0.29	120.92	057
5.80	6	82	44	35	36	0.29	120.92	058
5.90	6	82	44	35	36	0.30	120.92	059
6.00	6	82	44	35	36	0.30	120.92	060
6.10	8	91	53	43	36	0.31	135.29	061
6.20	8	91	53	43	36	0.31	135.29	062
6.30	8	91	53	43	36	0.32	135.29	063
6.40	8	91	53	43	36	0.32	135.29	064
6.50	8	91	53	43	36	0.33	135.29	065
6.60	8	91	53	43	36	0.33	135.29	066
6.70	8	91	53	43	36	0.34	135.29	067
6.80	8	91	53	43	36	0.34	135.29	068
6.90	8	91	53	43	36	0.35	135.29	069
7.00	8	91	53	43	36	0.35	135.29	070
7.10	8	91	53	43	36	0.36	135.29	071
7.20	8	91	53	43	36	0.36	135.29	072
7.30	8	91	53	43	36	0.37	135.29	073
7.40	8	91	53	43	36	0.37	135.29	074
7.50	8	91	53	43	36	0.38	135.29	075
7.60	8	91	53	43	36	0.38	135.29	076
7.70	8	91	53	43	36	0.39	135.29	077
7.80	8	91	53	43	36	0.39	135.29	078
7.90	8	91	53	43	36	0.40	135.29	079
8.00	8	91	53	43	36	0.40	135.29	080
8.10	10	103	61	49	40	0.41	195.55	081

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	10 721 ... £ T4	
8.20	10	103	61	49	40	0.41	195.55	082
8.30	10	103	61	49	40	0.42	195.55	083
8.40	10	103	61	49	40	0.42	195.55	084
8.50	10	103	61	49	40	0.43	195.55	085
8.60	10	103	61	49	40	0.43	195.55	086
8.70	10	103	61	49	40	0.44	195.55	087
8.80	10	103	61	49	40	0.44	195.55	088
8.90	10	103	61	49	40	0.45	195.55	089
9.00	10	103	61	49	40	0.45	195.55	090
9.10	10	103	61	49	40	0.46	195.55	091
9.20	10	103	61	49	40	0.46	195.55	092
9.30	10	103	61	49	40	0.47	195.55	093
9.40	10	103	61	49	40	0.47	195.55	094
9.50	10	103	61	49	40	0.48	195.55	095
9.60	10	103	61	49	40	0.48	195.55	096
9.70	10	103	61	49	40	0.49	195.55	097
9.80	10	103	61	49	40	0.49	195.55	098
9.90	10	103	61	49	40	0.50	195.55	099
10.00	10	103	61	49	40	0.50	195.55	100
10.10	12	116	69	54	45	0.51	273.50	101
10.20	12	116	69	54	45	0.51	273.50	102
10.30	12	116	69	54	45	0.52	273.50	103
10.40	12	116	69	54	45	0.52	273.50	104
10.50	12	116	69	54	45	0.53	273.50	105
10.60	12	116	69	54	45	0.53	273.50	106
10.70	12	116	69	54	45	0.54	273.50	107
10.80	12	116	69	54	45	0.54	273.50	108
10.90	12	116	69	54	45	0.55	273.50	109
11.00	12	116	69	54	45	0.55	273.50	110
11.10	12	116	69	54	45	0.56	273.50	111
11.20	12	116	69	54	45	0.56	273.50	112
11.30	12	116	69	54	45	0.57	273.50	113
11.40	12	116	69	54	45	0.57	273.50	114
11.50	12	116	69	54	45	0.58	273.50	115
11.60	12	116	69	54	45	0.58	273.50	116
11.70	12	116	69	54	45	0.59	273.50	117
11.80	12	116	69	54	45	0.59	273.50	118
11.90	12	116	69	54	45	0.60	273.50	119
12.00	12	116	69	54	45	0.60	273.50	120
12.50	14	122	75	58	45	0.63	371.90	125
12.80	14	122	75	58	45	0.64	371.90	128
13.00	14	122	75	58	45	0.65	371.90	130
13.50	14	122	75	58	45	0.68	371.90	135
13.80	14	122	75	58	45	0.69	371.90	138
14.00	14	122	75	58	45	0.70	371.90	140
14.50	16	131	81	61	48	0.73	464.25	145
14.80	16	131	81	61	48	0.74	464.25	148
15.00	16	131	81	61	48	0.75	464.25	150
15.50	16	131	81	61	48	0.78	464.25	155
15.80	16	131	81	61	48	0.79	464.25	158
16.00	16	131	81	61	48	0.80	464.25	160
16.50	18	141	91	69	48	0.83	612.05	165
16.80	18	141	91	69	48	0.84	612.05	168
17.00	18	141	91	69	48	0.85	612.05	170
17.50	18	141	91	69	48	0.88	612.05	175
17.80	18	141	91	69	48	0.89	612.05	178
18.00	18	141	91	69	48	0.90	612.05	180
18.50	20	151	99	75	50	0.93	791.54	185
18.80	20	151	99	75	50	0.94	791.54	188
19.00	20	151	99	75	50	0.95	791.54	190
19.50	20	151	99	75	50	0.98	791.54	195
19.80	20	151	99	75	50	0.99	791.54	198
20.00	20	151	99	75	50	1.00	791.54	200

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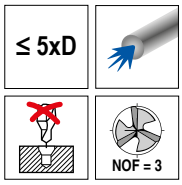
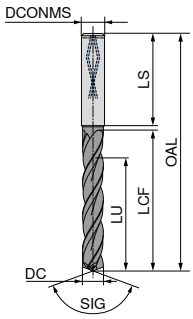
WTX – High Feed Drill, factory standard

▲ Three fluted high-feed drill
▲ Universal application
▲ High positioning accuracy
▲ Suitable for difficult drilling applications





Feed UNI

DPX74S

DRAGONSKIN



SIG 140°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 789 ... £ T4	
4.00	6	74	36	29	36	119.92	04000
4.10	6	74	36	29	36	119.92	04100
4.20	6	74	36	29	36	119.92	04200
4.30	6	74	36	29	36	119.92	04300
4.40	6	74	36	29	36	119.92	04400
4.50	6	74	36	29	36	119.92	04500
4.60	6	74	36	29	36	119.92	04600
4.70	6	74	36	29	36	119.92	04700
4.80	6	82	44	35	36	119.92	04800
4.90	6	82	44	35	36	119.92	04900
5.00	6	82	44	35	36	119.92	05000
5.10	6	82	44	35	36	119.92	05100
5.20	6	82	44	35	36	119.92	05200
5.30	6	82	44	35	36	119.92	05300
5.40	6	82	44	35	36	119.92	05400
5.50	6	82	44	35	36	119.92	05500
5.55	6	82	44	35	36	119.92	05550
5.60	6	82	44	35	36	119.92	05600
5.70	6	82	44	35	36	119.92	05700
5.80	6	82	44	35	36	119.92	05800
5.90	6	82	44	35	36	119.92	05900
6.00	6	82	44	35	36	119.92	06000
6.10	8	91	53	43	36	134.22	06100
6.20	8	91	53	43	36	134.22	06200
6.30	8	91	53	43	36	134.22	06300
6.40	8	91	53	43	36	134.22	06400
6.50	8	91	53	43	36	134.22	06500
6.60	8	91	53	43	36	134.22	06600
6.70	8	91	53	43	36	134.22	06700
6.80	8	91	53	43	36	134.22	06800
6.90	8	91	53	43	36	134.22	06900
7.00	8	91	53	43	36	134.22	07000
7.10	8	91	53	43	36	134.22	07100
7.20	8	91	53	43	36	134.22	07200
7.30	8	91	53	43	36	134.22	07300
7.40	8	91	53	43	36	134.22	07400
7.50	8	91	53	43	36	134.22	07500
7.60	8	91	53	43	36	134.22	07600
7.70	8	91	53	43	36	134.22	07700
7.80	8	91	53	43	36	134.22	07800
7.90	8	91	53	43	36	134.22	07900
8.00	8	91	53	43	36	134.22	08000
8.10	10	103	61	49	40	194.16	08100
8.20	10	103	61	49	40	194.16	08200
8.30	10	103	61	49	40	194.16	08300
8.40	10	103	61	49	40	194.16	08400
8.50	10	103	61	49	40	194.16	08500
8.60	10	103	61	49	40	194.16	08600
8.70	10	103	61	49	40	194.16	08700
8.80	10	103	61	49	40	194.16	08800
8.90	10	103	61	49	40	194.16	08900
9.00	10	103	61	49	40	194.16	09000

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 789 ... £ T4	
9.10	10	103	61	49	40	194.16	09100
9.20	10	103	61	49	40	194.16	09200
9.30	10	103	61	49	40	194.16	09300
9.40	10	103	61	49	40	194.16	09400
9.50	10	103	61	49	40	194.16	09500
9.60	10	103	61	49	40	194.16	09600
9.70	10	103	61	49	40	194.16	09700
9.80	10	103	61	49	40	194.16	09800
9.90	10	103	61	49	40	194.16	09900
10.00	10	103	61	49	40	194.16	10000
10.10	12	118	71	56	45	271.83	10100
10.20	12	118	71	56	45	271.83	10200
10.30	12	118	71	56	45	271.83	10300
10.40	12	118	71	56	45	271.83	10400
10.50	12	118	71	56	45	271.83	10500
10.60	12	118	71	56	45	271.83	10600
10.70	12	118	71	56	45	271.83	10700
10.80	12	118	71	56	45	271.83	10800
10.90	12	118	71	56	45	271.83	10900
11.00	12	118	71	56	45	271.83	11000
11.10	12	118	71	56	45	271.83	11100
11.20	12	118	71	56	45	271.83	11200
11.30	12	118	71	56	45	271.83	11300
11.40	12	118	71	56	45	271.83	11400
11.50	12	118	71	56	45	271.83	11500
11.60	12	118	71	56	45	271.83	11600
11.70	12	118	71	56	45	271.83	11700
11.80	12	118	71	56	45	271.83	11800
11.90	12	118	71	56	45	271.83	11900
12.00	12	118	71	56	45	271.83	12000
12.20	14	124	77	60	45	369.72	12200
12.50	14	124	77	60	45	369.72	12500
12.80	14	124	77	60	45	369.72	12800
13.00	14	124	77	60	45	369.72	13000
13.50	14	124	77	60	45	369.72	13500
13.80	14	124	77	60	45	369.72	13800
14.00	14	124	77	60	45	369.72	14000
14.50	16	133	83	63	48	461.35	14500
14.80	16	133	83	63	48	461.35	14800
15.00	16	133	83	63	48	461.35	15000
15.50	16	133	83	63	48	461.35	15500
15.80	16	133	83	63	48	461.35	15800
16.00	16	133	83	63	48	461.35	16000
16.50	18	143	93	71	48	607.38	16500
16.80	18	143	93	71	48	607.38	16800
17.00	18	143	93	71	48	607.38	17000
17.50	18	143	93	71	48	607.38	17500
17.80	18	143	93	71	48	607.38	17800
18.00	18	143	93	71	48	607.38	18000
18.50	20	153	101	77	50	786.02	18500
18.80	20	153	101	77	50	786.02	18800
19.00	20	153	101	77	50	786.02	19000
19.50	20	153	101	77	50	786.02	19500
19.80	20	153	101	77	50	786.02	19800
20.00	20	153	101	77	50	786.02	20000

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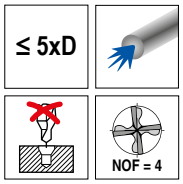
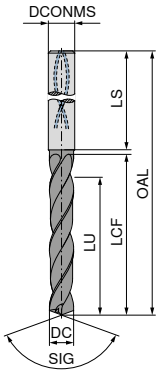
WTX – High-feed drills, DIN 6537

- ▲ Four fluted high-feed drill
- ▲ Specially designed for steel and cast iron machining
- ▲ Has four spiral coolant holes
- ▲ Innovative cutting edge geometry guarantees high positioning accuracy
- ▲ Outstanding drilling quality in terms of tolerance, surface finish and position





HFDS

DPX14S

DRAGONSKIN



SIG 130°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 798 ... £ T4	
6.0	8	89	51	40	36	127.92	06000
6.1	10	102	59	47	40	170.56	06100
6.2	10	102	59	47	40	170.56	06200
6.3	10	102	59	47	40	170.56	06300
6.4	10	102	59	47	40	170.56	06400
6.5	10	102	59	47	40	170.56	06500
6.6	10	102	59	47	40	170.56	06600
6.7	10	102	59	47	40	170.56	06700
6.8	10	102	59	47	40	170.56	06800
6.9	10	102	59	47	40	170.56	06900
7.0	10	102	59	47	40	170.56	07000
7.1	10	102	59	47	40	170.56	07100
7.2	10	102	59	47	40	170.56	07200
7.3	10	102	59	47	40	170.56	07300
7.4	10	102	59	47	40	170.56	07400
7.5	10	102	59	47	40	170.56	07500
7.6	10	102	59	47	40	170.56	07600
7.7	10	102	59	47	40	170.56	07700
7.8	10	102	59	47	40	170.56	07800
7.9	10	102	59	47	40	170.56	07900
8.0	10	102	59	47	40	170.56	08000
8.1	12	118	70	55	45	240.16	08100
8.2	12	118	70	55	45	240.16	08200
8.3	12	118	70	55	45	240.16	08300
8.4	12	118	70	55	45	240.16	08400
8.5	12	118	70	55	45	240.16	08500
8.6	12	118	70	55	45	240.16	08600
8.7	12	118	70	55	45	240.16	08700
8.8	12	118	70	55	45	240.16	08800
8.9	12	118	70	55	45	240.16	08900
9.0	12	118	70	55	45	240.16	09000
9.1	12	118	70	55	45	240.16	09100
9.2	12	118	70	55	45	240.16	09200
9.3	12	118	70	55	45	240.16	09300
9.4	12	118	70	55	45	240.16	09400
9.5	12	118	70	55	45	240.16	09500
9.6	12	118	70	55	45	240.16	09600
9.7	12	118	70	55	45	240.16	09700
9.8	12	118	70	55	45	240.16	09800
9.9	12	118	70	55	45	240.16	09900
10.0	12	118	70	55	45	240.16	10000
10.2	14	124	76	60	45	318.85	10200
10.5	14	124	76	60	45	318.85	10500
11.0	14	124	76	60	45	318.85	11000
11.5	14	124	76	60	45	318.85	11500
12.0	14	124	76	60	45	318.85	12000
12.5	16	142	91	73	48	433.00	12500
13.0	16	142	91	73	48	433.00	13000

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 798 ... £ T4	
14.0	16	142	91	73	48	433.00	14000
14.3	16	142	91	73	48	539.23	14300
14.5	16	142	91	73	48	539.23	14500
15.0	18	142	91	73	48	539.23	15000
16.0	18	142	91	73	48	539.23	16000

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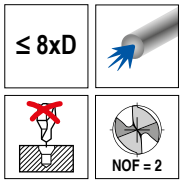
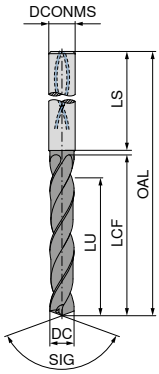
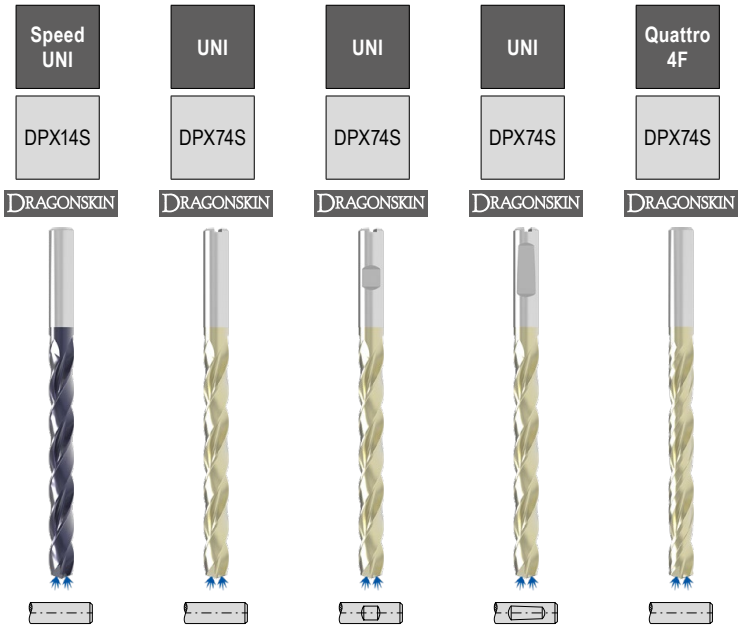
WTX – High Performance Drill, factory standard







						SIG 145° Solid carbide		SIG 135° Solid carbide		SIG 135° Solid carbide		SIG 135° Solid carbide		SIG 140° Solid carbide	
						10 782 ...		11 789 ...		11 790 ...		11 788 ...		10 736 ...	
DC $_{m7/h7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	£		£		£		£		£	
mm	mm	mm	mm	mm	mm	T4		T7		T7		T7		T4	
3.00	6	72	34	29	36	225.45	03000	164.68	030	164.68	030	164.68	030	247.14	03000
3.10	6	72	34	29	36	225.45	03100	164.68	031	164.68	031	164.68	031	247.14	03100
3.20	6	72	34	29	36	225.45	03200	164.68	032	164.68	032	164.68	032	247.14	03200
3.30	6	72	34	29	36	225.45	03300	164.68	033	164.68	033	164.68	033	247.14	03300
3.40	6	72	34	29	36	225.45	03400	164.68	034	164.68	034	164.68	034	247.14	03400
3.50	6	72	34	29	36	225.45	03500	164.68	035	164.68	035	164.68	035	247.14	03500
3.60	6	72	34	29	36	225.45	03600	164.68	036	164.68	036	164.68	036	247.14	03600
3.70	6	72	34	29	36	225.45	03700	164.68	037	164.68	037	164.68	037	247.14	03700
3.80	6	81	43	36	36	225.45	03800	164.68	038	164.68	038	164.68	038	247.14	03800
3.90	6	81	43	36	36	225.45	03900	164.68	039	164.68	039	164.68	039	247.14	03900
4.00	6	81	43	36	36	225.45	04000	164.68	040	164.68	040	164.68	040	247.14	04000
4.10	6	81	43	36	36	225.45	04100	164.68	041	164.68	041	164.68	041	247.14	04100
4.20	6	81	43	36	36	225.45	04200	164.68	042	164.68	042	164.68	042	247.14	04200
4.30	6	81	43	36	36	225.45	04300	164.68	043	164.68	043	164.68	043	247.14	04300
4.40	6	81	43	36	36	225.45	04400	164.68	044	164.68	044	164.68	044	247.14	04400
4.50	6	81	43	36	36	225.45	04500	164.68	045	164.68	045	164.68	045	247.14	04500
4.60	6	81	43	36	36	225.45	04600	164.68	046	164.68	046	164.68	046	247.14	04600
4.65	6	81	43	36	36	225.45	04650								
4.70	6	81	43	36	36	225.45	04700	164.68	047	164.68	047	164.68	047	247.14	04700
4.80	6	95	57	48	36	225.45	04800	164.68	048	164.68	048	164.68	048	247.14	04800
4.90	6	95	57	48	36	225.45	04900	164.68	049	164.68	049	164.68	049	247.14	04900
5.00	6	95	57	48	36	225.45	05000	164.68	050	164.68	050	164.68	050	247.14	05000
5.10	6	95	57	48	36	225.45	05100	164.68	051	164.68	051	164.68	051	247.14	05100
5.20	6	95	57	48	36	225.45	05200	164.68	052	164.68	052	164.68	052	247.14	05200
5.30	6	95	57	48	36	225.45	05300	164.68	053	164.68	053	164.68	053	247.14	05300
5.40	6	95	57	48	36	225.45	05400	164.68	054	164.68	054	164.68	054	247.14	05400
5.50	6	95	57	48	36	225.45	05500	164.68	055	164.68	055	164.68	055	247.14	05500
5.55	6	95	57	48	36	225.45	05550								
5.60	6	95	57	48	36	225.45	05600	164.68	056	164.68	056	164.68	056	247.14	05600
5.70	6	95	57	48	36	225.45	05700	164.68	057	164.68	057	164.68	057	247.14	05700
5.80	6	95	57	48	36	225.45	05800	164.68	058	164.68	058	164.68	058	247.14	05800
5.90	6	95	57	48	36	225.45	05900	164.68	059	164.68	059	164.68	059	247.14	05900
6.00	6	95	57	48	36	225.45	06000	164.68	060	164.68	060	164.68	060	247.14	06000
6.10	8	114	76	64	36	302.55	06100	199.71	061	199.71	061	199.71	061	271.89	06100
P						●		●		●		●		●	
M						●									
K						●		●		●		●		●	
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H								○		○		○		○	
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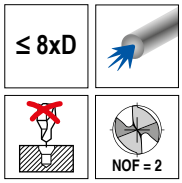
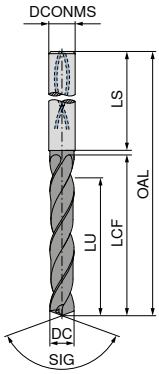
→ v_c Page 115–120

Ø DC_{m7} for Type UNI and Quattro 4F / Ø DC_{h7} for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard





	Speed UNI	UNI	UNI	UNI	Quattro 4F
	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	SIG 145° Solid carbide	SIG 135° Solid carbide	SIG 135° Solid carbide	SIG 135° Solid carbide	SIG 140° Solid carbide
	10 782 ...	**11 789 ...**	**11 790 ...**	**11 788 ...**	**10 736 ...**
	£ T4	£ T7	£ T7	£ T7	£ T4

DC $_{m7/h7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm										
6.20	8	114	76	64	36	302.55	06200	199.71	062	199.71	062	199.71	062	271.89	06200
6.30	8	114	76	64	36	302.55	06300	199.71	063	199.71	063	199.71	063	271.89	06300
6.40	8	114	76	64	36	302.55	06400	199.71	064	199.71	064	199.71	064	271.89	06400
6.50	8	114	76	64	36	302.55	06500	199.71	065	199.71	065	199.71	065	271.89	06500
6.60	8	114	76	64	36	302.55	06600	199.71	066	199.71	066	199.71	066	271.89	06600
6.70	8	114	76	64	36	302.55	06700	199.71	067	199.71	067	199.71	067	271.89	06700
6.80	8	114	76	64	36	302.55	06800	199.71	068	199.71	068	199.71	068	271.89	06800
6.90	8	114	76	64	36	302.55	06900	199.71	069	199.71	069	199.71	069	271.89	06900
7.00	8	114	76	64	36	302.55	07000	199.71	070	199.71	070	199.71	070	271.89	07000
7.10	8	114	76	64	36	302.55	07100	199.71	071	199.71	071	199.71	071	271.89	07100
7.20	8	114	76	64	36	302.55	07200	199.71	072	199.71	072	199.71	072	271.89	07200
7.30	8	114	76	64	36	302.55	07300	199.71	073	199.71	073	199.71	073	271.89	07300
7.40	8	114	76	64	36	302.55	07400	199.71	074	199.71	074	199.71	074	271.89	07400
7.50	8	114	76	64	36	302.55	07500	199.71	075	199.71	075	199.71	075	271.89	07500
7.60	8	114	76	64	36	302.55	07600	199.71	076	199.71	076	199.71	076	271.89	07600
7.70	8	114	76	64	36	302.55	07700	199.71	077	199.71	077	199.71	077	271.89	07700
7.80	8	114	76	64	36	302.55	07800	199.71	078	199.71	078	199.71	078	271.89	07800
7.90	8	114	76	64	36	302.55	07900	199.71	079	199.71	079	199.71	079	271.89	07900
8.00	8	114	76	64	36	302.55	08000	199.71	080	199.71	080	199.71	080	271.89	08000
8.10	10	142	95	80	40	437.02	08100	241.88	081	241.88	081	241.88	081	391.67	08100
8.20	10	142	95	80	40	437.02	08200	241.88	082	241.88	082	241.88	082	391.67	08200
8.30	10	142	95	80	40	437.02	08300	241.88	083	241.88	083	241.88	083	391.67	08300
8.40	10	142	95	80	40	437.02	08400	241.88	084	241.88	084	241.88	084	391.67	08400
8.50	10	142	95	80	40	437.02	08500	241.88	085	241.88	085	241.88	085	391.67	08500
8.60	10	142	95	80	40	437.02	08600	241.88	086	241.88	086	241.88	086	391.67	08600
8.70	10	142	95	80	40	437.02	08700	241.88	087	241.88	087	241.88	087	391.67	08700
8.80	10	142	95	80	40	437.02	08800	241.88	088	241.88	088	241.88	088	391.67	08800
8.90	10	142	95	80	40	437.02	08900	241.88	089	241.88	089	241.88	089	391.67	08900
9.00	10	142	95	80	40	437.02	09000	241.88	090	241.88	090	241.88	090	391.67	09000
9.10	10	142	95	80	40	437.02	09100	241.88	091	241.88	091	241.88	091	391.67	09100
9.20	10	142	95	80	40	437.02	09200	241.88	092	241.88	092	241.88	092	391.67	09200
9.30	10	142	95	80	40	437.02	09300	241.88	093	241.88	093	241.88	093	391.67	09300
9.40	10	142	95	80	40	437.02	09400	241.88	094	241.88	094	241.88	094	391.67	09400
9.50	10	142	95	80	40	437.02	09500	241.88	095	241.88	095	241.88	095	391.67	09500

P	●	●	●	●	●
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K	●	●	●	●	●
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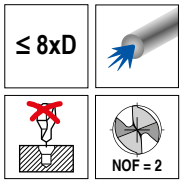
S					
H		○	○	○	○
O					

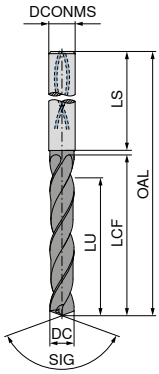
→ v_c Page 115–120

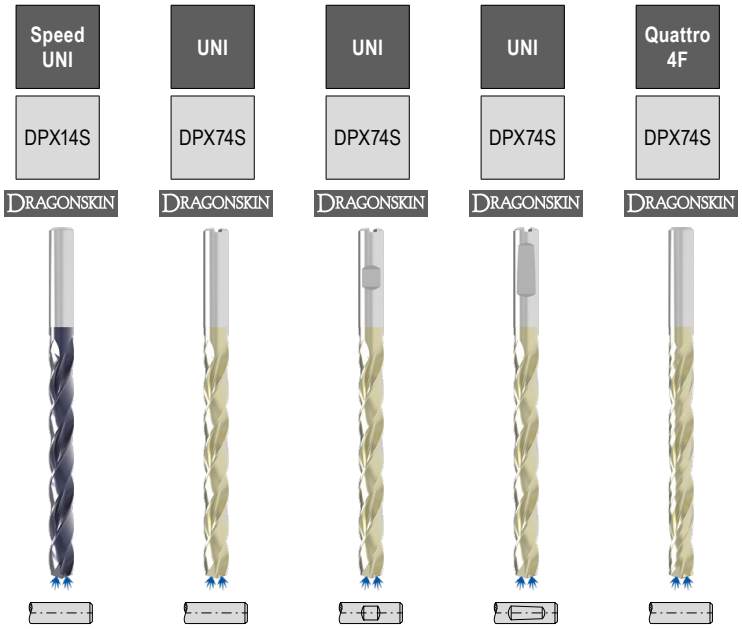
Ø DC_{m7} for Type UNI and Quattro 4F / Ø DC_{h7} for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard







						SIG 145° Solid carbide		SIG 135° Solid carbide		SIG 135° Solid carbide		SIG 135° Solid carbide		SIG 140° Solid carbide	
						10 782 ...		11 789 ...		11 790 ...		11 788 ...		10 736 ...	
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T4	
9.60	10	142	95	80	40	437.02	09600	241.88	096	241.88	096	241.88	096	391.67	09600
9.70	10	142	95	80	40	437.02	09700	241.88	097	241.88	097	241.88	097	391.67	09700
9.80	10	142	95	80	40	437.02	09800	241.88	098	241.88	098	241.88	098	391.67	09800
9.90	10	142	95	80	40	437.02	09900	241.88	099	241.88	099	241.88	099	391.67	09900
10.00	10	142	95	80	40	437.02	10000	241.88	100	241.88	100	241.88	100	391.67	10000
10.10	12	162	114	96	45	563.63	10100	319.28	101	319.28	101	319.28	101	503.50	10100
10.20	12	162	114	96	45	563.63	10200	319.28	102	319.28	102	319.28	102	503.50	10200
10.30	12	162	114	96	45	563.63	10300	319.28	103	319.28	103	319.28	103	503.50	10300
10.40	12	162	114	96	45	563.63	10400	319.28	104	319.28	104	319.28	104	503.50	10400
10.50	12	162	114	96	45	563.63	10500	319.28	105	319.28	105	319.28	105	503.50	10500
10.60	12	162	114	96	45	563.63	10600	319.28	106	319.28	106	319.28	106	503.50	10600
10.70	12	162	114	96	45	563.63	10700	319.28	107	319.28	107	319.28	107	503.50	10700
10.80	12	162	114	96	45	563.63	10800	319.28	108	319.28	108	319.28	108	503.50	10800
10.90	12	162	114	96	45	563.63	10900	319.28	109	319.28	109	319.28	109	503.50	10900
11.00	12	162	114	96	45	563.63	11000	319.28	110	319.28	110	319.28	110	503.50	11000
11.10	12	162	114	96	45	563.63	11100	319.28	111	319.28	111	319.28	111	503.50	11100
11.20	12	162	114	96	45	563.63	11200	319.28	112	319.28	112	319.28	112	503.50	11200
11.30	12	162	114	96	45	563.63	11300	319.28	113	319.28	113	319.28	113	503.50	11300
11.40	12	162	114	96	45	563.63	11400	319.28	114	319.28	114	319.28	114	503.50	11400
11.50	12	162	114	96	45	563.63	11500	319.28	115	319.28	115	319.28	115	503.50	11500
11.60	12	162	114	96	45	563.63	11600	319.28	116	319.28	116	319.28	116	503.50	11600
11.70	12	162	114	96	45	563.63	11700	319.28	117	319.28	117	319.28	117	503.50	11700
11.80	12	162	114	96	45	563.63	11800	319.28	118	319.28	118	319.28	118	503.50	11800
11.90	12	162	114	96	45	563.63	11900	319.28	119	319.28	119	319.28	119	503.50	11900
12.00	12	162	114	96	45	563.63	12000	319.28	120	319.28	120	319.28	120	503.50	12000
12.50	14	178	131	112	45	676.36	12500	391.67	125	391.67	125	391.67	125	690.89	12500
12.80	14	178	131	112	45	676.36	12800	391.67	128	391.67	128	391.67	128	690.89	12800
13.00	14	178	131	112	45	676.36	13000	391.67	130	391.67	130	391.67	130	690.89	13000
13.50	14	178	131	112	45	676.36	13500	391.67	135	391.67	135	391.67	135	690.89	13500
13.80	14	178	131	112	45	676.36	13800	391.67	138	391.67	138	391.67	138	690.89	13800
14.00	14	178	131	112	45	676.36	14000	391.67	140	391.67	140	391.67	140	690.89	14000
14.50	16	203	152	128	48	911.68	14500	486.09	145	486.09	145	486.09	145	871.34	14500
14.80	16	203	152	128	48	911.68	14800	486.09	148	486.09	148	486.09	148	871.34	14800
15.00	16	203	152	128	48	911.68	15000	486.09	150	486.09	150	486.09	150	871.34	15000
P						●		●		●		●		●	
M						●									
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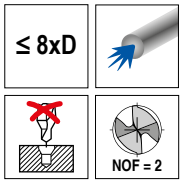
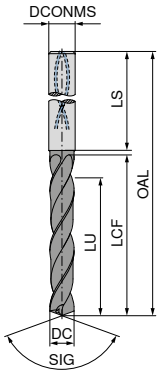
→ v_c Page 115–120

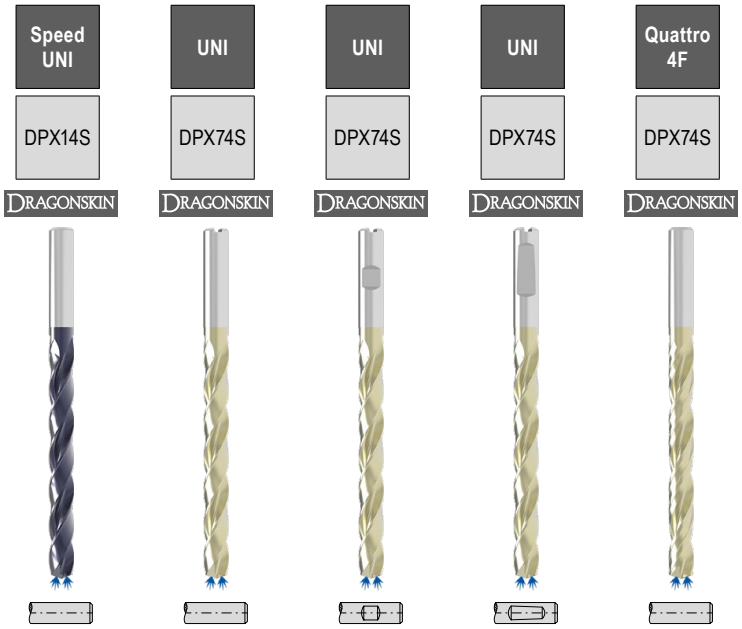
Ø DC_{m7} for Type UNI and Quattro 4F / Ø DC_{h7} for Type Speed UNI

Continued on next page

WTX – High Performance Drill, factory standard







						SIG 145° Solid carbide		SIG 135° Solid carbide		SIG 135° Solid carbide		SIG 135° Solid carbide		SIG 140° Solid carbide	
						10 782 ...		**11 789 ...**		**11 790 ...**		**11 788 ...**		**10 736 ...**	
DC $_{m7/h7}$ **mm**	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	£ T4		£ T7		£ T7		£ T7		£ T4	
15.50	16	203	152	128	48	911.68	**15500**	486.09	**155**	486.09	**155**	486.09	**155**	871.34	**15500**
15.80	16	203	152	128	48	911.68	**15800**	486.09	**158**	486.09	**158**	486.09	**158**	871.34	**15800**
16.00	16	203	152	128	48	911.68	**16000**	486.09	**160**	486.09	**160**	486.09	**160**	871.34	**16000**
16.50	18	222	171	144	48	1,279.52	**16500**	615.76	**165**	615.76	**165**	615.76	**165**	1,250.93	**16500**
16.80	18	222	171	144	48	1,279.52	**16800**	615.76	**168**	615.76	**168**	615.76	**168**	1,250.93	**16800**
17.00	18	222	171	144	48	1,279.52	**17000**	615.76	**170**	615.76	**170**	615.76	**170**	1,250.93	**17000**
17.50	18	222	171	144	48	1,279.52	**17500**	615.76	**175**	615.76	**175**	615.76	**175**	1,250.93	**17500**
17.80	18	222	171	144	48	1,279.52	**17800**	615.76	**178**	615.76	**178**	615.76	**178**	1,250.93	**17800**
18.00	18	222	171	144	48	1,279.52	**18000**	615.76	**180**	615.76	**180**	615.76	**180**	1,250.93	**18000**
18.50	20	243	190	160	50			722.76	**185**	722.76	**185**	722.76	**185**		
18.80	20	243	190	160	50			722.76	**188**	722.76	**188**	722.76	**188**		
19.00	20	243	190	160	50			722.76	**190**	722.76	**190**	722.76	**190**		
19.50	20	243	190	160	50			722.76	**195**	722.76	**195**	722.76	**195**		
19.80	20	243	190	160	50			722.76	**198**	722.76	**198**	722.76	**198**		
20.00	20	243	190	160	50			722.76	**200**	722.76	**200**	722.76	**200**		
P						●		●		●		●		●	
M						●									
K						●		●		●		●		●	
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H								○		○		○		○	
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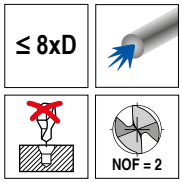
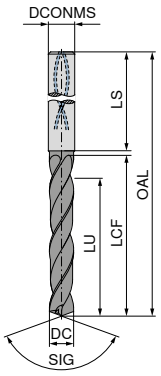
→ v_c Page 115–120

Ø DC_{m7} for Type UNI and Quattro 4F / **Ø DC_{h7}** for Type Speed UNI

High Performance Drill, factory standard





UNI

TiAlN



SIG 135°
Solid carbide

11 704 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T1/9C	
3.0	6	72	34	29.5	36	74.86	03000
3.1	6	72	34	29.3	36	74.86	03100
3.2	6	72	34	29.2	36	74.86	03200
3.3	6	72	34	29.0	36	74.86	03300
3.4	6	72	34	28.9	36	74.86	03400
3.5	6	72	34	28.7	36	74.86	03500
3.6	6	72	34	28.6	36	74.86	03600
3.7	6	72	34	28.4	36	74.86	03700
3.8	6	81	43	37.3	36	74.86	03800
3.9	6	81	43	37.1	36	74.86	03900
4.0	6	81	43	37.0	36	74.86	04000
4.1	6	81	43	36.8	36	74.86	04100
4.2	6	81	43	36.7	36	74.86	04200
4.3	6	81	43	36.5	36	74.86	04300
4.4	6	81	43	36.4	36	74.86	04400
4.5	6	81	43	36.2	36	74.86	04500
4.6	6	81	43	36.1	36	74.86	04600
4.7	6	81	43	35.9	36	74.86	04700
4.8	6	95	57	49.8	36	74.86	04800
4.9	6	95	57	49.6	36	74.86	04900
5.0	6	95	57	49.5	36	74.86	05000
5.1	6	95	57	49.3	36	74.86	05100
5.2	6	95	57	49.2	36	74.86	05200
5.3	6	95	57	49.0	36	74.86	05300
5.4	6	95	57	48.9	36	74.86	05400
5.5	6	95	57	48.7	36	74.86	05500
5.6	6	95	57	48.6	36	74.86	05600
5.7	6	95	57	48.4	36	74.86	05700
5.8	6	95	57	48.3	36	74.86	05800
5.9	6	95	57	48.1	36	74.86	05900
6.0	6	95	57	48.0	36	74.86	06000
6.1	8	114	76	66.8	36	92.62	06100
6.2	8	114	76	66.7	36	92.62	06200
6.3	8	114	76	66.5	36	92.62	06300
6.4	8	114	76	66.4	36	92.62	06400
6.5	8	114	76	66.2	36	92.62	06500
6.6	8	114	76	66.1	36	92.62	06600
6.7	8	114	76	65.9	36	92.62	06700
6.8	8	114	76	65.8	36	92.62	06800
6.9	8	114	76	65.6	36	92.62	06900
7.0	8	114	76	65.5	36	92.62	07000
7.1	8	114	76	65.3	36	92.62	07100
7.2	8	114	76	65.2	36	92.62	07200
7.3	8	114	76	65.0	36	92.62	07300
7.4	8	114	76	64.9	36	92.62	07400
7.5	8	114	76	64.7	36	92.62	07500
7.6	8	114	76	64.6	36	92.62	07600
7.7	8	114	76	64.4	36	92.62	07700
7.8	8	114	76	64.3	36	92.62	07800
7.9	8	114	76	64.1	36	92.62	07900
8.0	8	114	76	64.0	36	92.62	08000
8.1	10	142	95	82.8	40	112.91	08100

11 704 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T1/9C	
8.2	10	142	95	82.7	40	112.91	08200
8.3	10	142	95	82.5	40	112.91	08300
8.4	10	142	95	82.4	40	112.91	08400
8.5	10	142	95	82.2	40	112.91	08500
8.6	10	142	95	82.1	40	112.91	08600
8.7	10	142	95	81.9	40	112.91	08700
8.8	10	142	95	81.8	40	112.91	08800
8.9	10	142	95	81.6	40	112.91	08900
9.0	10	142	95	81.5	40	112.91	09000
9.1	10	142	95	81.3	40	112.91	09100
9.2	10	142	95	81.2	40	112.91	09200
9.3	10	142	95	81.0	40	112.91	09300
9.4	10	142	95	80.9	40	112.91	09400
9.5	10	142	95	80.7	40	112.91	09500
9.6	10	142	95	80.6	40	112.91	09600
9.7	10	142	95	80.4	40	112.91	09700
9.8	10	142	95	80.3	40	112.91	09800
9.9	10	142	95	80.1	40	112.91	09900
10.0	10	142	95	80.0	40	112.91	10000
10.2	12	162	114	98.7	45	150.96	10200
10.5	12	162	114	98.2	45	150.96	10500
10.8	12	162	114	97.8	45	150.96	10800
11.0	12	162	114	97.5	45	150.96	11000
11.5	12	162	114	96.7	45	150.96	11500
11.8	12	162	114	96.3	45	150.96	11800
12.0	12	162	114	96.0	45	150.96	12000
12.2	14	178	131	112.7	45	225.82	12200
12.5	14	178	131	112.2	45	225.82	12500
12.7	14	178	131	111.9	45	261.83	12700
13.0	14	178	131	111.5	45	225.82	13000
13.5	14	178	131	110.7	45	225.82	13500
14.0	14	178	131	110.0	45	225.82	14000
14.5	16	203	152	130.2	48	295.60	14500
15.0	16	203	152	129.5	48	295.60	15000
15.5	16	203	152	128.7	48	295.60	15500
16.0	16	203	152	128.0	48	295.60	16000
16.5	18	222	171	146.2	48	381.87	16500
17.0	18	222	171	145.5	48	381.87	17000
17.5	18	222	171	144.7	48	381.87	17500
18.0	18	222	171	144.0	48	381.87	18000
18.5	20	243	190	162.2	50	425.00	18500
19.0	20	243	190	161.5	50	425.00	19000
19.5	20	243	190	160.7	50	425.00	19500
20.0	20	243	190	160.0	50	425.00	20000

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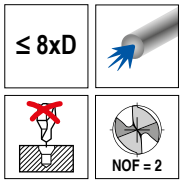
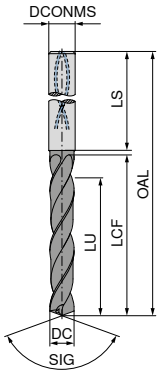
→ v_c Page 130

WTX – High Performance Drill, factory standard





VA
Ti700

AL
DLC
DRAGONSKIN





SIG 140°
Solid carbide

SIG 135°
Solid carbide

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 770 ... £ T4		10 792 ... £ T4/9F	
3.0	6	72	34	29	36	186.32	030	183.46	03000
3.1	6	72	34	29	36	186.32	031	183.46	03100
3.2	6	72	34	29	36	186.32	032	183.46	03200
3.3	6	72	34	29	36	186.32	033	183.46	03300
3.4	6	72	34	29	36	186.32	034	183.46	03400
3.5	6	72	34	29	36	186.32	035	183.46	03500
3.6	6	72	34	29	36	186.32	036	183.46	03600
3.7	6	72	34	29	36	186.32	037	183.46	03700
3.8	6	81	43	36	36	186.32	038	183.46	03800
3.9	6	81	43	36	36	186.32	039	183.46	03900
4.0	6	81	43	36	36	186.32	040	183.46	04000
4.1	6	81	43	36	36	186.32	041	183.46	04100
4.2	6	81	43	36	36	186.32	042	183.46	04200
4.3	6	81	43	36	36	186.32	043	183.46	04300
4.4	6	81	43	36	36	186.32	044	183.46	04400
4.5	6	81	43	36	36	186.32	045	183.46	04500
4.6	6	81	43	36	36	186.32	046	183.46	04600
4.7	6	81	43	36	36	186.32	047	183.46	04700
4.8	6	95	57	48	36	186.32	048	183.46	04800
4.9	6	95	57	48	36	186.32	049	183.46	04900
5.0	6	95	57	48	36	186.32	050	183.46	05000
5.1	6	95	57	48	36	186.32	051	183.46	05100
5.2	6	95	57	48	36	186.32	052	183.46	05200
5.3	6	95	57	48	36	186.32	053	183.46	05300
5.4	6	95	57	48	36	186.32	054	183.46	05400
5.5	6	95	57	48	36	186.32	055	183.46	05500
5.6	6	95	57	48	36	186.32	056	183.46	05600
5.7	6	95	57	48	36	186.32	057	183.46	05700
5.8	6	95	57	48	36	186.32	058	183.46	05800
5.9	6	95	57	48	36	186.32	059	183.46	05900
6.0	6	95	57	48	36	186.32	060	183.46	06000
6.1	8	114	76	64	36	224.37	061	230.48	06100
6.2	8	114	76	64	36	224.37	062	230.48	06200
6.3	8	114	76	64	36	224.37	063	230.48	06300
6.4	8	114	76	64	36	224.37	064	230.48	06400
6.5	8	114	76	64	36	224.37	065	230.48	06500
6.6	8	114	76	64	36	224.37	066	230.48	06600
6.7	8	114	76	64	36	224.37	067	230.48	06700
6.8	8	114	76	64	36	224.37	068	230.48	06800
6.9	8	114	76	64	36	224.37	069	230.48	06900
7.0	8	114	76	64	36	224.37	070	230.48	07000
7.1	8	114	76	64	36	224.37	071	230.48	07100
7.2	8	114	76	64	36	224.37	072	230.48	07200
7.3	8	114	76	64	36	224.37	073	230.48	07300
7.4	8	114	76	64	36	224.37	074	230.48	07400

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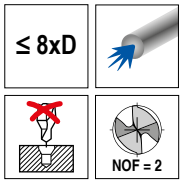
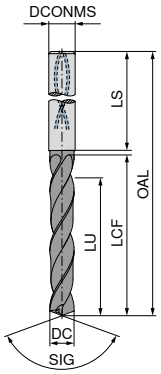
→ v_c Page 113+123

Ø DC_{m7} for Type VA / Ø DC_{h7} for Type AL

Continued on next page

WTX – High Performance Drill, factory standard





VA
Ti700

AL
DLC
DRAGONSKIN





SIG 140°
Solid carbide

SIG 135°
Solid carbide

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 770 ... £ T4		10 792 ... £ T4/9F	
7.5	8	114	76	64	36	224.37	075	230.48	07500
7.6	8	114	76	64	36	224.37	076	230.48	07600
7.7	8	114	76	64	36	224.37	077	230.48	07700
7.8	8	114	76	64	36	224.37	078	230.48	07800
7.9	8	114	76	64	36	224.37	079	230.48	07900
8.0	8	114	76	64	36	224.37	080	230.48	08000
8.1	10	142	95	80	40	324.55	081	292.59	08100
8.2	10	142	95	80	40	324.55	082	292.59	08200
8.3	10	142	95	80	40	324.55	083	292.59	08300
8.4	10	142	95	80	40	324.55	084	292.59	08400
8.5	10	142	95	80	40	324.55	085	292.59	08500
8.6	10	142	95	80	40	324.55	086	292.59	08600
8.7	10	142	95	80	40	324.55	087	292.59	08700
8.8	10	142	95	80	40	324.55	088	292.59	08800
8.9	10	142	95	80	40	324.55	089	292.59	08900
9.0	10	142	95	80	40	324.55	090	292.59	09000
9.1	10	142	95	80	40	324.55	091	292.59	09100
9.2	10	142	95	80	40	324.55	092	292.59	09200
9.3	10	142	95	80	40	324.55	093	292.59	09300
9.4	10	142	95	80	40	324.55	094	292.59	09400
9.5	10	142	95	80	40	324.55	095	292.59	09500
9.6	10	142	95	80	40	324.55	096	292.59	09600
9.7	10	142	95	80	40	324.55	097	292.59	09700
9.8	10	142	95	80	40	324.55	098	292.59	09800
9.9	10	142	95	80	40	324.55	099	292.59	09900
10.0	10	142	95	80	40	324.55	100	292.59	10000
10.1	12	162	114	96	45	416.86	101		
10.2	12	162	114	96	45	416.86	102	373.49	10200
10.3	12	162	114	96	45	416.86	103	373.49	10300
10.4	12	162	114	96	45	416.86	104	373.49	10400
10.5	12	162	114	96	45	416.86	105	373.49	10500
10.6	12	162	114	96	45	416.86	106		
10.7	12	162	114	96	45	416.86	107	373.49	10700
10.8	12	162	114	96	45	416.86	108	373.49	10800
10.9	12	162	114	96	45	416.86	109		
11.0	12	162	114	96	45	416.86	110	373.49	11000
11.1	12	162	114	96	45	416.86	111		
11.2	12	162	114	96	45	416.86	112	373.49	11200
11.3	12	162	114	96	45	416.86	113		
11.4	12	162	114	96	45	416.86	114		
11.5	12	162	114	96	45	416.86	115	373.49	11500
11.6	12	162	114	96	45	416.86	116	373.49	11600
11.7	12	162	114	96	45	416.86	117		
11.8	12	162	114	96	45	416.86	118	373.49	11800
11.9	12	162	114	96	45	416.86	119		

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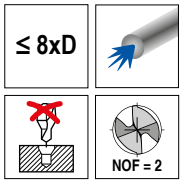
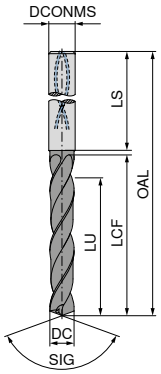
→ v_c Page 113+123

Ø DC_{m7} for Type VA / Ø DC_{h7} for Type AL

Continued on next page

WTX – High Performance Drill, factory standard





VA
Ti700

AL
DLC
DRAGONSKIN





SIG 140°
Solid carbide

SIG 135°
Solid carbide

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 770 ... £ T4		10 792 ... £ T4/9F	
12.0	12	162	114	96	45	416.86	120	373.49	12000
12.2	14	178	131	112	45			473.32	12200
12.5	14	178	133	112	45	500.66	125		
12.5	14	178	131	112	45			473.32	12500
12.8	14	178	133	112	45	500.66	128		
12.8	14	178	131	112	45			473.32	12800
13.0	14	178	133	112	45	500.66	130		
13.0	14	178	131	112	45			473.32	13000
13.2	14	178	131	112	45			473.32	13200
13.5	14	178	131	112	45			473.32	13500
13.5	14	178	133	112	45	500.66	135		
13.8	14	178	131	112	45			473.32	13800
13.8	14	178	133	112	45	500.66	138		
14.0	14	178	133	112	45	500.66	140		
14.0	14	178	131	112	45			473.32	14000
14.2	16	203	152	128	48			675.55	14200
14.5	16	203	152	128	48	676.96	145	675.55	14500
14.8	16	203	152	128	48	676.96	148	675.55	14800
15.0	16	203	152	128	48	676.96	150	675.55	15000
15.2	16	203	152	128	48			675.55	15200
15.5	16	203	152	128	48	676.96	155	675.55	15500
15.8	16	203	152	128	48	676.96	158	675.55	15800
16.0	16	203	152	128	48	676.96	160	675.55	16000
16.2	18	222	171	144	48			827.23	16200
16.5	18	222	171	144	48	947.10	165	827.23	16500
16.8	18	222	171	144	48	947.10	168	827.23	16800
17.0	18	222	171	144	48	947.10	170	827.23	17000
17.2	18	222	171	144	48			827.23	17200
17.5	18	222	171	144	48	947.10	175	827.23	17500
17.8	18	222	171	144	48	947.10	178	827.23	17800
18.0	18	222	171	144	48	947.10	180	827.23	18000
18.2	20	243	190	160	50			1,008.93	18200
18.5	20	243	190	160	50	1,194.71	185	1,008.93	18500
18.8	20	243	190	160	50	1,194.71	188	1,008.93	18800
19.0	20	243	190	160	50	1,194.71	190	1,008.93	19000
19.1	20	243	190	160	50			1,008.93	19100
19.2	20	243	190	160	50			1,008.93	19200
19.5	20	243	190	160	50	1,194.71	195	1,008.93	19500
19.8	20	243	190	160	50	1,194.71	198	1,008.93	19800
20.0	20	243	190	160	50	1,194.71	200	1,008.93	20000

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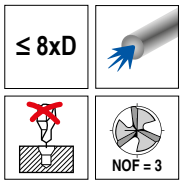
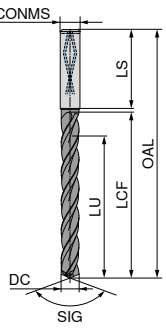
→ v_c Page 113+123

Ø DC_{m7} for Type VA / Ø DC_{h7} for Type AL

WTX – High Feed Drill, factory standard

▲ Three fluted high-feed drill
▲ Universal application
▲ High positioning accuracy
▲ Suitable for difficult drilling applications





Feed UNI

DPX74S

DRAGONSKIN



SIG 135°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 794 ... £ T4	
4.00	6	81	43	36	36	189.51	04000
4.10	6	81	43	36	36	189.51	04100
4.20	6	81	43	36	36	189.51	04200
4.30	6	81	43	36	36	189.51	04300
4.40	6	81	43	36	36	189.51	04400
4.50	6	81	43	36	36	189.51	04500
4.60	6	81	43	36	36	189.51	04600
4.70	6	81	43	36	36	189.51	04700
4.80	6	95	57	48	36	189.51	04800
4.90	6	95	57	48	36	189.51	04900
5.00	6	95	57	48	36	189.51	05000
5.10	6	95	57	48	36	189.51	05100
5.20	6	95	57	48	36	189.51	05200
5.30	6	95	57	48	36	189.51	05300
5.40	6	95	57	48	36	189.51	05400
5.50	6	95	57	48	36	189.51	05500
5.55	6	95	57	48	36	189.51	05550
5.60	6	95	57	48	36	189.51	05600
5.70	6	95	57	48	36	189.51	05700
5.80	6	95	57	48	36	189.51	05800
5.90	6	95	57	48	36	189.51	05900
6.00	6	95	57	48	36	189.51	06000
6.10	8	114	76	64	36	253.20	06100
6.20	8	114	76	64	36	253.20	06200
6.30	8	114	76	64	36	253.20	06300
6.40	8	114	76	64	36	253.20	06400
6.50	8	114	76	64	36	253.20	06500
6.60	8	114	76	64	36	253.20	06600
6.70	8	114	76	64	36	253.20	06700
6.80	8	114	76	64	36	253.20	06800
6.90	8	114	76	64	36	253.20	06900
7.00	8	114	76	64	36	253.20	07000
7.10	8	114	76	64	36	253.20	07100
7.20	8	114	76	64	36	253.20	07200
7.30	8	114	76	64	36	253.20	07300
7.40	8	114	76	64	36	253.20	07400
7.50	8	114	76	64	36	253.20	07500
7.60	8	114	76	64	36	253.20	07600
7.70	8	114	76	64	36	253.20	07700
7.80	8	114	76	64	36	253.20	07800
7.90	8	114	76	64	36	253.20	07900
8.00	8	114	76	64	36	253.20	08000
8.10	10	142	95	80	40	365.04	08100
8.20	10	142	95	80	40	365.04	08200
8.30	10	142	95	80	40	365.04	08300
8.40	10	142	95	80	40	365.04	08400
8.50	10	142	95	80	40	365.04	08500
8.60	10	142	95	80	40	365.04	08600
8.70	10	142	95	80	40	365.04	08700
8.80	10	142	95	80	40	365.04	08800
8.90	10	142	95	80	40	365.04	08900
9.00	10	142	95	80	40	365.04	09000

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 794 ... £ T4	
9.10	10	142	95	80	40	365.04	09100
9.20	10	142	95	80	40	365.04	09200
9.30	10	142	95	80	40	365.04	09300
9.40	10	142	95	80	40	365.04	09400
9.50	10	142	95	80	40	365.04	09500
9.60	10	142	95	80	40	365.04	09600
9.70	10	142	95	80	40	365.04	09700
9.80	10	142	95	80	40	365.04	09800
9.90	10	142	95	80	40	365.04	09900
10.00	10	142	95	80	40	365.04	10000
10.10	12	162	114	96	45	472.25	10100
10.20	12	162	114	96	45	472.25	10200
10.30	12	162	114	96	45	472.25	10300
10.40	12	162	114	96	45	472.25	10400
10.50	12	162	114	96	45	472.25	10500
10.60	12	162	114	96	45	472.25	10600
10.70	12	162	114	96	45	472.25	10700
10.80	12	162	114	96	45	472.25	10800
10.90	12	162	114	96	45	472.25	10900
11.00	12	162	114	96	45	472.25	11000
11.10	12	162	114	96	45	472.25	11100
11.20	12	162	114	96	45	472.25	11200
11.30	12	162	114	96	45	472.25	11300
11.40	12	162	114	96	45	472.25	11400
11.50	12	162	114	96	45	472.25	11500
11.60	12	162	114	96	45	472.25	11600
11.70	12	162	114	96	45	472.25	11700
11.80	12	162	114	96	45	472.25	11800
11.90	12	162	114	96	45	472.25	11900
12.00	12	162	114	96	45	472.25	12000
12.20	14	178	131	112	45	566.98	12200
12.50	14	178	131	112	45	566.98	12500
12.80	14	178	131	112	45	566.98	12800
13.00	14	178	131	112	45	566.98	13000
13.50	14	178	131	112	45	566.98	13500
13.80	14	178	131	112	45	566.98	13800
14.00	14	178	131	112	45	566.98	14000
14.50	16	203	152	128	48	764.27	14500
14.80	16	203	152	128	48	764.27	14800
15.00	16	203	152	128	48	764.27	15000
15.50	16	203	152	128	48	764.27	15500
15.80	16	203	152	128	48	764.27	15800
16.00	16	203	152	128	48	764.27	16000
16.50	18	222	171	144	48	1,071.84	16500
16.80	18	222	171	144	48	1,071.84	16800
17.00	18	222	171	144	48	1,071.84	17000
17.50	18	222	171	144	48	1,071.84	17500
17.80	18	222	171	144	48	1,071.84	17800
18.00	18	222	171	144	48	1,071.84	18000
18.50	20	243	190	160	50	1,349.92	18500
18.80	20	243	190	160	50	1,349.92	18800
19.00	20	243	190	160	50	1,349.92	19000
19.50	20	243	190	160	50	1,349.92	19500
19.80	20	243	190	160	50	1,349.92	19800
20.00	20	243	190	160	50	1,349.92	20000

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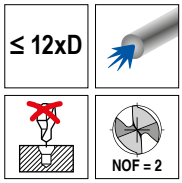
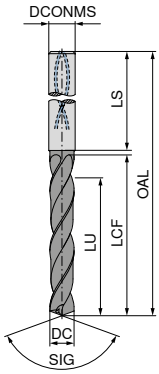
WTX – High Performance Drill, factory standard







						SIG 135° Solid carbide	SIG 140° Solid carbide	SIG 135° Solid carbide
						10 774 ...	10 737 ...	10 793 ...
DC h7/m7	DCONMS h6	OAL	LCF	LU	LS	£ T4	£ T4	£ T4/9F
mm	mm	mm	mm	mm	mm			
3.0	6	92	54	48	36	225.27 03000	301.87 03000	221.79 03000
3.1	6	92	54	48	36	225.27 03100	301.87 03100	221.79 03100
3.2	6	92	54	48	36	225.27 03200	301.87 03200	221.79 03200
3.3	6	92	54	48	36	225.27 03300	301.87 03300	221.79 03300
3.4	6	92	54	48	36	225.27 03400	301.87 03400	221.79 03400
3.5	6	92	54	48	36	225.27 03500	301.87 03500	221.79 03500
3.6	6	92	54	48	36	225.27 03600	301.87 03600	221.79 03600
3.7	6	92	54	48	36	225.27 03700	301.87 03700	221.79 03700
3.8	6	102	64	58	36	225.27 03800	301.87 03800	221.79 03800
3.9	6	102	64	58	36	225.27 03900	301.87 03900	221.79 03900
4.0	6	102	64	58	36	225.27 04000	301.87 04000	221.79 04000
4.1	6	102	64	58	36	225.27 04100	301.87 04100	221.79 04100
4.2	6	102	64	58	36	225.27 04200	301.87 04200	221.79 04200
4.3	6	102	64	58	36	225.27 04300	301.87 04300	221.79 04300
4.4	6	102	64	58	36	225.27 04400	301.87 04400	221.79 04400
4.5	6	102	64	58	36	225.27 04500	301.87 04500	221.79 04500
4.6	6	102	64	58	36	225.27 04600	301.87 04600	221.79 04600
4.7	6	102	64	58	36	225.27 04700	301.87 04700	221.79 04700
4.8	6	116	78	70	36	225.27 04800	301.87 04800	221.79 04800
4.9	6	116	78	70	36	225.27 04900	301.87 04900	221.79 04900
5.0	6	116	78	70	36	225.27 05000	301.87 05000	221.79 05000
5.1	6	116	78	70	36	225.27 05100	301.87 05100	221.79 05100
5.2	6	116	78	70	36	225.27 05200	301.87 05200	221.79 05200
5.3	6	116	78	70	36	225.27 05300	301.87 05300	221.79 05300
5.4	6	116	78	70	36	225.27 05400	301.87 05400	221.79 05400
5.5	6	116	78	70	36	225.27 05500	301.87 05500	221.79 05500
5.6	6	116	78	70	36	225.27 05600	301.87 05600	221.79 05600
5.7	6	116	78	70	36	225.27 05700	301.87 05700	221.79 05700
5.8	6	116	78	70	36	225.27 05800	301.87 05800	221.79 05800
5.9	6	116	78	70	36	225.27 05900	301.87 05900	221.79 05900
6.0	6	116	78	70	36	225.27 06000	301.87 06000	221.79 06000
6.1	8	146	108	94	36	258.80 06100	316.58 06100	306.54 06100
6.2	8	146	108	94	36	258.80 06200	316.58 06200	306.54 06200
6.3	8	146	108	94	36	258.80 06300	316.58 06300	306.54 06300
6.4	8	146	108	94	36	258.80 06400	316.58 06400	306.54 06400
6.5	8	146	108	94	36	258.80 06500	316.58 06500	306.54 06500
6.6	8	146	108	94	36	258.80 06600	316.58 06600	306.54 06600
6.7	8	146	108	94	36	258.80 06700	316.58 06700	306.54 06700
6.8	8	146	108	94	36	258.80 06800	316.58 06800	306.54 06800
6.9	8	146	108	94	36	258.80 06900	316.58 06900	306.54 06900
7.0	8	146	108	94	36	258.80 07000	316.58 07000	306.54 07000
7.1	8	146	108	94	36	258.80 07100	316.58 07100	306.54 07100
7.2	8	146	108	94	36	258.80 07200	316.58 07200	306.54 07200

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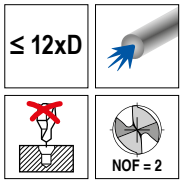
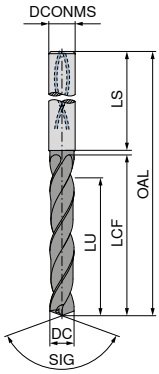
→ v_c Page 118–124

Ø DC_{h7} for Type Speed VA and AL / Ø DC_{m7} for Type Quattro 4F

Continued on next page

WTX – High Performance Drill, factory standard







						SIG 135° Solid carbide		SIG 140° Solid carbide		SIG 135° Solid carbide	
						10 774 ...		**10 737 ...**		**10 793 ...**	
DC $_{h7/m7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	£ T4		£ T4		£ T4/9F	
mm	mm	mm	mm	mm	mm						
7.3	8	146	108	94	36	258.80	**07300**	316.58	**07300**	306.54	**07300**
7.4	8	146	108	94	36	258.80	**07400**	316.58	**07400**	306.54	**07400**
7.5	8	146	108	94	36	258.80	**07500**	316.58	**07500**	306.54	**07500**
7.6	8	146	108	94	36	258.80	**07600**	316.58	**07600**	306.54	**07600**
7.7	8	146	108	94	36	258.80	**07700**	316.58	**07700**	306.54	**07700**
7.8	8	146	108	94	36	258.80	**07800**	316.58	**07800**	306.54	**07800**
7.9	8	146	108	94	36	258.80	**07900**	316.58	**07900**	306.54	**07900**
8.0	8	146	108	94	36	258.80	**08000**	316.58	**08000**	306.54	**08000**
8.1	10	162	120	110	40	337.52	**08100**	431.33	**08100**	389.17	**08100**
8.2	10	162	120	110	40	337.52	**08200**	431.33	**08200**	389.17	**08200**
8.3	10	162	120	110	40	337.52	**08300**	431.33	**08300**	389.17	**08300**
8.4	10	162	120	110	40	337.52	**08400**	431.33	**08400**	389.17	**08400**
8.5	10	162	120	110	40	337.52	**08500**	431.33	**08500**	389.17	**08500**
8.6	10	162	120	110	40	337.52	**08600**	431.33	**08600**	389.17	**08600**
8.7	10	162	120	110	40	337.52	**08700**	431.33	**08700**	389.17	**08700**
8.8	10	162	120	110	40	337.52	**08800**	431.33	**08800**	389.17	**08800**
8.9	10	162	120	110	40	337.52	**08900**	431.33	**08900**	389.17	**08900**
9.0	10	162	120	110	40	337.52	**09000**	431.33	**09000**	389.17	**09000**
9.1	10	162	120	110	40	337.52	**09100**	431.33	**09100**	389.17	**09100**
9.2	10	162	120	110	40	337.52	**09200**	431.33	**09200**	389.17	**09200**
9.3	10	162	120	110	40	337.52	**09300**	431.33	**09300**	389.17	**09300**
9.4	10	162	120	110	40	337.52	**09400**	431.33	**09400**	389.17	**09400**
9.5	10	162	120	110	40	337.52	**09500**	431.33	**09500**	389.17	**09500**
9.6	10	162	120	110	40	337.52	**09600**	431.33	**09600**	389.17	**09600**
9.7	10	162	120	110	40	337.52	**09700**	431.33	**09700**	389.17	**09700**
9.8	10	162	120	110	40	337.52	**09800**	431.33	**09800**	389.17	**09800**
9.9	10	162	120	110	40	337.52	**09900**	431.33	**09900**	389.17	**09900**
10.0	10	162	120	110	40	337.52	**10000**	431.33	**10000**	389.17	**10000**
10.1	12	204	156	142	45	460.02	**10100**	533.47	**10100**		
10.2	12	204	156	142	45	460.02	**10200**	533.47	**10200**	527.32	**10200**
10.3	12	204	156	142	45	460.02	**10300**	533.47	**10300**		
10.4	12	204	156	142	45	460.02	**10400**	533.47	**10400**		
10.5	12	204	156	142	45	460.02	**10500**	533.47	**10500**	527.32	**10500**
10.6	12	204	156	142	45	460.02	**10600**	533.47	**10600**		
10.7	12	204	156	142	45	460.02	**10700**	533.47	**10700**	527.32	**10700**
10.8	12	204	156	142	45	460.02	**10800**	533.47	**10800**	527.32	**10800**
10.9	12	204	156	142	45	460.02	**10900**	533.47	**10900**		
11.0	12	204	156	142	45	460.02	**11000**	533.47	**11000**	527.32	**11000**
11.1	12	204	156	142	45	460.02	**11100**	533.47	**11100**		
11.2	12	204	156	142	45	460.02	**11200**	533.47	**11200**	527.32	**11200**
11.3	12	204	156	142	45	460.02	**11300**	533.47	**11300**	527.32	**11300**
11.4	12	204	156	142	45	460.02	**11400**	533.47	**11400**		
11.5	12	204	156	142	45	460.02	**11500**	533.47	**11500**	527.32	**11500**

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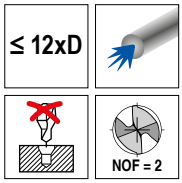
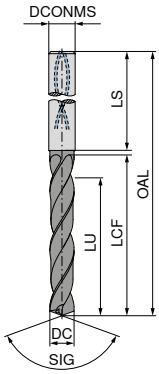
→ v_c Page 118–124

Ø DC_{h7} for Type Speed VA and AL / **Ø DC_{m7}** for Type Quattro 4F

Continued on next page

WTX – High Performance Drill, factory standard







						SIG 135° Solid carbide		SIG 140° Solid carbide		SIG 135° Solid carbide	
						10 774 ...		**10 737 ...**		**10 793 ...**	
DC $_{h7/m7}$	DCONMS $_{h6}$	OAL	LCF	LU	LS	£		£		£	
mm	mm	mm	mm	mm	mm	T4		T4		T4/9F	
11.6	12	204	156	142	45	460.02	**11600**	533.47	**11600**		
11.7	12	204	156	142	45	460.02	**11700**	533.47	**11700**		
11.8	12	204	156	142	45	460.02	**11800**	533.47	**11800**	527.32	**11800**
11.9	12	204	156	142	45	460.02	**11900**	533.47	**11900**		
12.0	12	204	156	142	45	460.02	**12000**	533.47	**12000**	527.32	**12000**
12.1	14	230	182	166	45					743.27	**12100**
12.2	14	230	182	166	45	653.75	**12200**			743.27	**12200**
12.5	14	230	182	166	45	653.75	**12500**	780.03	**12500**	743.27	**12500**
12.8	14	230	182	166	45	653.75	**12800**	780.03	**12800**	743.27	**12800**
13.0	14	230	182	166	45	653.75	**13000**	780.03	**13000**	743.27	**13000**
13.2	14	230	182	166	45					743.27	**13200**
13.5	14	230	182	166	45	653.75	**13500**	780.03	**13500**	743.27	**13500**
13.8	14	230	182	166	45	653.75	**13800**	780.03	**13800**	743.27	**13800**
14.0	14	230	182	166	45	653.75	**14000**	780.03	**14000**	743.27	**14000**
14.2	16	260	208	192	48	838.77	**14200**			901.19	**14200**
14.5	16	260	208	192	48	838.77	**14500**	1,019.38	**14500**	901.19	**14500**
14.7	16	260	208	192	48					901.19	**14700**
14.8	16	260	208	192	48			1,019.38	**14800**	901.19	**14800**
15.0	16	260	208	192	48	838.77	**15000**	1,019.38	**15000**	901.19	**15000**
15.1	16	260	208	192	48	838.77	**15100**				
15.2	16	260	208	192	48	838.77	**15200**			901.19	**15200**
15.5	16	260	208	192	48	838.77	**15500**	1,019.38	**15500**	901.19	**15500**
15.7	16	260	208	192	48					901.19	**15700**
15.8	16	260	208	192	48	838.77	**15800**	1,019.38	**15800**	901.19	**15800**
16.0	16	260	208	192	48	838.77	**16000**	1,019.38	**16000**	901.19	**16000**
16.2	18	285	234	216	48					1,002.37	**16200**
16.5	18	285	234	216	48			1,408.13	**16500**	1,002.37	**16500**
16.8	18	285	234	216	48			1,408.13	**16800**	1,002.37	**16800**
17.0	18	285	234	216	48	1,153.35	**17000**	1,408.13	**17000**	1,002.37	**17000**
17.2	18	285	234	216	48					1,002.37	**17200**
17.5	18	285	234	216	48	1,153.35	**17500**	1,408.13	**17500**	1,002.37	**17500**
17.8	18	285	234	216	48			1,408.13	**17800**	1,002.37	**17800**
18.0	18	285	234	216	48			1,408.13	**18000**	1,002.37	**18000**
18.2	20	310	258	240	50					1,269.22	**18200**
18.5	20	310	258	240	50					1,269.22	**18500**
18.7	20	310	258	240	50					1,269.22	**18700**
18.8	20	310	258	240	50					1,269.22	**18800**
19.0	20	310	258	240	50					1,269.22	**19000**
19.2	20	310	258	240	50					1,269.22	**19200**
19.5	20	310	258	240	50					1,269.22	**19500**
19.8	20	310	258	240	50					1,269.22	**19800**
20.0	20	310	258	240	50					1,269.22	**20000**
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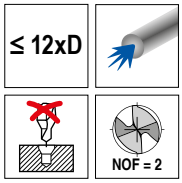
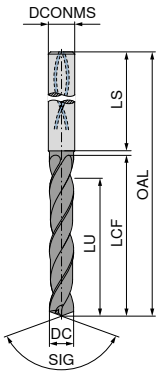
→ v_c Page 118–124

Ø DC_{h7} for Type Speed VA and AL / **Ø DC_{m7}** for Type Quattro 4F

High Performance Drill, factory standard





UNI

TiAlN



SIG 135°
Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 705 ... £ T1/9C	
3.0	6	92	54	49.5	36	100.22	03000
3.1	6	92	54	49.3	36	100.22	03100
3.2	6	92	54	49.2	36	100.22	03200
3.3	6	92	54	49.0	36	100.22	03300
3.4	6	92	54	48.9	36	100.22	03400
3.5	6	92	54	48.7	36	100.22	03500
3.6	6	92	54	48.6	36	100.22	03600
3.7	6	92	54	48.4	36	100.22	03700
3.8	6	102	64	58.3	36	100.22	03800
3.9	6	102	64	58.1	36	100.22	03900
4.0	6	102	64	58.0	36	100.22	04000
4.1	6	102	64	57.8	36	100.22	04100
4.2	6	102	64	57.7	36	100.22	04200
4.3	6	102	64	57.5	36	100.22	04300
4.4	6	102	64	57.4	36	100.22	04400
4.5	6	102	64	57.2	36	100.22	04500
4.6	6	102	64	57.1	36	100.22	04600
4.7	6	102	64	56.9	36	100.22	04700
4.8	6	116	78	70.8	36	100.22	04800
4.9	6	116	78	70.6	36	100.22	04900
5.0	6	116	78	70.5	36	100.22	05000
5.1	6	116	78	70.3	36	100.22	05100
5.2	6	116	78	70.2	36	100.22	05200
5.3	6	116	78	70.0	36	100.22	05300
5.4	6	116	78	69.9	36	100.22	05400
5.5	6	116	78	69.7	36	100.22	05500
5.6	6	116	78	69.6	36	100.22	05600
5.7	6	116	78	69.4	36	100.22	05700
5.8	6	116	78	69.3	36	100.22	05800
5.9	6	116	78	69.1	36	100.22	05900
6.0	6	116	78	69.0	36	100.22	06000
6.1	8	146	108	98.8	36	111.65	06100
6.2	8	146	108	98.7	36	111.65	06200
6.3	8	146	108	98.5	36	111.65	06300
6.4	8	146	108	98.4	36	111.65	06400
6.5	8	146	108	98.2	36	111.65	06500
6.6	8	146	108	98.1	36	111.65	06600
6.7	8	146	108	97.9	36	111.65	06700
6.8	8	146	108	97.8	36	111.65	06800
6.9	8	146	108	97.6	36	111.65	06900
7.0	8	146	108	97.5	36	111.65	07000
7.1	8	146	108	97.3	36	111.65	07100
7.2	8	146	108	97.2	36	111.65	07200
7.3	8	146	108	97.0	36	111.65	07300
7.4	8	146	108	96.9	36	111.65	07400
7.5	8	146	108	96.7	36	111.65	07500
7.6	8	146	108	96.6	36	111.65	07600
7.7	8	146	108	96.4	36	111.65	07700
7.8	8	146	108	96.3	36	111.65	07800
7.9	8	146	108	96.1	36	111.65	07900
8.0	8	146	108	96.0	36	111.65	08000
8.1	10	162	120	107.8	40	156.05	08100
8.2	10	162	120	107.7	40	156.05	08200
8.3	10	162	120	107.5	40	156.05	08300
8.4	10	162	120	107.4	40	156.05	08400
8.5	10	162	120	107.2	40	156.05	08500
8.6	10	162	120	107.1	40	156.05	08600
8.7	10	162	120	106.9	40	156.05	08700
8.8	10	162	120	106.8	40	156.05	08800
8.9	10	162	120	106.6	40	156.05	08900
9.0	10	162	120	106.5	40	156.05	09000
9.1	10	162	120	106.3	40	156.05	09100
9.2	10	162	120	106.2	40	156.05	09200
9.3	10	162	120	106.0	40	156.05	09300
9.4	10	162	120	105.9	40	156.05	09400
9.5	10	162	120	105.7	40	156.05	09500
9.6	10	162	120	105.6	40	156.05	09600
9.7	10	162	120	105.4	40	156.05	09700
9.8	10	162	120	105.3	40	156.05	09800
9.9	10	162	120	105.1	40	156.05	09900
10.0	10	162	120	105.0	40	156.05	10000
10.2	12	204	156	140.7	45	215.67	10200
10.5	12	204	156	140.2	45	215.67	10500
10.8	12	204	156	139.8	45	215.67	10800
11.0	12	204	156	139.5	45	215.67	11000
11.5	12	204	156	138.7	45	215.67	11500
11.8	12	204	156	138.3	45	215.67	11800
12.0	12	204	156	138.0	45	215.67	12000
12.5	14	230	182	163.2	45	277.84	12500
12.7	14	230	182	162.9	45	277.84	12700
12.8	14	230	182	162.8	45	277.84	12800
13.0	14	230	182	162.5	45	277.84	13000
13.5	14	230	182	161.7	45	277.84	13500
13.8	14	230	182	161.3	45	277.84	13800
14.0	14	230	182	161.0	45	277.84	14000
14.5	16	260	208	186.2	48	366.65	14500
14.8	16	260	208	185.8	48	366.65	14800
15.0	16	260	208	185.5	48	366.65	15000
15.5	16	260	208	184.7	48	366.65	15500
15.8	16	260	208	184.3	48	366.65	15800
16.0	16	260	208	184.0	48	366.65	16000
16.5	18	285	234	209.2	48	437.68	16500
17.0	18	285	234	208.5	48	437.68	17000
17.5	18	285	234	207.7	48	437.68	17500
18.0	18	285	234	207.0	48	437.68	18000
18.5	20	310	258	230.2	50	437.68	18500
19.0	20	310	258	229.5	50	437.68	19000
19.5	20	310	258	228.7	50	437.68	19500
20.0	20	310	258	228.0	50	437.68	20000

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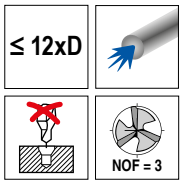
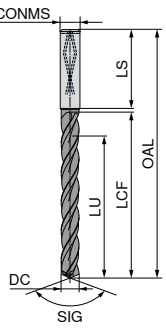
→ v_c Page 131

WTX – High Feed Drill, factory standard

▲ Three fluted high-feed drill
▲ Universal application
▲ High positioning accuracy
▲ Suitable for difficult drilling applications

2





Feed UNI

DPX74S

DRAGONSKIN



SIG 135°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 796 ... £ T4	
4.0	6	102	64	58	36	254.27	04000
4.1	6	102	64	58	36	254.27	04100
4.2	6	102	64	58	36	254.27	04200
4.3	6	102	64	58	36	254.27	04300
4.4	6	102	64	58	36	254.27	04400
4.5	6	102	64	58	36	254.27	04500
4.6	6	102	64	58	36	254.27	04600
4.7	6	102	64	58	36	254.27	04700
4.8	6	116	78	70	36	254.27	04800
4.9	6	116	78	70	36	254.27	04900
5.0	6	116	78	70	36	254.27	05000
5.1	6	116	78	70	36	254.27	05100
5.2	6	116	78	70	36	254.27	05200
5.3	6	116	78	70	36	254.27	05300
5.4	6	116	78	70	36	254.27	05400
5.5	6	116	78	70	36	254.27	05500
5.6	6	116	78	70	36	254.27	05600
5.7	6	116	78	70	36	254.27	05700
5.8	6	116	78	70	36	254.27	05800
5.9	6	116	78	70	36	254.27	05900
6.0	6	116	78	70	36	254.27	06000
6.1	8	146	108	94	36	327.48	06100
6.2	8	146	108	94	36	327.48	06200
6.3	8	146	108	94	36	327.48	06300
6.4	8	146	108	94	36	327.48	06400
6.5	8	146	108	94	36	327.48	06500
6.6	8	146	108	94	36	327.48	06600
6.7	8	146	108	94	36	327.48	06700
6.8	8	146	108	94	36	327.48	06800
6.9	8	146	108	94	36	327.48	06900
7.0	8	146	108	94	36	327.48	07000
7.1	8	146	108	94	36	327.48	07100
7.2	8	146	108	94	36	327.48	07200
7.3	8	146	108	94	36	327.48	07300
7.4	8	146	108	94	36	327.48	07400
7.5	8	146	108	94	36	327.48	07500
7.6	8	146	108	94	36	327.48	07600
7.7	8	146	108	94	36	327.48	07700
7.8	8	146	108	94	36	327.48	07800
7.9	8	146	108	94	36	327.48	07900
8.0	8	146	108	94	36	327.48	08000
8.1	10	162	120	110	40	426.73	08100
8.2	10	162	120	110	40	426.73	08200
8.3	10	162	120	110	40	426.73	08300
8.4	10	162	120	110	40	426.73	08400
8.5	10	162	120	110	40	426.73	08500
8.6	10	162	120	110	40	426.73	08600
8.7	10	162	120	110	40	426.73	08700
8.8	10	162	120	110	40	426.73	08800
8.9	10	162	120	110	40	426.73	08900
9.0	10	162	120	110	40	426.73	09000
9.1	10	162	120	110	40	426.73	09100
9.2	10	162	120	110	40	426.73	09200
9.3	10	162	120	110	40	426.73	09300
9.4	10	162	120	110	40	426.73	09400
9.5	10	162	120	110	40	426.73	09500
9.6	10	162	120	110	40	426.73	09600
9.7	10	162	120	110	40	426.73	09700
9.8	10	162	120	110	40	426.73	09800
9.9	10	162	120	110	40	426.73	09900
10.0	10	162	120	110	40	426.73	10000
10.1	12	204	156	142	45	556.63	10100
10.2	12	204	156	142	45	556.63	10200
10.3	12	204	156	142	45	556.63	10300
10.4	12	204	156	142	45	556.63	10400
10.5	12	204	156	142	45	556.63	10500
10.6	12	204	156	142	45	556.63	10600
10.7	12	204	156	142	45	556.63	10700
10.8	12	204	156	142	45	556.63	10800
10.9	12	204	156	142	45	556.63	10900
11.0	12	204	156	142	45	556.63	11000
11.1	12	204	156	142	45	556.63	11100
11.2	12	204	156	142	45	556.63	11200
11.3	12	204	156	142	45	556.63	11300
11.4	12	204	156	142	45	556.63	11400
11.5	12	204	156	142	45	556.63	11500
11.6	12	204	156	142	45	556.63	11600
11.7	12	204	156	142	45	556.63	11700
11.8	12	204	156	142	45	556.63	11800
11.9	12	204	156	142	45	556.63	11900
12.0	12	204	156	142	45	556.63	12000
12.2	14	230	182	166	45	713.54	12200
12.5	14	230	182	166	45	713.54	12500
12.8	14	230	182	166	45	713.54	12800
13.0	14	230	182	166	45	713.54	13000
13.5	14	230	182	166	45	713.54	13500
13.8	14	230	182	166	45	713.54	13800
14.0	14	230	182	166	45	713.54	14000
14.5	16	260	208	192	48	927.69	14500
14.8	16	260	208	192	48	927.69	14800
15.0	16	260	208	192	48	927.69	15000
15.5	16	260	208	192	48	927.69	15500
15.8	16	260	208	192	48	927.69	15800
16.0	16	260	208	192	48	927.69	16000
16.5	18	285	234	216	48	1,197.38	16500
16.8	18	285	234	216	48	1,197.38	16800
17.0	18	285	234	216	48	1,197.38	17000
17.5	18	285	234	216	48	1,197.38	17500
17.8	18	285	234	216	48	1,197.38	17800
18.0	18	285	234	216	48	1,197.38	18000
18.5	20	310	258	240	50	1,464.01	18500
18.8	20	310	258	240	50	1,464.01	18800
19.0	20	310	258	240	50	1,464.01	19000
19.5	20	310	258	240	50	1,464.01	19500
19.8	20	310	258	240	50	1,464.01	19800
20.0	20	310	258	240	50	1,464.01	20000

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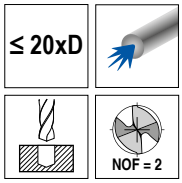
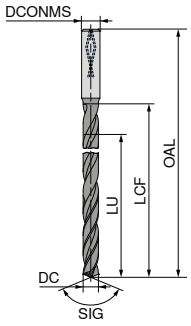
WTX – Co-pilot deep hole twist drills

- ▲ Cutting tolerance j6 optimally coordinated as an intermediate tolerance between the pilot drill and deep hole twist drill
- ▲ For optimal guidance and reduction of the cutting time of the deep hole twist drill for hole depths > 30xD
- ▲ Pilot hole necessary
- ▲ up to 20xD without peck drilling
- ▲ Excellent alignment precision
- ▲ Reliable chip removal









SIG 137°
Solid carbide

11 018 ...

DC j6 mm	DCONMS h5 mm	OAL mm	LCF mm	LU mm	£ T7/9G	
3.0	6	120	80	60	224.03	**03000**
4.0	6	130	90	80	233.27	**04000**
4.2	6	160	110	84	252.55	**04200**
4.5	6	160	110	90	252.55	**04500**
4.8	6	160	120	96	268.77	**04800**
5.0	6	160	120	100	268.77	**05000**
5.5	6	185	140	110	279.13	**05500**
5.8	6	185	140	116	279.13	**05800**
6.0	6	185	140	120	279.13	**06000**
6.5	8	210	160	130	318.84	**06500**
6.8	8	210	160	136	318.84	**06800**
7.0	8	210	160	140	318.84	**07000**
7.5	8	230	180	150	354.36	**07500**
7.8	8	230	180	156	354.36	**07800**
8.0	8	230	180	160	354.36	**08000**
8.5	10	260	195	170	391.14	**08500**
8.8	10	290	230	176	436.88	**08800**
9.0	10	290	230	180	436.88	**09000**

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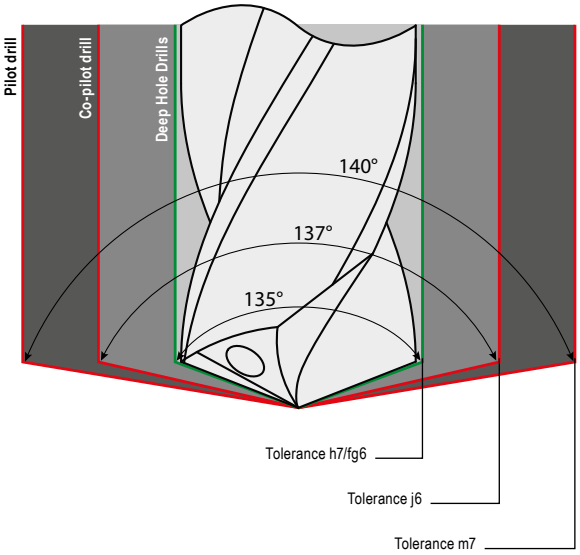
→ v_c Page 142

Tolerances and angles



Tolerance table

ISO tolerances for shafts and holes

Tolerance designation	of Ø	3	6	10	18	
	up to and including	6	10	18	30	
p6		20	24	29	35	
		12	15	18	22	
h7		0	0	0	0	Deep hole twist drill 16xD to 30xD
		-12	-15	-18	-21	
j6		6	7	8	9	Co-pilot drill
		-2	-2	-3	-4	
fg6		-6	-8			Deep hole twist drill > 30xD
		-14	-17			
m6		12	15	18	21	
		4	6	7	8	
m7		16	21	25	29	WTX UNI / WTX VA
		4	6	7	8	

Pilot drill for WTX deep hole twist drill:

- ▲ WTX-TB UNI: WTX-UNI 3xD / 5xD
- ▲ WTX-TB ALU: WTX-VA 3xD / 5xD

WTX – High performance deep hole drills

- ▲ up to 16xD without peck drilling
- ▲ pilot hole necessary
- ▲ excellent alignment precision
- ▲ secure chip evacuation

≤ 16xD

NOF = 2

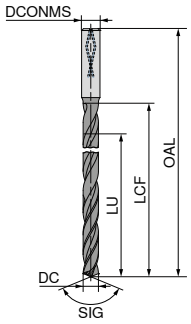
TB 16 UNI

TiAlN

TB 16 ALU

DLC

DRAGONSKIN







SIG 135°

Solid carbide

11 016 ...

SIG 135°

Solid carbide

11 017 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T7/9G		£ T7/9G	
2.0	4	84	42	39	133.60	020	133.60	020
2.2	4	84	42	39	133.60	022	133.60	022
2.3	4	84	42	39	133.60	023	133.60	023
2.4	4	96	54	50	149.14	024	149.14	024
2.5	4	96	54	50	149.14	025	149.14	025
2.7	4	96	54	50	149.14	027	149.14	027
2.8	4	96	54	50	149.14	028	149.14	028
3.0	6	100	60	55	189.51	030	189.51	030
3.2	6	100	60	55	189.51	032	189.51	032
3.3	6	100	60	55	189.51	033	189.51	033
3.5	6	100	60	55	189.51	035	189.51	035
3.8	6	115	75	69	197.30	038	197.30	038
4.0	6	115	75	69	197.30	040	197.30	040
4.2	6	115	75	69	212.82	042	212.82	042
4.5	6	130	90	83	212.82	045	212.82	045
4.8	6	130	90	83	225.23	048	225.23	048
5.0	6	130	90	83	225.23	050	225.23	050
5.5	6	150	108	99	234.56	055	234.56	055
5.8	6	150	108	99	234.56	058	234.56	058
6.0	6	150	108	99	234.56	060	234.56	060
6.5	8	165	125	115	250.10	065	250.10	065
6.8	8	165	125	115	268.75	068	268.75	068
7.0	8	165	125	115	268.75	070	268.75	070
7.5	8	180	140	128	301.37	075	301.37	075
7.8	8	180	140	128	301.37	078	301.37	078
8.0	8	180	140	128	301.37	080	301.37	080
8.5	10	205	160	147	332.42	085	332.42	085
8.8	10	205	160	147	369.72	088	369.72	088
9.0	10	205	160	147	369.72	090	369.72	090
9.8	10	225	180	165	369.72	098	369.72	098
10.0	10	225	180	165	369.72	100	369.72	100
10.2	12	240	190	174	413.21	102	413.21	102
10.8	12	240	190	174	413.21	108	399.25	108
11.8	12	265	215	197	413.21	118	413.21	118
12.0	12	265	215	197	413.21	120	399.25	120

P	●	
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→ v_c Page 143+146
→ Machining information: Page 160

WTX – High performance deep hole drills

- ▲ up to 20xD without peck drilling
- ▲ pilot hole necessary
- ▲ excellent alignment precision
- ▲ secure chip evacuation

2

≤ 20xD

NOF = 2

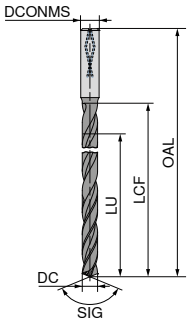
TB 20 UNI

TiAlN

TB 20 ALU

DLC

DRAGONSKIN







SIG 135°

Solid carbide

11 020 ...

SIG 135°

Solid carbide

11 021 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T7/9G		£ T7/9G	
2.0	4	92	50	47	141.35	020	141.35	020
2.2	4	92	50	47	136.57	022	141.35	022
2.3	4	92	50	47	141.35	023	141.35	023
2.4	4	112	70	66	153.09	024	158.44	024
2.5	4	112	70	66	158.44	025	158.44	025
2.7	4	112	70	66	153.09	027	158.44	027
2.8	4	112	70	66	158.44	028	158.44	028
3.0	6	120	80	75	204.11	030	211.27	030
3.2	6	120	80	75	211.27	032	211.27	032
3.3	6	120	80	75	204.11	033	211.27	033
3.5	6	120	80	75	211.27	035	211.27	035
3.8	6	130	90	84	213.11	038	220.56	038
4.0	6	130	90	84	220.56	040	220.56	040
4.2	6	160	110	103	228.12	042	236.12	042
4.5	6	160	110	103	236.12	045	236.12	045
4.8	6	160	120	113	241.63	048	250.10	048
5.0	6	160	120	113	250.10	050	250.10	050
5.5	6	185	140	131	252.15	055	260.99	055
5.8	6	185	140	131	260.99	058	260.99	058
6.0	6	185	140	131	260.99	060	260.99	060
6.5	8	210	160	150	278.07	065	278.07	065
6.8	8	210	160	150	299.81	068	299.81	068
7.0	8	210	160	150	299.81	070	299.81	070
7.5	8	230	180	168	333.98	075	333.98	075
7.8	8	230	180	168	333.98	078	333.98	078
8.0	8	230	180	168	333.98	080	333.98	080
8.5	10	260	195	182	368.15	085	368.15	085
8.8	10	290	230	216	413.21	088	413.21	088
9.0	10	290	230	216	413.21	090	413.21	090
9.8	10	290	230	216	413.21	098	413.21	098
10.0	10	290	230	216	413.21	100	413.21	100
10.2	12	315	268	251	453.60	102	453.60	102
10.8	12	315	268	251	453.60	108	453.60	108
11.8	12	315	268	251	453.60	118	453.60	118
12.0	12	315	268	251	453.60	120	453.60	120

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→ v_c Page 143+146
→ Machining information: Page 160

WTX – High performance deep hole drills

- ▲ up to 25xD without peck drilling
- ▲ pilot hole necessary
- ▲ excellent alignment precision
- ▲ secure chip evacuation

≤ 25xD

NOF = 2

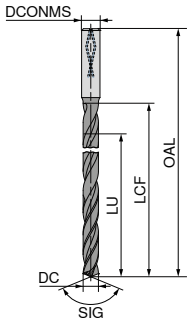
TB 25 UNI

TiAlN

TB 25 ALU

DLC

DRAGONSKIN





SIG 135°

Solid carbide

11 025 ...



SIG 135°

Solid carbide

11 026 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T7/9G		£ T7/9G	
2.0	4	104	60	57	150.69	020	150.69	020
2.2	4	104	60	57	150.69	022	150.69	022
2.3	4	104	60	57	150.69	023	150.69	023
2.4	4	125	80	76	170.87	024	170.87	024
2.5	4	125	80	76	170.87	025	170.87	025
2.7	4	125	80	76	170.87	027	170.87	027
2.8	4	125	80	76	170.87	028	170.87	028
3.0	6	135	98	93	245.42	030	245.42	030
3.2	6	135	98	93	245.42	032	245.42	032
3.3	6	150	110	105	271.83	033	270.31	033
3.5	6	150	110	105	271.83	035	270.31	035
3.8	6	160	120	114	279.61	038	279.61	038
4.0	6	160	120	114	279.61	040	279.61	040
4.2	6	160	120	114	279.61	042	279.61	042
4.5	6	180	135	128	292.04	045	292.04	045
4.8	6	180	135	128	292.04	048	292.04	048
5.0	6	180	135	128	292.04	050	292.04	050
5.5	6	205	168	159	313.80	055	313.80	055
5.8	6	205	168	159	313.80	058	313.80	058
6.0	6	205	168	159	313.80	060	313.80	060
6.5	8	240	200	190	349.54	065	349.54	065
6.8	8	240	200	190	349.54	068	349.54	068
7.0	8	240	200	190	349.54	070	349.54	070
7.5	8	260	220	208	388.36	075	388.36	075
7.8	8	260	220	208	388.36	078	388.36	078
8.0	8	260	220	208	388.36	080	388.36	080
8.5	10	285	240	227	438.03	085	438.03	085
8.8	10	310	268	254	475.33	088	475.33	088
9.0	10	310	268	254	475.33	090	475.33	090
9.8	10	310	268	254	475.33	098	475.33	098
10.0	10	310	268	254	475.33	100	475.33	100
10.2	12	375	325	308	571.66	102	571.66	102
10.8	12	375	325	308	571.66	108	571.66	108
11.8	12	375	325	308	571.66	118	571.66	118
12.0	12	375	325	308	571.66	120	571.66	120

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→ v_c Page 144+147
→ Machining information: Page 160

WTX – High performance deep hole drills

- ▲ up to 30xD without peck drilling
- ▲ pilot hole necessary
- ▲ excellent alignment precision
- ▲ secure chip evacuation

≤ 30xD

NOF = 2

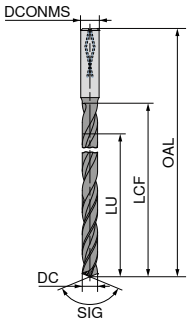
TB 30 UNI

TiAlN

TB 30 ALU

DLC

DRAGONSKIN





SIG 135°

Solid carbide

11 030 ...



SIG 135°

Solid carbide

11 031 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T7/9G		£ T7/9G	
2.0	4	115	70	67	160.02	020	160.02	020
2.2	4	115	70	67	160.02	022	160.02	022
2.3	4	115	70	67	160.02	023	160.02	023
2.4	4	138	90	86	186.42	024	186.42	024
2.5	4	138	90	86	186.42	025	186.42	025
2.7	4	138	90	86	186.42	027	186.42	027
2.8	4	138	90	86	186.42	028	186.42	028
3.0	6	150	105	100	313.80	030	313.80	030
3.2	6	150	105	100	313.80	032	313.80	032
3.3	6	185	135	130	323.12	033	323.12	033
3.5	6	185	135	130	323.12	035	323.12	035
3.8	6	185	135	130	323.12	038	323.12	038
4.0	6	185	135	130	323.12	040	323.12	040
4.2	6	185	135	130	323.12	042	323.12	042
4.5	6	215	165	158	332.42	045	332.42	045
4.8	6	215	165	158	332.42	048	332.42	048
5.0	6	215	165	158	332.42	050	332.42	050
5.5	6	230	180	171	347.96	055	347.96	055
5.8	6	230	180	171	347.96	058	347.96	058
6.0	6	230	180	171	347.96	060	347.96	060
6.5	8	280	215	205	382.13	065	382.13	065
6.8	8	280	230	220	399.21	068	399.21	068
7.0	8	280	230	220	399.21	070	399.21	070
7.5	8	280	230	220	399.21	075	399.21	075
7.8	8	315	265	253	444.27	078	444.27	078
8.0	8	315	265	253	444.27	080	444.27	080
8.5	10	350	295	282	512.64	085	512.64	085
8.8	10	380	330	316	539.02	088	539.02	088
9.0	10	380	330	316	539.02	090	539.02	090
9.8	10	380	330	316	539.02	098	539.02	098
10.0	10	380	330	316	539.02	100	539.02	100
10.2	12	430	380	365	688.16	102	688.16	102
10.8	12	430	380	365	688.16	108	688.16	108
11.8	12	430	380	365	688.16	118	688.16	118
12.0	12	430	380	365	688.16	120	688.16	120

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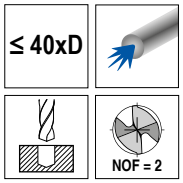
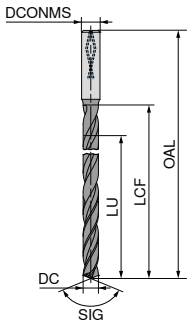
→ v_c Page 144+147
→ Machining information: Page 160

WTX – High performance deep hole drills

- ▲ up to 40xD without peck drilling
- ▲ pilot hole necessary
- ▲ excellent alignment precision
- ▲ secure chip evacuation









SIG 135°

Solid carbide

11 040 ...

DC fg6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T7/9G	
3.0	6	195	150	146	399.21	030
4.0	6	220	175	169	399.21	040
4.2	6	245	200	194	441.18	042
4.5	6	245	200	194	441.18	045
4.8	6	275	230	223	470.69	048
5.0	6	275	230	223	470.69	050
5.5	6	305	260	251	506.42	055
5.8	6	305	260	251	506.42	058
6.0	6	305	260	251	506.42	060
6.5	8	345	300	290	545.25	065
6.8	8	345	300	290	545.25	068
7.0	8	345	300	290	545.25	070
7.5	8	385	340	328	605.83	075
7.8	8	385	340	328	605.83	078
8.0	8	385	340	328	605.83	080
8.5	10	430	380	367	667.96	085
8.8	10	430	380	367	667.96	088
9.0	10	430	380	367	667.96	090

P	●
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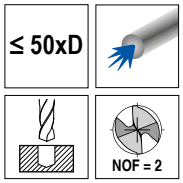
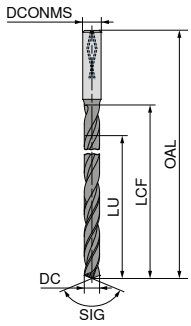
→ v_c Page 145
→ Machining information: Page 160

WTX – High performance deep hole drills

- ▲ up to 50xD without peck drilling
- ▲ pilot hole necessary
- ▲ excellent alignment precision
- ▲ secure chip evacuation









SIG 135°

Solid carbide

11 050 ...

DC fg6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T7/9G	
3.0	6	220	175	170	542.15	030
4.0	6	265	220	214	542.15	040
4.2	6	290	245	238	602.70	042
4.5	6	290	245	238	602.70	045
4.8	6	320	275	268	680.39	048
5.0	6	320	275	268	680.39	050
5.5	6	355	310	302	765.83	055
5.8	6	355	315	306	776.71	058
6.0	6	355	315	306	776.71	060
6.5	8	395	350	340	863.70	065
6.8	8	425	380	370	936.72	068

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→ v_c Page 145
→ Machining information: Page 160

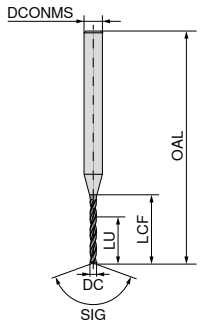
The deep hole twist drills are also available in other dimensions on request.

WTX – High Performance Drills

▲ standard shank Ø 3 mm h6 for use in heat shrink adapters

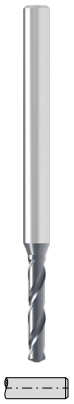
≤ 5xD

NOF = 2



MINI

TiAlN



SIG 140°

Solid carbide

DC +0,004 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	11 770 ... £ T7/9G	
0.10	3	38	1.2	1.0	50.56	00100
0.15	3	38	2.0	1.7	44.66	00150
0.20	3	38	3.5	3.0	39.04	00200
0.25	3	38	3.5	3.0	33.26	00250
0.30	3	38	5.5	5.0	27.36	00300
0.35	3	38	5.5	5.0	27.36	00350
0.40	3	38	7.0	6.0	27.36	00400
0.45	3	38	7.0	6.0	27.36	00450
0.50	3	38	7.0	6.0	27.36	00500
0.55	3	38	7.0	6.0	27.36	00550
0.60	3	38	7.0	6.0	27.36	00600
0.65	3	38	7.0	6.0	27.36	00650
0.70	3	38	10.5	8.0	27.36	00700
0.75	3	38	10.5	8.0	27.36	00750
0.80	3	38	10.5	8.0	27.36	00800
0.85	3	38	10.5	8.0	27.36	00850
0.90	3	38	10.5	8.0	27.36	00900
0.95	3	38	10.5	8.0	27.36	00950
0.97	3	38	10.5	8.0	27.36	00970
0.98	3	38	10.5	8.0	27.36	00980
0.99	3	38	10.5	8.0	27.36	00990
1.00	3	38	10.5	8.0	27.36	01000
1.01	3	38	10.5	8.0	27.36	01010
1.02	3	38	10.5	8.0	27.36	01020
1.03	3	38	10.5	8.0	27.36	01030
1.05	3	38	10.5	8.0	27.36	01050
1.10	3	38	10.5	8.0	27.36	01100
1.15	3	38	10.5	8.0	27.36	01150
1.20	3	38	10.5	8.0	27.36	01200
1.25	3	38	10.5	8.0	27.36	01250
1.30	3	38	10.5	8.0	27.36	01300
1.35	3	38	10.5	8.0	27.36	01350
1.40	3	38	10.5	8.0	27.36	01400
1.45	3	38	10.5	8.0	27.36	01450
1.47	3	38	10.5	8.0	27.36	01470
1.48	3	38	10.5	8.0	27.36	01480
1.49	3	38	10.5	8.0	27.36	01490
1.50	3	38	10.5	8.0	27.36	01500
1.51	3	38	10.5	8.0	27.36	01510
1.52	3	38	10.5	8.0	27.36	01520
1.53	3	38	10.5	8.0	27.36	01530
1.55	3	38	10.5	8.0	27.36	01550
1.60	3	38	10.5	8.0	27.36	01600
1.65	3	38	10.5	8.0	27.36	01650
1.70	3	38	10.5	8.0	27.36	01700
1.75	3	38	10.5	8.0	27.36	01750
1.80	3	38	10.5	8.0	27.36	01800
1.85	3	38	12.0	8.0	27.36	01850
1.90	3	38	12.0	8.0	27.36	01900
1.95	3	38	12.0	8.0	27.36	01950
1.97	3	38	12.0	8.0	27.36	01970
1.98	3	38	12.0	8.0	27.36	01980
1.99	3	38	12.0	8.0	27.36	01990
2.00	3	42	13.0	9.0	39.22	02000
2.01	3	42	13.0	9.0	39.22	02010
2.02	3	42	13.0	9.0	39.22	02020
2.03	3	42	13.0	9.0	39.22	02030
2.05	3	42	13.0	9.0	39.22	02050
2.10	3	42	13.0	9.0	39.22	02100
2.15	3	42	13.0	9.0	39.22	02150
2.20	3	46	15.0	10.0	44.16	02200
2.25	3	46	15.0	10.0	44.16	02250
2.30	3	46	15.0	10.0	44.16	02300
2.35	3	46	15.0	10.0	44.16	02350
2.40	3	46	15.0	10.0	44.16	02400
2.45	3	46	15.0	10.0	44.16	02450
2.47	3	46	15.0	10.0	44.16	02470
2.48	3	46	15.0	10.0	44.16	02480
2.49	3	46	15.0	10.0	44.16	02490
2.50	3	46	15.0	10.0	44.16	02500
2.51	3	46	15.0	10.0	44.16	02510
2.52	3	46	15.0	10.0	44.16	02520
2.53	3	46	15.0	10.0	44.16	02530
2.60	3	46	15.0	10.0	44.16	02600
2.70	3	46	15.0	10.0	44.16	02700
2.80	3	46	15.0	10.0	44.16	02800
2.90	3	46	15.0	10.0	44.16	02900

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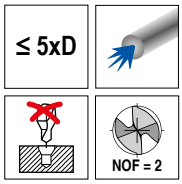
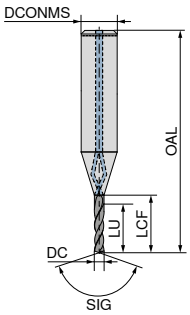
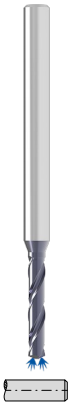
WTX – High Performance Drills

▲ Specialised micro drill
▲ Universal application
▲ Extremely high process security
▲ Pilot drill for WTX Micro – high-performance deep hole drill



MICRO
DPX74M
DRAGONSKIN





SIG 135°
Solid carbide

10 693 ...

DC $_{m6}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	£ T4/9F	
0.8	3	39	5.6	4.0	121.81	00800
0.9	3	39	6.3	4.5	121.81	00900
1.0	3	40	7.0	5.0	108.13	01000
1.1	3	41	7.7	5.5	108.13	01100
1.2	3	41	8.4	6.0	108.13	01200
1.3	3	42	9.1	6.5	108.13	01300
1.4	3	42	9.8	7.0	108.13	01400
1.5	3	43	10.5	7.5	108.13	01500
1.6	3	44	11.2	8.0	113.84	01600
1.7	3	44	11.9	8.5	113.84	01700
1.8	3	45	12.6	9.0	113.84	01800
1.9	3	45	13.3	9.5	113.84	01900
2.0	3	46	14.0	10.0	113.84	02000
2.1	3	47	14.7	10.5	117.33	02100
2.2	3	47	15.4	11.0	117.33	02200
2.3	3	48	16.1	11.5	117.33	02300
2.4	3	48	16.8	12.0	117.33	02400
2.5	3	49	17.5	12.5	117.33	02500
2.6	3	50	18.2	13.0	123.53	02600
2.7	3	50	18.9	13.5	123.53	02700
2.8	3	51	19.6	14.0	123.53	02800
2.9	3	51	20.3	14.5	123.53	02900

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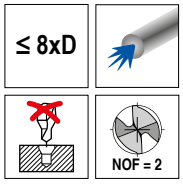
→ Machining information: Page 161

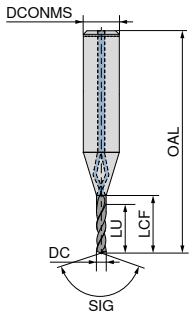
Minimum coolant pressure: 30 bar

WTX – High Performance Drills

▲ Specialised micro drill
▲ Universal application
▲ Extremely high process security



MICRO
DPX74M
DRAGONSKIN





SIG 128°
Solid carbide

10 694 ...

DC $_{h6}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	£ T4/9F	
0.8	3	41	8	6.4	127.77	00800
0.9	3	42	9	7.2	127.77	00900
1.0	3	43	10	8.0	114.03	01000
1.1	3	44	11	8.8	114.03	01100
1.2	3	45	12	9.6	114.03	01200
1.3	3	46	13	10.4	114.03	01300
1.4	3	47	14	11.2	114.03	01400
1.5	3	47	15	12.0	114.03	01500
1.6	3	48	16	12.8	122.66	01600
1.7	3	49	17	13.6	122.66	01700
1.8	3	50	18	14.4	122.66	01800
1.9	3	51	19	15.2	122.66	01900
2.0	3	52	20	16.0	122.66	02000
2.1	3	53	21	16.8	124.61	02100
2.2	3	54	22	17.6	124.61	02200
2.3	3	55	23	18.4	124.61	02300
2.4	3	56	24	19.2	124.61	02400
2.5	3	56	25	20.0	124.61	02500
2.6	3	57	26	20.8	128.62	02600
2.7	3	58	27	21.6	128.62	02700
2.8	3	59	28	22.4	128.62	02800
2.9	3	60	29	23.2	128.62	02900

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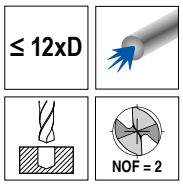
→ v_c Page 138
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High Performance Drills

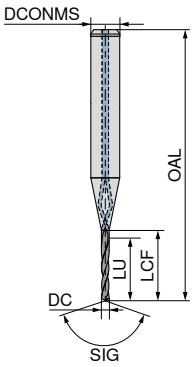
- ▲ Specialised micro drill
- ▲ Universal application
- ▲ Extremely high process security
- ▲ Pilot drill: 5xD WTX Micro – high-performance drill



MICRO

DPX74M

DRAGONSKIN





SIG 128°

Solid carbide

10 695 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T4/9F	
0.8	3	44	11.2	9.6	142.30	00800
0.9	3	46	12.6	10.8	142.30	00900
1.0	3	47	14.0	12.0	128.62	01000
1.1	3	48	15.4	13.2	128.62	01100
1.2	3	50	16.8	14.4	128.62	01200
1.3	3	51	18.2	15.6	128.62	01300
1.4	3	52	19.6	16.8	128.62	01400
1.5	3	53	21.0	18.0	128.62	01500
1.6	3	55	22.4	19.2	135.39	01600
1.7	3	56	23.8	20.4	135.39	01700
1.8	3	57	25.2	21.6	135.39	01800
1.9	3	59	26.6	22.8	135.39	01900
2.0	3	60	28.0	24.0	135.39	02000
2.1	3	61	29.4	25.2	138.43	02100
2.2	3	63	30.8	26.4	138.43	02200
2.3	3	64	32.2	27.6	138.43	02300
2.4	3	65	33.6	28.8	138.43	02400
2.5	3	67	35.0	30.0	138.43	02500
2.6	3	68	36.4	31.2	141.31	02600
2.7	3	69	37.8	32.4	141.31	02700
2.8	3	70	39.2	33.6	141.31	02800
2.9	3	72	40.6	34.8	141.31	02900

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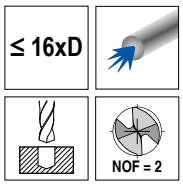
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

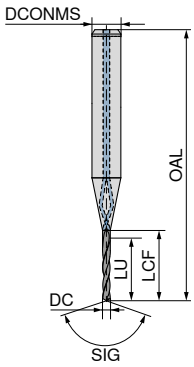
- ▲ Specialised micro deep hole drill
- ▲ Universal application
- ▲ Extremely high process security
- ▲ Pilot drill: 5xD WTX Micro – high-performance drill



MICRO

DPX74M

DRAGONSKIN





SIG 128°

Solid carbide

10 696 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T4/9F	
0.8	3	48	14.4	12.8	180.92	00800
0.9	3	49	16.2	14.4	180.92	00900
1.0	3	51	18.0	16.0	167.24	01000
1.1	3	53	19.8	17.6	167.24	01100
1.2	3	54	21.6	19.2	167.24	01200
1.3	3	56	23.4	20.8	167.24	01300
1.4	3	58	25.2	22.4	167.24	01400
1.5	3	60	27.0	24.0	167.24	01500
1.6	3	61	28.8	25.6	176.07	01600
1.7	3	63	30.6	27.2	176.07	01700
1.8	3	65	32.4	28.8	176.07	01800
1.9	3	66	34.2	30.4	176.07	01900
2.0	3	68	36.0	32.0	176.07	02000
2.1	3	70	37.8	33.6	179.83	02100
2.2	3	71	39.6	35.2	179.83	02200
2.3	3	73	41.4	36.8	179.83	02300
2.4	3	75	43.2	38.4	179.83	02400
2.5	3	77	45.0	40.0	179.83	02500
2.6	3	78	46.8	41.6	183.71	02600
2.7	3	80	48.6	43.2	183.71	02700
2.8	3	82	50.4	44.8	183.71	02800
2.9	3	83	52.2	46.4	183.71	02900

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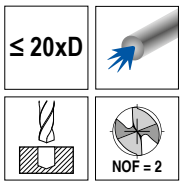
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

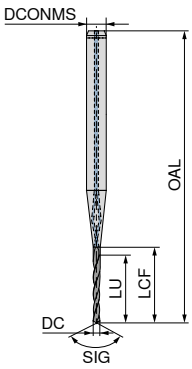
- ▲ Specialised micro deep hole drill
- ▲ Universal application
- ▲ Extremely high process security
- ▲ Pilot drill: 5xD WTX Micro – high-performance drill



MICRO

DPX74M

DRAGONSKIN





SIG 128°

Solid carbide

10 697 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T4/9F	
0.8	3	51	17.6	16	198.84	**00800**
0.9	3	53	19.8	18	198.84	**00900**
1.0	3	55	22.0	20	185.16	**01000**
1.1	3	57	24.2	22	185.16	**01100**
1.2	3	59	26.4	24	185.16	**01200**
1.3	3	61	28.6	26	185.16	**01300**
1.4	3	63	30.8	28	185.16	**01400**
1.5	3	66	33.0	30	185.16	**01500**
1.6	3	68	35.2	32	194.97	**01600**
1.7	3	70	37.4	34	194.97	**01700**
1.8	3	72	39.6	36	194.97	**01800**
1.9	3	74	41.8	38	194.97	**01900**
2.0	3	76	44.0	40	194.97	**02000**
2.1	3	78	46.2	42	199.08	**02100**
2.2	3	80	48.4	44	199.08	**02200**
2.3	3	82	50.6	46	199.08	**02300**
2.4	3	85	52.8	48	199.08	**02400**
2.5	3	87	55.0	50	199.08	**02500**
2.6	3	89	57.2	52	203.45	**02600**
2.7	3	91	59.4	54	203.45	**02700**
2.8	3	93	61.6	56	203.45	**02800**
2.9	3	95	63.8	58	203.45	**02900**

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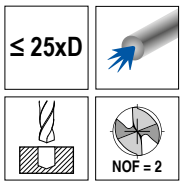
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

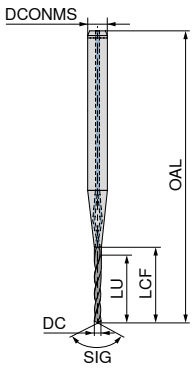
- ▲ Specialised micro deep hole drill
- ▲ Universal application
- ▲ Extremely high process security
- ▲ Pilot drill: 5xD WTX Micro – high-performance drill



MICRO

DPX74M

DRAGONSKIN





SIG 128°

Solid carbide

10 698 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T4/9F	
0.8	3	54	21.6	16.0	227.85	**00800**
0.9	3	57	24.3	20.5	227.85	**00900**
1.0	3	60	27.0	25.0	204.90	**01000**
1.1	3	63	29.7	27.5	204.90	**01100**
1.2	3	65	32.4	30.0	204.90	**01200**
1.3	3	68	35.1	32.5	204.90	**01300**
1.4	3	71	37.8	35.0	204.90	**01400**
1.5	3	73	40.5	37.5	204.90	**01500**
1.6	3	76	43.2	40.0	215.80	**01600**
1.7	3	78	45.9	42.5	215.80	**01700**
1.8	3	81	48.6	45.0	215.80	**01800**
1.9	3	84	51.3	47.5	215.80	**01900**
2.0	3	86	54.0	50.0	215.80	**02000**
2.1	3	89	56.7	52.5	220.39	**02100**
2.2	3	91	59.4	55.0	220.39	**02200**
2.3	3	94	62.1	57.5	220.39	**02300**
2.4	3	97	64.8	60.0	220.39	**02400**
2.5	3	99	67.5	62.5	220.39	**02500**
2.6	3	102	70.2	65.0	225.12	**02600**
2.7	3	104	72.9	67.5	225.12	**02700**
2.8	3	107	75.6	70.0	225.12	**02800**
2.9	3	110	78.3	72.5	225.12	**02900**

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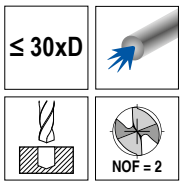
→ Machining information: Page 161

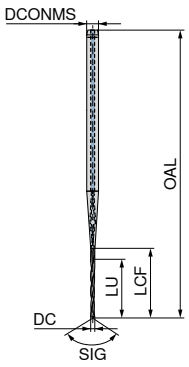
Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

- ▲ Specialised micro deep hole drill
- ▲ Universal application
- ▲ Extremely high process security
- ▲ Pilot drill: 5xD WTX Micro – high-performance drill

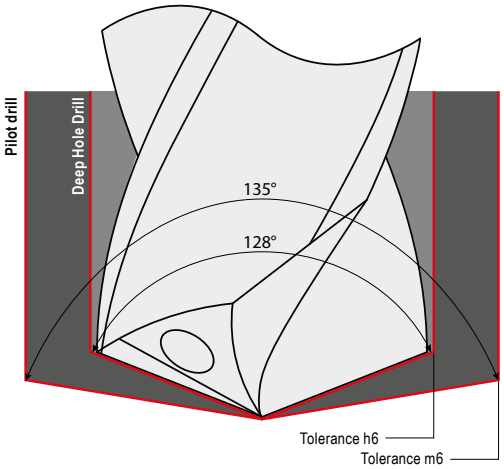






SIG 128°
Solid carbide

Tolerances and angles



10 699 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	£ T4/9F	
0.8	3	59	25.6	19.2	252.29	00800
0.9	3	62	28.8	24.5	252.29	00900
1.0	3	65	32.0	30.0	226.81	01000
1.1	3	68	35.2	33.0	226.81	01100
1.2	3	71	38.4	36.0	226.81	01200
1.3	3	74	41.6	39.0	226.81	01300
1.4	3	78	44.8	42.0	226.81	01400
1.5	3	81	48.0	45.0	226.81	01500
1.6	3	84	51.2	48.0	238.93	01600
1.7	3	87	54.4	51.0	238.93	01700
1.8	3	90	57.6	54.0	238.93	01800
1.9	3	93	60.8	57.0	238.93	01900
2.0	3	96	64.0	60.0	238.93	02000
2.1	3	99	67.2	63.0	244.02	02100
2.2	3	102	70.4	66.0	244.02	02200
2.3	3	106	73.6	69.0	244.02	02300
2.4	3	109	76.8	72.0	244.02	02400
2.5	3	112	80.0	75.0	244.02	02500
2.6	3	115	83.2	78.0	249.21	02600
2.7	3	118	86.4	81.0	249.21	02700
2.8	3	121	89.6	84.0	249.21	02800
2.9	3	124	92.8	87.0	249.21	02900

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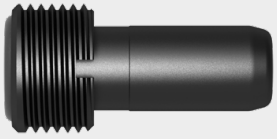
Minimum coolant pressure: 30 bar

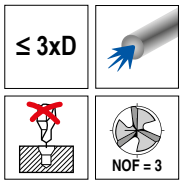
Coolant transfer pipe with strainer
HSK-A 63 / HSK-A 100

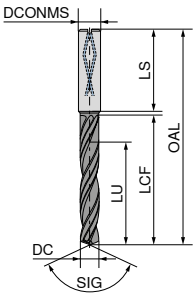


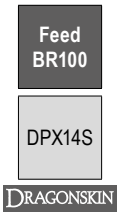
With the help of the new coolant transfer pipe, it is possible to filter very small chips and impurities out of the coolant.
More information on this can be found in the
→ **Catalogue Clamping Technology, chapter 16, page 156**.

WTX – Drill-Reamer 1/100

- ▲ Solid carbide high-performance drill-reaming tool
- ▲ Drilling and reaming in one operation
- ▲ 3 drilling edges
- ▲ 6 reaming edges
- ▲ High feeds
- ▲ Good surface quality
- ▲ For blind holes and through holes











SIG 140°

Solid carbide

10 707 ...

DC ±0,003 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4	
3.97	6	66	24	17	36	174.13	**03970**
3.98	6	66	24	17	36	174.13	**03980**
3.99	6	66	24	17	36	174.13	**03990**
4.00	6	66	24	17	36	174.13	**04000**
4.01	6	66	24	17	36	174.13	**04010**
4.02	6	66	24	17	36	174.13	**04020**
4.97	6	66	28	20	36	174.13	**04970**
4.98	6	66	28	20	36	174.13	**04980**
4.99	6	66	28	20	36	174.13	**04990**
5.00	6	66	28	20	36	174.13	**05000**
5.01	6	66	28	20	36	174.13	**05010**
5.02	6	66	28	20	36	174.13	**05020**
5.97	6	66	28	20	36	174.13	**05970**
5.98	6	66	28	20	36	174.13	**05980**
5.99	6	66	28	20	36	174.13	**05990**
6.00	6	66	28	20	36	174.13	**06000**
6.01	6	66	28	20	36	174.13	**06010**
6.02	6	66	28	20	36	174.13	**06020**
7.97	8	79	41	29	36	174.13	**07970**
7.98	8	79	41	29	36	174.13	**07980**
7.99	8	79	41	29	36	174.13	**07990**
8.00	8	79	41	29	36	174.13	**08000**
8.01	8	79	41	29	36	174.13	**08010**
8.02	8	79	41	29	36	174.13	**08020**
9.97	10	89	47	35	40	198.18	**09970**
9.98	10	89	47	35	40	198.18	**09980**
9.99	10	89	47	35	40	198.18	**09990**
10.00	10	89	47	35	40	198.18	**10000**
10.01	10	89	47	35	40	198.18	**10010**
10.02	10	89	47	35	40	198.18	**10020**
11.97	12	102	55	40	45	271.57	**11970**
11.98	12	102	55	40	45	271.57	**11980**
11.99	12	102	55	40	45	271.57	**11990**
12.00	12	102	55	40	45	271.57	**12000**
12.01	12	102	55	40	45	271.57	**12010**
12.02	12	102	55	40	45	271.57	**12020**

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Tolerances

e.g. Ø 8 F7 = 8.02 mm

Ø 4	3,97	U 7	**X 7**			
	3,98	**N 10**	**N 11**	R 7		
	3,99	M 8	**N 7**	**N 8**	**N 9**	
	4,00	**J 7**	**J 8**	JS 7	JS 8	JS 9
	4,01	**G 7**	**H 8**			
	4,02	**F 8**	**H 9**			
Ø 5	4,97	U 7	**X 7**			
	4,98	**N 10**	**N 11**	R 7		
	4,99	M 8	**N 7**	**N 8**	**N 9**	
	5,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	5,01	**G 7**	**H 8**			
	5,02	**F 8**	**H 9**			
Ø 6	5,97	U 7	**X 7**			
	5,98	**N 10**	**N 11**	R 7		
	5,99	M 8	**N 7**	**N 8**	**N 9**	
	6,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	6,01	**G 7**	**H 8**			
	6,02	**F 8**	**H 9**			
Ø 8	7,97	S 7	**U 7**			
	7,98	N 8	**N 10**	**N 11**	P 7	R 7
	7,99	K 8	M 6	M 7	**M 8**	N 9
	8,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	8,01	G 7	**H 8**			
	8,02	**F 7**	F 8	**H 9**		
Ø 10	9,97	S 7	**U 7**			
	9,98	N 8	**N 10**	**N 11**	P 7	R 7
	9,99	K 8	M 6	M 7	**M 8**	N 9
	10,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	10,01	G 7	**H 8**			
	10,02	**F 7**	F 8	H 9		
Ø 12	11,97	N 11	R 7	**S 7**		
	11,98	N 8	**N 9**	**N 10**	**P 7**	
	11,99	K 8	**M 6**	**M 7**	**M 8**	N 7
	12,00	**J 7**	**J 8**	**JS 7**	**JS 8**	
	12,01	G 6	**H 7**	H 8	**JS 9**	
	12,02	F 7				

Tolerance classes written in standard print are not optimally positioned in the tolerance field.

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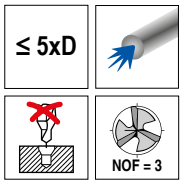
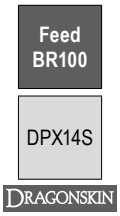
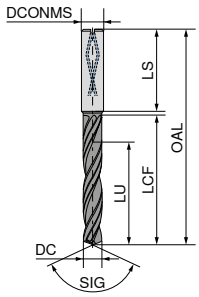
WTX – Drill-Reamer 1/100

- ▲ Solid carbide high-performance drill-reaming tool
- ▲ Drilling and reaming in one operation
- ▲ 3 drilling edges
- ▲ 6 reaming edges
- ▲ High feeds
- ▲ Good surface quality
- ▲ For blind holes and through holes











SIG 140°

Solid carbide

10 713 ...

DC ±0,003 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4	
3.97	6	74	36	29	36	217.16	**03970**
3.98	6	74	36	29	36	217.16	**03980**
3.99	6	74	36	29	36	217.16	**03990**
4.00	6	74	36	29	36	217.16	**04000**
4.01	6	74	36	29	36	217.16	**04010**
4.02	6	74	36	29	36	217.16	**04020**
4.97	6	82	44	35	36	217.16	**04970**
4.98	6	82	44	35	36	217.16	**04980**
4.99	6	82	44	35	36	217.16	**04990**
5.00	6	82	44	35	36	217.16	**05000**
5.01	6	82	44	35	36	217.16	**05010**
5.02	6	82	44	35	36	217.16	**05020**
5.97	6	82	44	35	36	217.16	**05970**
5.98	6	82	44	35	36	217.16	**05980**
5.99	6	82	44	35	36	217.16	**05990**
6.00	6	82	44	35	36	217.16	**06000**
6.01	6	82	44	35	36	217.16	**06010**
6.02	6	82	44	35	36	217.16	**06020**
7.97	8	91	53	43	36	217.16	**07970**
7.98	8	91	53	43	36	217.16	**07980**
7.99	8	91	53	43	36	217.16	**07990**
8.00	8	91	53	43	36	217.16	**08000**
8.01	8	91	53	43	36	217.16	**08010**
8.02	8	91	53	43	36	217.16	**08020**
9.97	10	103	61	49	40	297.63	**09970**
9.98	10	103	61	49	40	297.63	**09980**
9.99	10	103	61	49	40	297.63	**09990**
10.00	10	103	61	49	40	297.63	**10000**
10.01	10	103	61	49	40	297.63	**10010**
10.02	10	103	61	49	40	297.63	**10020**
11.97	12	118	71	56	45	418.37	**11970**
11.98	12	118	71	56	45	418.37	**11980**
11.99	12	118	71	56	45	418.37	**11990**
12.00	12	118	71	56	45	418.37	**12000**
12.01	12	118	71	56	45	418.37	**12010**
12.02	12	118	71	56	45	418.37	**12020**

P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 141

Tolerances

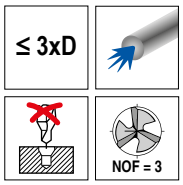
e.g. Ø 8 F7 = 8.02 mm

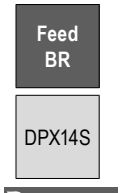
Ø 4	3,97	U 7	**X 7**			
	3,98	**N 10**	**N 11**	R 7		
	3,99	M 8	**N 7**	**N 8**	**N 9**	
	4,00	**J 7**	**J 8**	JS 7	JS 8	JS 9
	4,01	**G 7**	**H 8**			
	4,02	**F 8**	**H 9**			
Ø 5	4,97	U 7	**X 7**			
	4,98	**N 10**	**N 11**	R 7		
	4,99	M 8	**N 7**	**N 8**	**N 9**	
	5,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	5,01	**G 7**	**H 8**			
	5,02	**F 8**	**H 9**			
Ø 6	5,97	U 7	**X 7**			
	5,98	**N 10**	**N 11**	R 7		
	5,99	M 8	**N 7**	**N 8**	**N 9**	
	6,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	6,01	**G 7**	**H 8**			
	6,02	**F 8**	**H 9**			
Ø 8	7,97	S 7	**U 7**			
	7,98	N 8	**N 10**	**N 11**	P 7	R 7
	7,99	K 8	M 6	M 7	**M 8**	N 9
	8,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	8,01	G 7	**H 8**			
	8,02	**F 7**	F 8	**H 9**		
Ø 10	9,97	S 7	**U 7**			
	9,98	N 8	**N 10**	**N 11**	P 7	R 7
	9,99	K 8	M 6	M 7	**M 8**	N 9
	10,00	**J 7**	**J 8**	**JS 7**	**JS 8**	**JS 9**
	10,01	G 7	**H 8**			
	10,02	**F 7**	F 8	H 9		
Ø 12	11,97	N 11	R 7	**S 7**		
	11,98	N 8	**N 9**	**N 10**	**P 7**	
	11,99	K 8	**M 6**	**M 7**	**M 8**	N 7
	12,00	**J 7**	**J 8**	**JS 7**	**JS 8**	
	12,01	G 6	**H 7**	H 8	**JS 9**	
	12,02	F 7				

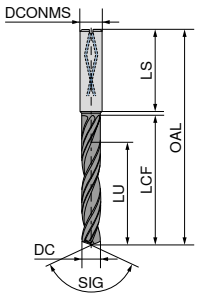
Tolerance classes written in standard print are not optimally positioned in the tolerance field.

WTX – Drill-Reamer H7

- ▲ Solid carbide high-performance drill-reaming tool
- ▲ Drilling and reaming to tolerance H7 in one operation
- ▲ 3 drilling edges
- ▲ 6 reaming edges
- ▲ High feeds
- ▲ Good surface quality
- ▲ For blind holes and through holes
- ▲ Optimum roundness – tolerance H7









SIG 140°

Solid carbide

10 711 ...

DC H7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4	
4	6	66	24	17	36	174.13	**04000**
5	6	66	28	20	36	174.13	**05000**
6	6	66	28	20	36	174.13	**06000**
8	8	79	41	29	36	174.13	**08000**
10	10	89	47	35	40	198.18	**10000**
12	12	102	55	40	45	271.57	**12000**
14	14	107	60	43	45	363.18	**14000**
16	16	115	65	45	48	504.93	**16000**

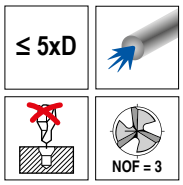
P	●
M	●
K	●
N	
S	
H	
O	

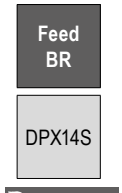
→ v_c Page 140

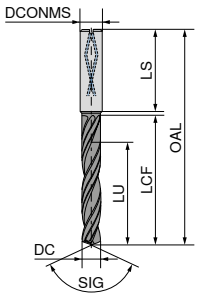
Special dimensions available upon request

WTX – Drill-Reamer H7

- ▲ Solid carbide high-performance drill-reaming tool
- ▲ Drilling and reaming to tolerance H7 in one operation
- ▲ 3 drilling edges
- ▲ 6 reaming edges
- ▲ High feeds
- ▲ Good surface quality
- ▲ For blind holes and through holes
- ▲ Optimum roundness – tolerance H7









SIG 140°

Solid carbide

10 719 ...

DC H7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	£ T4	
4	6	74	36	29	36	217.16	**04000**
5	6	82	44	35	36	217.16	**05000**
6	6	82	44	35	36	217.16	**06000**
8	8	91	53	43	36	217.16	**08000**
10	10	103	61	49	40	297.63	**10000**
12	12	118	71	56	45	418.37	**12000**
14	14	124	77	60	45	567.57	**14000**
16	16	133	83	63	48	682.85	**16000**
18	18	143	93	71	48	819.91	**18000**
20	20	153	101	77	50	985.94	**20000**

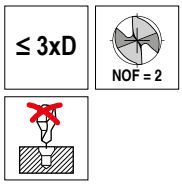
P	●
M	●
K	●
N	
S	
H	
O	

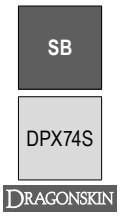
→ v_c Page 141

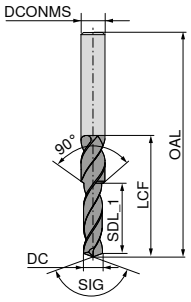
Special dimensions available upon request

WTX – Short 90° step drill

▲ for core hole plus countersink for thread cutting











SIG 140°

Solid carbide

10 767 ...

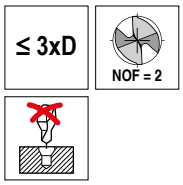
For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T4	
M3	2.5	6	62	8.8	20	68.55	**02500**
M4	3.3	6	62	11.4	24	84.00	**03300**
M5	4.2	6	66	13.6	28	86.52	**04200**
M6	5.0	8	79	16.5	34	122.46	**05000**
M8	6.8	10	89	21.0	47	177.47	**06800**
M10	8.5	12	102	25.5	55	234.90	**08500**
M12	10.2	14	107	30.0	60	302.27	**10200**
M14	12.0	16	115	34.5	65	345.20	**12000**
M16	14.0	18	123	38.5	73	388.39	**14000**

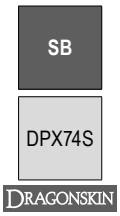
P	●
M	
K	●
N	
S	
H	○
O	

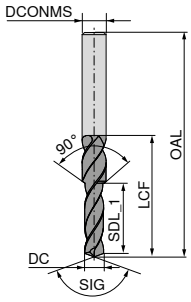
→ v_c Page 135

WTX – Short 90° step drill

▲ for core hole plus countersink for thread forming











SIG 140°

Solid carbide

10 772 ...

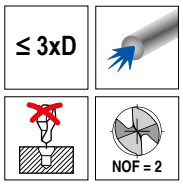
For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T4	
M3	2.80	6	62	8.8	20	68.55	**02800**
M4	3.70	6	62	11.4	24	84.00	**03700**
M5	4.65	6	66	13.6	28	86.52	**04650**
M6	5.55	8	79	16.5	34	122.46	**05550**
M8	7.45	10	89	21.0	47	177.47	**07450**
M10	9.30	12	102	25.5	55	234.90	**09300**
M12	11.20	14	107	30.0	60	302.27	**11200**
M14	13.00	16	115	34.5	65	345.20	**13000**
M16	15.00	18	123	38.5	73	388.39	**15000**

P	●
M	
K	●
N	
S	
H	○
O	

→ v_c Page 135

WTX – Short 90° step drill

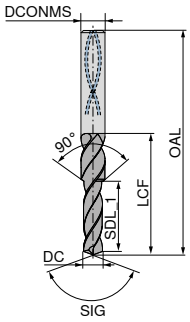
▲ for core hole plus countersink for thread cutting



SB

DPX74S

DRAGONSKIN







SIG 140°

Solid carbide

10 783 ...

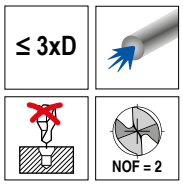
For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T4	
M4	3.3	6	62	11.4	24	88.35	**03300**
M5	4.2	6	66	13.6	28	92.87	**04200**
M6	5.0	8	79	16.5	34	117.80	**05000**
M8	6.8	10	89	21.0	47	191.19	**06800**
M10	8.5	12	102	25.5	55	235.92	**08500**
M12	10.2	14	107	30.0	60	330.89	**10200**
M14	12.0	16	115	34.5	65	401.83	**12000**
M16	14.0	18	123	38.5	73	415.45	**14000**

P	●
M	
K	●
N	
S	
H	○
O	

→ v_c Page 135

WTX – Short 90° step drill

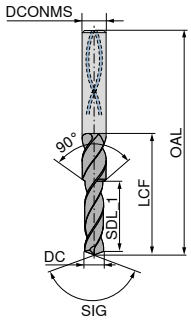
▲ for core hole plus countersink for thread forming



SB

DPX74S

DRAGONSKIN







SIG 140°

Solid carbide

10 788 ...

For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	£ T4	
M4	3.70	6	62	11.4	24	88.35	**03700**
M5	4.65	6	66	13.6	28	92.87	**04650**
M6	5.55	8	79	16.5	34	117.80	**05550**
M8	7.45	10	89	21.0	47	191.19	**07450**
M10	9.30	12	102	25.5	55	235.92	**09300**
M12	11.20	14	107	30.0	60	330.89	**11200**
M14	13.00	16	115	34.5	65	401.83	**13000**
M16	15.00	18	123	38.5	73	415.45	**15000**

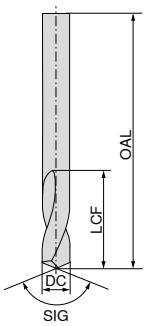
P	●
M	
K	●
N	
S	
H	○
O	

→ v_c Page 135

NC Spot Drill, factory standard

▲ spiral flute

NOF = 2



	NC-A	NC-A TiAlN	NC-A	NC-A TiAlN	NC-A	NC-A TiAlN
						
	SIG 90°	SIG 90°	SIG 120°	SIG 120°	SIG 142°	SIG 142°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 702 ...	**10 716 ...**	**10 703 ...**	**10 717 ...**	**10 704 ...**	**10 718 ...**

DC_{js8} mm	OAL mm	LCF mm	£ T3		£ T3		£ T3		£ T3		£ T3		£ T3	
2	32	6	29.31	**002**	28.82	**002** 1)	29.31	**002**	28.82	**002** 1)	29.31	**002**	28.82	**002** 1)
3	32	8	29.31	**003**	28.82	**003** 1)	29.31	**003**	28.82	**003** 1)	29.31	**003**	28.82	**003** 1)
4	40	10	22.98	**004**	30.39	**004** 1)	22.98	**004**	30.39	**004** 1)	22.98	**004**	30.39	**004** 1)
5	50	13	26.40	**005**	33.60	**005** 1)	26.40	**005**	33.60	**005** 1)	26.40	**005**	33.60	**005** 1)
6	50	13	29.46	**006**	36.79	**006**	29.46	**006**	36.79	**006**	29.46	**006**	36.79	**006**
8	60	23	45.26	**008**	51.20	**008**	45.26	**008**	51.20	**008**	45.26	**008**	51.20	**008**
10	70	24	63.47	**010**	67.21	**010**	63.47	**010**	67.21	**010**	63.47	**010**	67.21	**010**
12	70	24	91.56	**012**	88.00	**012**	91.56	**012**	88.00	**012**	91.56	**012**	88.00	**012**
14	75	26	105.28	**014**	129.59	**014**	105.28	**014**	129.59	**014**	105.28	**014**	129.59	**014**
16	75	29	153.66	**016**	150.42	**016**	153.66	**016**	150.42	**016**	153.66	**016**	150.42	**016**
18	100	35	298.03	**018**	270.41	**018**	298.03	**018**	270.41	**018**	298.03	**018**	270.41	**018**
20	100	35	250.20	**020**	284.79	**020**	250.20	**020**	284.79	**020**	250.20	**020**	284.79	**020**
P				●		●		●		●		●		●
M														
K				●		●		●		●		●		●
N				●		●		●		●		●		●
S														
H						○				○				○
O														

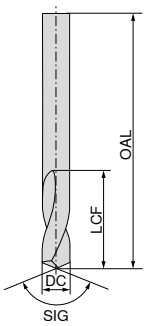
1) DIN 6535 HA Shank

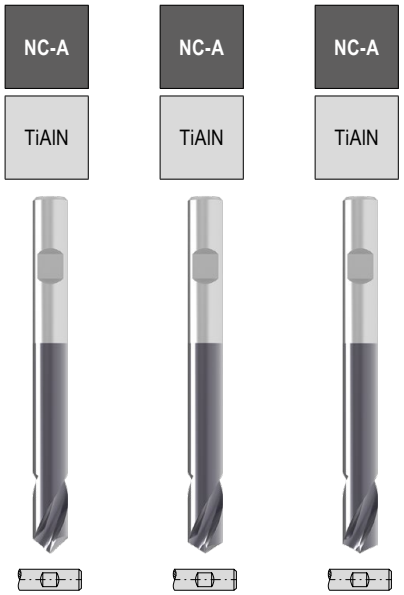
→ v_c Page 149+150

NC Spot Drill, factory standard, long

▲ spiral flutes







DC js8 mm	OAL mm	LCF mm	SIG 90° Solid carbide 10 724 ... £ T3		SIG 120° Solid carbide 10 726 ... £ T3		SIG 142° Solid carbide 10 727 ... £ T3	
3	66	8	30.39	**003** 1)	30.39	**003** 1)	30.39	**003** 1)
4	74	10	35.19	**004** 1)	35.19	**004** 1)	35.19	**004** 1)
6	82	13	44.80	**006**	44.80	**006**	44.80	**006**
8	91	23	65.60	**008**	65.60	**008**	65.60	**008**
10	103	24	91.20	**010**	91.20	**010**	91.20	**010**
12	118	24	137.61	**012**	137.61	**012**	137.61	**012**
16	133	29	257.60	**016**	257.60	**016**	257.60	**016**
P			●		●		●	
M								
K			●		●		●	
N			●		●		●	
S								
H			○		○		○	
O								

1) DIN 6535 HA Shank

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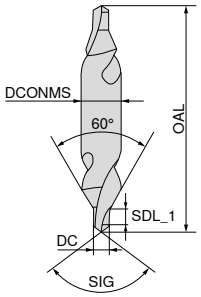
Centre drills, DIN 333, form A

▲ Spiral-fluted
▲ Up to and including diameter DC of 0.8 mm suitable for use on one side only



ZB





SIG 120°
Solid carbide

DC k13 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	£ T3	10 708 ...
0.50	3.15	20.0	0.76	49.65	**050** 1)
0.80	3.15	20.0	1.07	49.65	**080** 1)
1.00	3.15	31.5	1.31	48.40	**100**
1.25	3.15	31.5	1.54	48.40	**125**
1.60	4.00	35.5	1.94	51.29	**160**
2.00	5.00	40.0	2.32	54.15	**200**
2.50	6.30	45.0	2.88	61.02	**250**
3.15	8.00	50.0	3.49	71.23	**315**
4.00	10.00	56.0	4.45	85.76	**400**
5.00	12.50	63.0	5.46	127.54	**500**
6.30	16.00	71.0	6.78	193.91	**630**

P	●
M	
K	●
N	●
S	
H	
O	

1) Single ended

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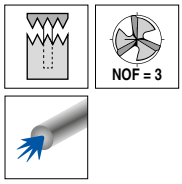
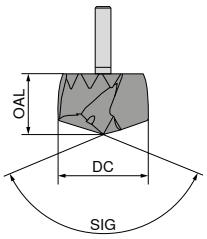
WTX – Drilling Head for Exchangeable drills

▲ extra long head type
▲ three-edged

Scope of supply:
Drill head incl. differential screw





Change Feed UNI
Ti750



SIG 140°
Solid carbide

DC m7 mm	OAL mm	10 925 ... £ W2	
14.0	13.5	136.17	140
14.1	13.5	136.17	141
14.2	13.5	136.17	142
14.3	13.5	136.17	143
14.4	13.5	136.17	144
14.5	14.0	136.17	145
14.6	14.0	136.17	146
14.7	14.0	136.17	147
14.8	14.0	136.17	148
14.9	14.0	136.17	149
15.0	14.4	136.17	150
15.1	14.4	136.17	151
15.2	14.4	136.17	152
15.3	14.4	136.17	153
15.4	14.4	136.17	154
15.5	15.4	152.50	155
15.6	15.4	152.50	156
15.7	15.4	152.50	157
15.8	15.4	152.50	158
15.9	15.4	152.50	159
16.0	15.4	152.50	160
16.1	15.4	152.50	161
16.2	15.4	152.50	162
16.3	15.4	152.50	163
16.4	15.4	152.50	164
16.5	16.3	152.50	165
16.6	16.3	152.50	166
16.7	16.3	152.50	167
16.8	16.3	152.50	168
16.9	16.3	152.50	169
17.0	16.3	152.50	170
17.1	16.3	152.50	171
17.2	16.3	152.50	172
17.3	16.3	152.50	173
17.4	16.3	152.50	174
17.5	17.2	173.11	175
17.6	17.2	173.11	176
17.7	17.2	173.11	177
17.8	17.2	173.11	178
17.9	17.2	173.11	179
18.0	17.2	173.11	180
18.1	17.2	173.11	181
18.2	17.2	173.11	182
18.3	17.2	173.11	183
18.4	17.2	173.11	184
18.5	18.2	173.11	185
18.6	18.2	173.11	186
18.7	18.2	173.11	187
18.8	18.2	173.11	188
18.9	18.2	173.11	189
19.0	18.2	173.11	190
19.1	18.2	173.11	191
19.2	18.2	173.11	192
19.3	18.2	173.11	193
19.4	18.2	173.11	194
19.5	19.1	198.63	195
19.6	19.1	198.63	196
19.7	19.1	198.63	197
19.8	19.1	198.63	198
19.9	19.1	198.63	199
20.0	19.1	198.63	200
20.1	19.1	198.63	201
20.2	19.1	198.63	202
20.3	19.1	198.63	203
20.4	19.1	198.63	204
20.5	20.0	198.63	205
20.6	20.0	198.63	206
20.7	20.0	198.63	207
20.8	20.0	198.63	208
20.9	20.0	198.63	209
21.0	20.0	198.63	210
21.1	20.0	198.63	211
21.2	20.0	198.63	212
21.3	20.0	198.63	213
21.4	20.0	198.63	214
21.5	21.0	198.63	215
21.6	21.0	198.63	216
21.7	21.0	198.63	217
21.8	21.0	198.63	218
21.9	21.0	198.63	219
22.0	21.0	198.63	220
22.1	21.0	198.63	221
22.2	21.0	198.63	222
22.3	21.0	198.63	223
22.4	21.0	198.63	224
22.5	21.9	220.96	225
22.6	21.9	220.96	226
22.7	21.9	220.96	227
22.8	21.9	220.96	228
22.9	21.9	220.96	229
23.0	21.9	220.96	230
23.1	21.9	220.96	231
23.2	21.9	220.96	232
23.3	21.9	220.96	233
23.4	21.9	220.96	234
23.5	22.8	220.96	235
23.6	22.8	220.96	236
23.7	22.8	220.96	237
23.8	22.8	220.96	238
23.9	22.8	220.96	239
24.0	22.8	220.96	240
24.1	22.8	220.96	241
24.2	22.8	220.96	242
24.3	22.8	220.96	243
24.4	22.8	220.96	244
24.5	23.8	250.46	245
24.6	23.8	250.46	246
24.7	23.8	250.46	247
24.8	23.8	250.46	248
24.9	23.8	250.46	249
25.0	23.8	250.46	250

P	●
M	
K	●
N	
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H	
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→ v_c Page 156
→ Application recommendation on page 162

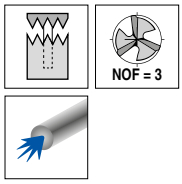
When changing the head, please observe the specified tightening torque.

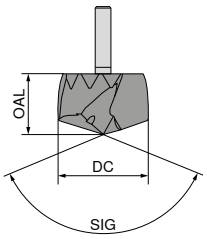
Continued on next page

WTX – Drilling Head for Exchangeable drills

▲ extra long head type
▲ three-edged

Scope of supply:
Drill head incl. differential screw





Change Feed UNI

Ti750



SIG 140°
Solid carbide

DC m7 mm	OAL mm	10 925 ... £ W2	
25.1	23.8	250.46	251
25.2	23.8	250.46	252
25.3	23.8	250.46	253
25.4	23.8	250.46	254
25.5	24.7	250.46	255
25.6	24.7	250.46	256
25.7	24.7	250.46	257
25.8	24.7	250.46	258
25.9	24.7	250.46	259
26.0	24.7	250.46	260
26.1	24.7	250.46	261
26.2	24.7	250.46	262
26.3	24.7	250.46	263
26.4	24.7	250.46	264
26.5	25.6	270.18	265
26.6	25.6	270.18	266
26.7	25.6	270.18	267
26.8	25.6	270.18	268
26.9	25.6	270.18	269
27.0	25.6	270.18	270
27.1	25.6	270.18	271
27.2	25.6	270.18	272
27.3	25.6	270.18	273
27.4	25.6	270.18	274
27.5	26.6	270.18	275
27.6	26.6	270.18	276
27.7	26.6	270.18	277
27.8	26.6	270.18	278
27.9	26.6	270.18	279
28.0	26.6	270.18	280
28.1	26.6	270.18	281
28.2	26.6	270.18	282
28.3	26.6	270.18	283
28.4	26.6	270.18	284
28.5	27.5	298.02	285
28.6	27.5	298.02	286
28.7	27.5	298.02	287
28.8	27.5	298.02	288
28.9	27.5	298.02	289
29.0	27.5	298.02	290
29.1	27.5	298.02	291
29.2	27.5	298.02	292
29.3	27.5	298.02	293
29.4	27.5	298.02	294
29.5	28.4	298.02	295
29.6	28.4	298.02	296
29.7	28.4	298.02	297
29.8	28.4	298.02	298
29.9	28.4	298.02	299
30.0	28.4	298.02	300

DC m7 mm	OAL mm	10 925 ... £ W2	
30.1	28.4	298.02	301
30.2	28.4	298.02	302
30.3	28.4	298.02	303
30.4	28.4	298.02	304
30.5	29.3	325.33	305
30.6	29.3	325.33	306
30.7	29.3	325.33	307
30.8	29.3	325.33	308
30.9	29.3	325.33	309
31.0	29.3	325.33	310
31.1	29.3	325.33	311
31.2	29.3	325.33	312
31.3	29.3	325.33	313
31.4	29.3	325.33	314
31.5	30.3	325.33	315
31.6	30.3	325.33	316
31.7	30.3	325.33	317
31.8	30.3	325.33	318
31.9	30.3	325.33	319
32.0	30.3	325.33	320

P	●
M	
K	●
N	
S	
H	
O	

→ v_c Page 156
→ Application recommendation on page 162

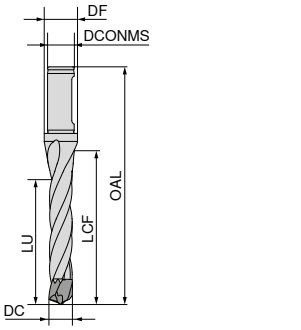
When changing the head, please observe the specified tightening torque.

WTX – Holder for Exchangeable drills

Scope of supply:
Holder incl. blade holder and interchangeable blade

≤ 3xD

Change Feed





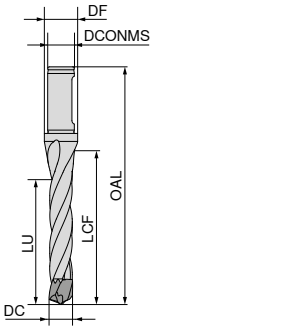
DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	£ W1	10 914 ...
14,00 - 14,49	16	120	72	48	20	0,7	355.49	140
14,50 - 14,99	16	122	74	49	20	0,7	355.49	145
15,00 - 15,49	16	124	76	51	25	0,7	355.49	150
15,50 - 16,49	20	131	81	54	25	0,7	367.31	155
16,50 - 17,49	20	135	85	58	25	0,7	367.31	165
17,50 - 18,49	20	140	90	61	25	1,3	367.31	175
18,50 - 19,49	25	150	94	64	31	1,3	432.68	185
19,50 - 20,49	25	155	99	68	31	2,0	436.59	195
20,50 - 21,49	25	159	103	71	31	2,0	478.05	205
21,50 - 22,49	25	164	108	74	31	2,0	478.05	215
22,50 - 23,49	25	168	112	78	31	2,0	523.87	225
23,50 - 24,49	25	173	117	81	31	2,0	523.87	235
24,50 - 25,49	32	182	122	84	38	3,1	589.55	245
25,50 - 26,49	32	186	126	87	38	3,1	589.55	255
26,50 - 27,49	32	191	131	91	38	3,1	589.55	265
27,50 - 28,49	32	195	135	94	38	3,1	589.55	275
28,50 - 29,49	32	200	140	97	38	5,6	679.43	285
29,50 - 30,49	32	204	144	101	38	5,6	679.43	295
30,50 - 31,49	32	209	149	104	38	5,6	743.24	305
31,50 - 32,49	32	213	153	107	38	5,6	743.24	315

WTX – Holder for Exchangeable drills

Scope of supply:
Holder incl. blade holder and interchangeable blade

≤ 5xD

Change Feed





DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	£ W1	10 916 ...
14,00 - 14,49	16	149	101	77	20	0,7	392.65	140
14,50 - 14,99	16	152	104	79	20	0,7	392.65	145
15,00 - 15,49	16	155	107	82	25	0,7	392.65	150
15,50 - 16,49	20	164	114	87	25	0,7	425.20	155
16,50 - 17,49	20	170	120	93	25	0,7	425.20	165
17,50 - 18,49	20	177	127	98	25	1,3	425.20	175
18,50 - 19,49	25	189	133	103	31	1,3	486.42	185
19,50 - 20,49	25	196	140	109	31	2,0	490.18	195
20,50 - 21,49	25	202	146	114	31	2,0	534.95	205
21,50 - 22,49	25	209	153	119	31	2,0	534.95	215
22,50 - 23,49	25	215	159	124	31	2,0	576.16	225
23,50 - 24,49	25	222	166	130	31	2,0	576.16	235
24,50 - 25,49	32	233	173	135	38	3,1	640.53	245
25,50 - 26,49	32	239	179	140	38	3,1	640.53	255
26,50 - 27,49	32	246	186	146	38	3,1	640.53	265
27,50 - 28,49	32	252	192	151	38	3,1	640.53	275
28,50 - 29,49	32	259	199	156	38	5,6	728.82	285
29,50 - 30,49	32	265	205	162	38	5,6	728.82	295
30,50 - 31,49	32	272	212	167	38	5,6	791.49	305
31,50 - 32,49	32	278	218	172	38	5,6	791.49	315

Interchangeable blade



Blade holder

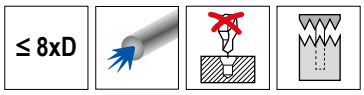

Torque handle


Differential screw

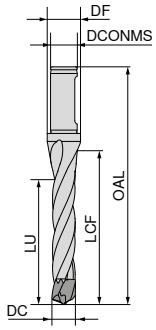
Spare parts DC	£ W1	80 022 ...	£ Y7	80 020 ...	£ W1	80 023 ...	£ W2	10 950 ...
14,00 - 14,49	27.29	007	44.66	025	455.83	012	8.94	064
14,50 - 14,99	27.29	007	44.66	025	455.83	012	8.94	064
15,00 - 15,49	27.29	007	44.66	025	455.83	012	8.94	064
15,50 - 16,49	27.29	007	44.66	025	455.83	012	8.94	064
16,50 - 17,49	27.29	007	44.66	025	455.83	012	8.94	064
17,50 - 18,49	27.29	008	44.66	025	487.89	060	8.94	065
18,50 - 19,49	27.29	008	44.66	025	487.89	060	8.94	065
19,50 - 20,49	31.75	010	44.66	025	487.89	060	8.94	066
20,50 - 21,49	31.75	010	44.66	025	487.89	060	8.94	066
21,50 - 22,49	31.75	010	44.66	025	487.89	060	8.94	066
22,50 - 23,49	31.75	010	44.66	025	487.89	060	8.94	066
23,50 - 24,49	31.75	010	44.66	025	487.89	060	8.94	066
24,50 - 25,49	51.30	015	44.66	025	487.89	060	8.94	067
25,50 - 26,49	51.30	015	44.66	025	487.89	060	8.94	067
26,50 - 27,49	51.30	015	44.66	025	487.89	060	8.94	067
27,50 - 28,49	51.30	015	44.66	025	487.89	060	8.94	067
28,50 - 29,49	51.30	015	44.66	025	487.89	060	8.94	068
29,50 - 30,49	51.30	015	44.66	025	487.89	060	8.94	068
30,50 - 31,49	51.30	015	44.66	025	487.89	060	8.94	068
31,50 - 32,49	51.30	015	44.66	025	487.89	060	8.94	068

WTX – Holder for Exchangeable drills

Scope of supply:
Holder incl. blade holder and interchangeable blade











DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	10 917 ... £ W1	
14,00 - 14,49	16	192	144	120	20	0,7	513.80	14000
14,50 - 14,99	16	197	149	124	20	0,7	513.80	14500
15,00 - 15,49	16	202	154	129	25	0,7	513.80	15000
15,50 - 16,49	20	213	163	137	25	0,7	551.95	15500
16,50 - 17,49	20	223	173	145	25	0,7	551.95	16500
17,50 - 18,49	20	232	182	153	25	1,3	551.95	17500
18,50 - 19,49	25	248	192	162	31	1,3	621.46	18500
19,50 - 20,49	25	257	201	170	31	2,0	629.99	19500
20,50 - 21,49	25	267	211	178	31	2,0	672.37	20500
21,50 - 22,49	25	276	220	187	31	2,0	672.37	21500
22,50 - 23,49	25	286	230	195	31	2,0	745.77	22500
23,50 - 24,49	25	295	239	203	31	2,0	745.77	23500
24,50 - 25,49	32	309	249	212	38	3,1	804.92	24500
25,50 - 26,49	32	319	259	220	38	3,1	804.92	25500
26,50 - 27,49	32	328	268	228	38	3,1	804.92	26500
27,50 - 28,49	32	338	278	236	38	3,1	804.92	27500
28,50 - 29,49	32	342	282	245	38	5,6	923.80	28500
29,50 - 30,49	32	352	292	253	38	5,6	923.80	29500
30,50 - 31,49	32	361	301	261	38	5,6	1,018.88	30500
31,50 - 32,49	32	371	311	270	38	5,6	1,018.88	31500

Interchangeable blade



Blade holder

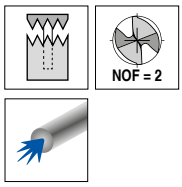

Torque handle


Differential screw

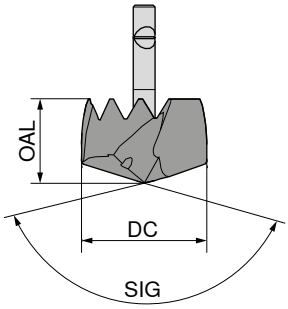
Spare parts DC	80 022 ... £ W1		80 020 ... £ Y7		80 023 ... £ W1		10 950 ... £ W2	
14,00 - 14,49	27.29	007	44.66	025	455.83	012	8.94	064
14,50 - 14,99	27.29	007	44.66	025	455.83	012	8.94	064
15,00 - 15,49	27.29	007	44.66	025	455.83	012	8.94	064
15,50 - 16,49	27.29	007	44.66	025	455.83	012	8.94	064
16,50 - 17,49	27.29	007	44.66	025	455.83	012	8.94	064
17,50 - 18,49	27.29	008	44.66	025	487.89	060	8.94	065
18,50 - 19,49	27.29	008	44.66	025	487.89	060	8.94	065
19,50 - 20,49	31.75	010	44.66	025	487.89	060	8.94	066
20,50 - 21,49	31.75	010	44.66	025	487.89	060	8.94	066
21,50 - 22,49	31.75	010	44.66	025	487.89	060	8.94	066
22,50 - 23,49	31.75	010	44.66	025	487.89	060	8.94	066
23,50 - 24,49	31.75	010	44.66	025	487.89	060	8.94	066
24,50 - 25,49	51.30	015	44.66	025	487.89	060	8.94	067
25,50 - 26,49	51.30	015	44.66	025	487.89	060	8.94	067
26,50 - 27,49	51.30	015	44.66	025	487.89	060	8.94	067
27,50 - 28,49	51.30	015	44.66	025	487.89	060	8.94	067
28,50 - 29,49	51.30	015	44.66	025	487.89	060	8.94	068
29,50 - 30,49	51.30	015	44.66	025	487.89	060	8.94	068
30,50 - 31,49	51.30	015	44.66	025	487.89	060	8.94	068
31,50 - 32,49	51.30	015	44.66	025	487.89	060	8.94	068

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



Change UNI	Change P	Change VA	Change GG	Change AL
DPX74S	Ti750	Ti700	TiSi	TiB
DRAGONSKIN				





DC $_{h7/m7}$ mm	OAL mm	SIG 140° Solid carbide 10 919 ... £ W2		SIG 138° Solid carbide 10 923 ... £ W2		SIG 138° Solid carbide 10 921 ... £ W2		SIG 140° Solid carbide 10 924 ... £ W2		SIG 140° Solid carbide 10 922 ... £ W2	
12.0	10.7	160.61	12000	160.61	120	160.61	120	160.61	120	160.61	120
12.1	10.7	160.61	12100	160.61	121	160.61	121	160.61	121	160.61	121
12.2	10.7	160.61	12200	160.61	122	160.61	122	160.61	122	160.61	122
12.3	10.7	160.61	12300	160.61	123	160.61	123	160.61	123	160.61	123
12.4	10.7	160.61	12400	160.61	124	160.61	124	160.61	124	160.61	124
12.5	10.7	160.61	12500	160.61	125	160.61	125	160.61	125	160.61	125
12.6	10.7	160.61	12600	160.61	126	160.61	126	160.61	126	160.61	126
12.7	10.7	160.61	12700	160.61	127	160.61	127	160.61	127	160.61	127
12.8	10.7	160.61	12800	160.61	128	160.61	128	160.61	128	160.61	128
12.9	10.7	160.61	12900	160.61	129	160.61	129	160.61	129	160.61	129
13.0	10.7	160.61	13000	160.61	130	160.61	130	160.61	130	160.61	130
13.1	10.7	160.61	13100	160.61	131	160.61	131	160.61	131	160.61	131
13.2	10.7	160.61	13200	160.61	132	160.61	132	160.61	132	160.61	132
13.3	10.7	160.61	13300	160.61	133	160.61	133	160.61	133	160.61	133
13.4	10.7	160.61	13400	160.61	134	160.61	134	160.61	134	160.61	134
13.5	11.3	160.61	13500	160.61	135	160.61	135	160.61	135	160.61	135
13.6	11.3	160.61	13600	160.61	136	160.61	136	160.61	136	160.61	136
13.7	11.3	160.61	13700	160.61	137	160.61	137	160.61	137	160.61	137
13.8	11.3	160.61	13800	160.61	138	160.61	138	160.61	138	160.61	138
13.9	11.3	160.61	13900	160.61	139	160.61	139	160.61	139	160.61	139
14.0	11.3	160.61	14000	160.61	140	160.61	140	160.61	140	160.61	140
14.1	11.3	160.61	14100	160.61	141	160.61	141	160.61	141	160.61	141
14.2	11.3	160.61	14200	160.61	142	160.61	142	160.61	142	160.61	142
14.3	11.3	160.61	14300	160.61	143	160.61	143	160.61	143	160.61	143
14.4	11.3	160.61	14400	160.61	144	160.61	144	160.61	144	160.61	144
14.5	11.3	160.61	14500	160.61	145	160.61	145	160.61	145	160.61	145
14.6	11.3	160.61	14600	160.61	146	160.61	146	160.61	146	160.61	146
14.7	11.3	160.61	14700	160.61	147	160.61	147	160.61	147	160.61	147
14.8	11.3	160.61	14800	160.61	148	160.61	148	160.61	148	160.61	148
14.9	11.3	160.61	14900	160.61	149	160.61	149	160.61	149	160.61	149
15.0	11.3	160.61	15000	160.61	150	160.61	150	160.61	150	160.61	150
15.1	11.3	160.61	15100	160.61	151	160.61	151	160.61	151	160.61	151
15.2	11.3	160.61	15200	160.61	152	160.61	152	160.61	152	160.61	152
15.3	11.3	160.61	15300	160.61	153	160.61	153	160.61	153	160.61	153
15.4	11.3	160.61	15400	160.61	154	160.61	154	160.61	154	160.61	154
15.5	11.9	160.61	15500	160.61	155	160.61	155	160.61	155	160.61	155
15.6	11.9	160.61	15600	160.61	156	160.61	156	160.61	156	160.61	156
15.7	11.9	160.61	15700	160.61	157	160.61	157	160.61	157	160.61	157

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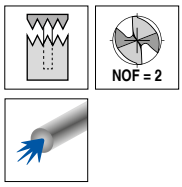
→ v_c Page 152–155
→ Application recommendation on page 162

Ø DC_{m7} for Type UNI, P, GG und AL / **Ø DC_{h7}** for Type VA

Continued on next page

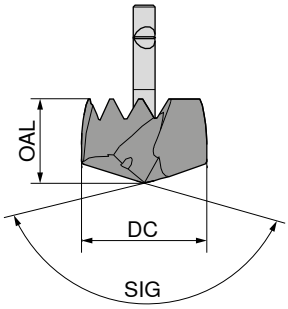
WTX – Drilling Head for Exchangeable drills

▲ extra long head type



Change UNI	Change P	Change VA	Change GG	Change AL
DPX74S	Ti750	Ti700	TiSi	TiB

DRAGONSKIN





DC $_{h7/m7}$ mm	OAL mm	SIG 140° Solid carbide 10 919 ... £ W2		SIG 138° Solid carbide 10 923 ... £ W2		SIG 138° Solid carbide 10 921 ... £ W2		SIG 140° Solid carbide 10 924 ... £ W2		SIG 140° Solid carbide 10 922 ... £ W2	
15.8	11.9	160.61	15800	160.61	158	160.61	158	160.61	158	160.61	158
15.9	11.9	160.61	15900	160.61	159	160.61	159	160.61	159	160.61	159
16.0	11.9	160.61	16000	160.61	160	160.61	160	160.61	160	160.61	160
16.1	11.9	160.61	16100	160.61	161	160.61	161	160.61	161	160.61	161
16.2	11.9	160.61	16200	160.61	162	160.61	162	160.61	162	160.61	162
16.3	11.9	160.61	16300	160.61	163	160.61	163	160.61	163	160.61	163
16.4	11.9	160.61	16400	160.61	164	160.61	164	160.61	164	160.61	164
16.5	13.4	160.61	16500	160.61	165	160.61	165	160.61	165	160.61	165
16.6	13.4	160.61	16600	160.61	166	160.61	166	160.61	166	160.61	166
16.7	13.4	160.61	16700	160.61	167	160.61	167	160.61	167	160.61	167
16.8	13.4	160.61	16800	160.61	168	160.61	168	160.61	168	160.61	168
16.9	13.4	160.61	16900	160.61	169	160.61	169	160.61	169	160.61	169
17.0	13.4	160.61	17000	160.61	170	160.61	170	160.61	170	160.61	170
17.1	13.4	160.61	17100	160.61	171	160.61	171	160.61	171	160.61	171
17.2	13.4	160.61	17200	160.61	172	160.61	172	160.61	172	160.61	172
17.3	13.4	160.61	17300	160.61	173	160.61	173	160.61	173	160.61	173
17.4	13.4	160.61	17400	160.61	174	160.61	174	160.61	174	160.61	174
17.5	13.4	160.61	17500	160.61	175	160.61	175	160.61	175	160.61	175
17.6	13.4	160.61	17600	160.61	176	160.61	176	160.61	176	160.61	176
17.7	13.4	160.61	17700	160.61	177	160.61	177	160.61	177	160.61	177
17.8	13.4	160.61	17800	160.61	178	160.61	178	160.61	178	160.61	178
17.9	13.4	160.61	17900	160.61	179	160.61	179	160.61	179	160.61	179
18.0	13.4	160.61	18000	160.61	180	160.61	180	160.61	180	160.61	180
18.1	13.4	174.76	18100	174.76	181	174.76	181	174.76	181	174.76	181
18.2	13.4	174.76	18200	174.76	182	174.76	182	174.76	182	174.76	182
18.3	13.4	174.76	18300	174.76	183	174.76	183	174.76	183	174.76	183
18.4	13.4	174.76	18400	174.76	184	174.76	184	174.76	184	174.76	184
18.5	13.4	174.76	18500	174.76	185	174.76	185	174.76	185	174.76	185
18.6	13.4	174.76	18600	174.76	186	174.76	186	174.76	186	174.76	186
18.7	13.4	174.76	18700	174.76	187	174.76	187	174.76	187	174.76	187
18.8	13.4	174.76	18800	174.76	188	174.76	188	174.76	188	174.76	188
18.9	13.4	174.76	18900	174.76	189	174.76	189	174.76	189	174.76	189
19.0	13.4	174.76	19000	174.76	190	174.76	190	174.76	190	174.76	190
19.1	13.4	174.76	19100	174.76	191	174.76	191	174.76	191	174.76	191
19.2	13.4	174.76	19200	174.76	192	174.76	192	174.76	192	174.76	192
19.3	13.4	174.76	19300	174.76	193	174.76	193	174.76	193	174.76	193
19.4	13.4	174.76	19400	174.76	194	174.76	194	174.76	194	174.76	194
19.5	13.4	174.76	19500	174.76	195	174.76	195	174.76	195	174.76	195
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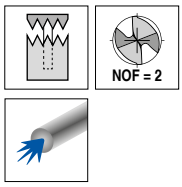
→ v_c Page 152–155
→ Application recommendation on page 162

Ø DC_{m7} for Type UNI, P, GG und AL / **Ø DC_{h7}** for Type VA

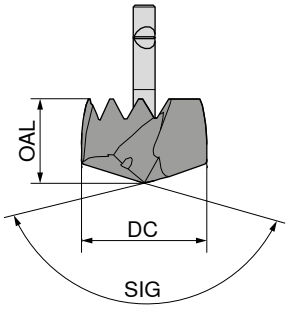
Continued on next page

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



Change UNI	Change P	Change VA	Change GG	Change AL
DPX74S	Ti750	Ti700	TiSi	TiB
DRAGONSKIN				





		SIG 140° Solid carbide		SIG 138° Solid carbide		SIG 138° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide	
		10 919 ...		10 923 ...		10 921 ...		10 924 ...		10 922 ...	
DC $_{h7/m7}$ mm	OAL mm	£ W2		£ W2		£ W2		£ W2		£ W2	
19.6	13.4	174.76	19600	174.76	196	174.76	196	174.76	196	174.76	196
19.7	13.4	174.76	19700	174.76	197	174.76	197	174.76	197	174.76	197
19.8	13.4	174.76	19800	174.76	198	174.76	198	174.76	198	174.76	198
19.9	13.4	174.76	19900	174.76	199	174.76	199	174.76	199	174.76	199
20.0	13.4	174.76	20000	174.76	200	174.76	200	174.76	200	174.76	200
20.1	13.4	193.12	20100	193.12	201	193.12	201	193.12	201	145.62	201
20.2	13.4	193.12	20200	193.12	202	193.12	202	193.12	202	193.12	202
20.3	13.4	193.12	20300	193.12	203	193.12	203	193.12	203	193.12	203
20.4	13.4	193.12	20400	193.12	204	193.12	204	193.12	204	193.12	204
20.5	15.4	193.12	20500	193.12	205	193.12	205	193.12	205	193.12	205
20.6	15.4	193.12	20600	193.12	206	193.12	206	193.12	206	193.12	206
20.7	15.4	193.12	20700	193.12	207	193.12	207	193.12	207	193.12	207
20.8	15.4	193.12	20800	193.12	208	193.12	208	193.12	208	193.12	208
20.9	15.4	193.12	20900	193.12	209	193.12	209	193.12	209	193.12	209
21.0	15.4	193.12	21000	193.12	210	193.12	210	193.12	210	193.12	210
21.1	15.4	193.12	21100	193.12	211	193.12	211	193.12	211	193.12	211
21.2	15.4	193.12	21200	193.12	212	193.12	212	193.12	212	193.12	212
21.3	15.4	193.12	21300	193.12	213	193.12	213	193.12	213	193.12	213
21.4	15.4	193.12	21400	193.12	214	193.12	214	193.12	214	193.12	214
21.5	15.4	193.12	21500	193.12	215	193.12	215	193.12	215	193.12	215
21.6	15.4	193.12	21600	193.12	216	193.12	216	193.12	216	193.12	216
21.7	15.4	193.12	21700	193.12	217	193.12	217	193.12	217	193.12	217
21.8	15.4	193.12	21800	193.12	218	193.12	218	193.12	218	193.12	218
21.9	15.4	193.12	21900	193.12	219	193.12	219	193.12	219	193.12	219
22.0	15.4	193.12	22000	193.12	220	193.12	220	193.12	220	193.12	220
22.1	15.4	207.27	22100	207.27	221	207.27	221	207.27	221	207.27	221
22.2	15.4	207.27	22200	207.27	222	207.27	222	207.27	222	207.27	222
22.3	15.4	207.27	22300	207.27	223	207.27	223	207.27	223	207.27	223
22.4	15.4	207.27	22400	207.27	224	207.27	224	207.27	224	207.27	224
22.5	15.4	207.27	22500	207.27	225	207.27	225	207.27	225	207.27	225
22.6	15.4	207.27	22600	207.27	226	207.27	226	207.27	226	207.27	226
22.7	15.4	207.27	22700	207.27	227	207.27	227	207.27	227	207.27	227
22.8	15.4	207.27	22800	207.27	228	207.27	228	207.27	228	207.27	228
22.9	15.4	207.27	22900	207.27	229	207.27	229	207.27	229	207.27	229
23.0	15.4	207.27	23000	207.27	230	207.27	230	207.27	230	207.27	230
23.1	15.4	207.27	23100	207.27	231	207.27	231	207.27	231	207.27	231
23.2	15.4	207.27	23200	207.27	232	207.27	232	207.27	232	207.27	232
23.3	15.4	207.27	23300	207.27	233	207.27	233	207.27	233	207.27	233
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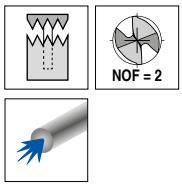
→ v_c Page 152–155
→ Application recommendation on page 162

Ø DC_{m7} for Type UNI, P, GG und AL / **Ø DC_{h7}** for Type VA

Continued on next page

WTX – Drilling Head for Exchangeable drills

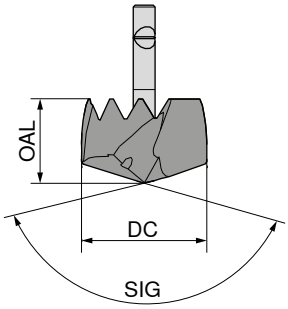
▲ extra long head type



Change UNI | Change P | Change VA | Change GG | Change AL

DPX74S | Ti750 | Ti700 | TiSi | TiB

DRAGONSKIN





		SIG 140° Solid carbide		SIG 138° Solid carbide		SIG 138° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide	
		10 919 ...		10 923 ...		10 921 ...		10 924 ...		10 922 ...	
DC $_{h7/m7}$ mm	OAL mm	£ W2		£ W2		£ W2		£ W2		£ W2	
23.4	15.4	207.27	23400	207.27	234	207.27	234	207.27	234	207.27	234
23.5	15.4	207.27	23500	207.27	235	207.27	235	207.27	235	207.27	235
23.6	15.4	207.27	23600	207.27	236	207.27	236	207.27	236	207.27	236
23.7	15.4	207.27	23700	207.27	237	207.27	237	207.27	237	207.27	237
23.8	15.4	207.27	23800	207.27	238	207.27	238	207.27	238	207.27	238
23.9	15.4	207.27	23900	207.27	239	207.27	239	207.27	239	207.27	239
24.0	15.4	207.27	24000	207.27	240	207.27	240	207.27	240	207.27	240
24.1	15.4	225.64	24100	217.12	241	239.76	241	217.12	241	239.76	241
24.2	15.4	225.64	24200	217.12	242	239.76	242	217.12	242	239.76	242
24.3	15.4	225.64	24300	217.12	243	239.76	243	217.12	243	239.76	243
24.4	15.4	225.64	24400	217.12	244	239.76	244	217.12	244	239.76	244
24.5	17.4	225.64	24500	225.64	245	239.76	245	225.64	245	239.76	245
24.6	17.4	225.64	24600	225.64	246	239.76	246	225.64	246	239.76	246
24.7	17.4	225.64	24700	225.64	247	239.76	247	225.64	247	239.76	247
24.8	17.4	225.64	24800	225.64	248	239.76	248	225.64	248	239.76	248
24.9	17.4	225.64	24900	225.64	249	239.76	249	225.64	249	239.76	249
25.0	17.4	225.64	25000	225.64	250	239.76	250	225.64	250	239.76	250
25.1	17.4	225.64	25100	225.64	251	239.76	251	225.64	251	239.76	251
25.2	17.4	225.64	25200	225.64	252	239.76	252	225.64	252	239.76	252
25.3	17.4	225.64	25300	225.64	253	239.76	253	225.64	253	239.76	253
25.4	17.4	225.64	25400	225.64	254	239.76	254	225.64	254	239.76	254
25.5	17.4	225.64	25500	225.64	255	239.76	255	225.64	255	239.76	255
25.6	17.4	239.76	25600	239.76	256	239.76	256	239.76	256	239.76	256
25.7	17.4	239.76	25700	239.76	257	239.76	257	239.76	257	239.76	257
25.8	17.4	239.76	25800	239.76	258	239.76	258	239.76	258	239.76	258
25.9	17.4	239.76	25900	239.76	259	239.76	259	239.76	259	239.76	259
26.0	17.4	239.76	26000	239.76	260	239.76	260	239.76	260	239.76	260
26.1	17.4	239.76	26100	239.76	261	239.76	261	239.76	261	239.76	261
26.2	17.4	239.76	26200	239.76	262	239.76	262	239.76	262	239.76	262
26.3	17.4	239.76	26300	239.76	263	239.76	263	239.76	263	239.76	263
26.4	17.4	239.76	26400	239.76	264	239.76	264	239.76	264	239.76	264
26.5	17.4	239.76	26500	239.76	265	239.76	265	239.76	265	239.76	265
26.6	17.4	239.76	26600	239.76	266	239.76	266	239.76	266	239.76	266
26.7	17.4	239.76	26700	239.76	267	239.76	267	239.76	267	239.76	267
26.8	17.4	239.76	26800	239.76	268	239.76	268	239.76	268	239.76	268
26.9	17.4	239.76	26900	239.76	269	239.76	269	239.76	269	239.76	269
27.0	17.4	239.76	27000	239.76	270	239.76	270	239.76	270	239.76	270
27.1	17.4	239.76	27100	239.76	271	239.76	271	239.76	271	239.76	271
P		●		●		○					
M						●					
K		●		●		●		●			
N										●	
S						●					
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O											

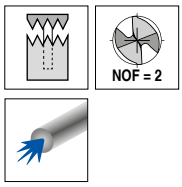
→ v_c Page 152–155
→ Application recommendation on page 162

Ø DC_{m7} for Type UNI, P, GG und AL / **Ø DC_{h7}** for Type VA

Continued on next page

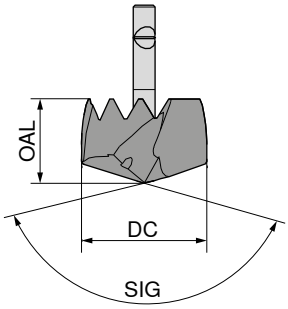
WTX – Drilling Head for Exchangeable drills

▲ extra long head type



Change UNI	Change P	Change VA	Change GG	Change AL
DPX74S	Ti750	Ti700	TiSi	TiB

DRAGONSKIN





DC $_{h7/m7}$ mm	OAL mm	SIG 140° Solid carbide 10 919 ... £ W2		SIG 138° Solid carbide 10 923 ... £ W2		SIG 138° Solid carbide 10 921 ... £ W2		SIG 140° Solid carbide 10 924 ... £ W2		SIG 140° Solid carbide 10 922 ... £ W2	
27.2	17.4	239.76	27200	239.76	272	239.76	272	239.76	272	239.76	272
27.3	17.4	239.76	27300	239.76	273	239.76	273	239.76	273	239.76	273
27.4	17.4	239.76	27400	239.76	274	239.76	274	239.76	274	239.76	274
27.5	17.4	239.76	27500	239.76	275	239.76	275	239.76	275	239.76	275
27.6	17.4	239.76	27600	239.76	276	239.76	276	239.76	276	239.76	276
27.7	17.4	239.76	27700	239.76	277	239.76	277	239.76	277	239.76	277
27.8	17.4	239.76	27800	239.76	278	239.76	278	239.76	278	239.76	278
27.9	17.4	239.76	27900	239.76	279	239.76	279	239.76	279	239.76	279
28.0	17.4	239.76	28000	239.76	280	239.76	280	239.76	280	239.76	280
28.1	17.4	262.21	28100	262.21	281	262.21	281	262.21	281	262.21	281
28.2	17.4	262.21	28200	262.21	282	262.21	282	262.21	282	262.21	282
28.3	17.4	262.21	28300	262.21	283	262.21	283	262.21	283	262.21	283
28.4	17.4	262.21	28400	262.21	284	262.21	284	262.21	284	262.21	284
28.5	18.4	262.21	28500	262.21	285	262.21	285	262.21	285	262.21	285
28.6	18.4	262.21	28600	262.21	286	262.21	286	262.21	286	262.21	286
28.7	18.4	262.21	28700	262.21	287	262.21	287	262.21	287	262.21	287
28.8	18.4	262.21	28800	262.21	288	262.21	288	262.21	288	262.21	288
28.9	18.4	262.21	28900	262.21	289	262.21	289	262.21	289	262.21	289
29.0	18.4	262.21	29000	262.21	290	262.21	290	262.21	290	262.21	290
29.1	18.4	262.21	29100	262.21	291	262.21	291	262.21	291	262.21	291
29.2	18.4	262.21	29200	262.21	292	262.21	292	262.21	292	262.21	292
29.3	18.4	262.21	29300	262.21	293	262.21	293	262.21	293	262.21	293
29.4	18.4	262.21	29400	262.21	294	262.21	294	262.21	294	262.21	294
29.5	18.4	262.21	29500	262.21	295	262.21	295	262.21	295	262.21	295
29.6	18.4	262.21	29600	262.21	296	262.21	296	262.21	296	262.21	296
29.7	18.4	262.21	29700	262.21	297	262.21	297	262.21	297	262.21	297
29.8	18.4	262.21	29800	262.21	298	262.21	298	262.21	298	262.21	298
29.9	18.4	262.21	29900	262.21	299	262.21	299	262.21	299	262.21	299
30.0	18.4	262.21	30000	262.21	300	262.21	300	262.21	300	262.21	300
30.1	18.4	292.59	30100	292.59	301	292.59	301	292.59	301	292.59	301
30.2	18.4	292.59	30200	292.59	302	292.59	302	292.59	302	292.59	302
30.3	18.4	292.59	30300	292.59	303	292.59	303	292.59	303	292.59	303
30.4	18.4	292.59	30400	292.59	304	292.59	304	292.59	304	292.59	304
30.5	18.4	292.59	30500	292.59	305	292.59	305	292.59	305	292.59	305
30.6	18.4	292.59	30600	292.59	306	292.59	306	292.59	306	292.59	306
30.7	18.4	292.59	30700	292.59	307	292.59	307	292.59	307	292.59	307
30.8	18.4	292.59	30800	292.59	308	292.59	308	292.59	308	292.59	308
30.9	18.4	292.59	30900	292.59	309	292.59	309	292.59	309	292.59	309
P		●		●		○					
M						●					
K		●		●		●		●			
N										●	
S						●					
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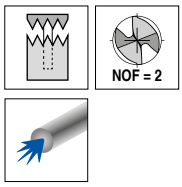
→ v_c Page 152–155
→ Application recommendation on page 162

Ø DC_{m7} for Type UNI, P, GG und AL / **Ø DC_{h7}** for Type VA

Continued on next page

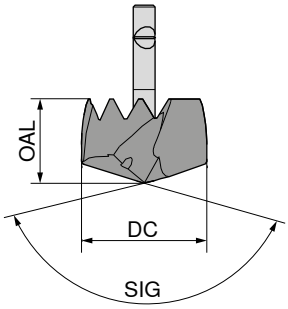
WTX – Drilling Head for Exchangeable drills

▲ extra long head type



Change UNI	Change P	Change VA	Change GG	Change AL
DPX74S	Ti750	Ti700	TiSi	TiB

DRAGONSKIN





		SIG 140° Solid carbide		SIG 138° Solid carbide		SIG 138° Solid carbide		SIG 140° Solid carbide		SIG 140° Solid carbide	
		10 919 ...		10 923 ...		10 921 ...		10 924 ...		10 922 ...	
DC $_{h7/m7}$ mm	OAL mm	£ W2		£ W2		£ W2		£ W2		£ W2	
31.0	18.4	292.59	31000	292.59	310	292.59	310	292.59	310	292.59	310
31.1	18.4	292.59	31100	292.59	311	292.59	311	292.59	311	292.59	311
31.2	18.4	292.59	31200	292.59	312	292.59	312	292.59	312	292.59	312
31.3	18.4	292.59	31300	292.59	313	292.59	313	292.59	313	292.59	313
31.4	18.4	292.59	31400	292.59	314	292.59	314	292.59	314	292.59	314
31.5	18.4	292.59	31500	292.59	315	292.59	315	292.59	315	292.59	315
31.6	18.4	292.59	31600	292.59	316	292.59	316	292.59	316	292.59	316
31.7	18.4	292.59	31700	292.59	317	292.59	317	292.59	317	292.59	317
31.8	18.4	292.59	31800	292.59	318	292.59	318	292.59	318	292.59	318
31.9	18.4	292.59	31900	292.59	319	292.59	319	292.59	319	292.59	319
32.0	18.4	292.59	32000	292.59	320	292.59	320	292.59	320	292.59	320
32.5	24.3	313.19	32500	313.19	325						
33.0	24.3	313.19	33000	313.19	330						
33.5	24.3	313.19	33500	313.19	335						
34.0	24.3	313.19	34000	313.19	340						
34.5	24.3	313.19	34500	313.19	345						
35.0	24.3	313.19	35000	313.19	350						
35.5	26.3	358.21	35500	358.21	355						
36.0	26.3	358.21	36000	358.21	360						
36.5	26.3	358.21	36500	358.21	365						
37.0	26.3	358.21	37000	358.21	370						
37.5	26.3	358.21	37500	358.21	375						
38.0	26.3	358.21	38000	358.21	380						
38.5	26.3	389.36	38500	389.36	385						
39.0	26.3	389.36	39000	389.36	390						
39.5	26.3	389.36	39500	389.36	395						
40.0	26.3	389.36	40000	389.36	400						
40.5	26.3	389.36	40500	389.36	405						
41.0	26.3	389.36	41000	389.36	410						
P		●		●		○					
M						●					
K		●		●		●		●			
N										●	
S						●					
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→ v_c Page 152–155
→ Application recommendation on page 162

Ø DC_{m7} for Type UNI, P, GG und AL / **Ø DC_{h7}** for Type VA

When changing the head, please observe the specified tightening torque.

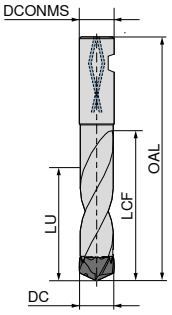
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver

≤ 1xD

Change







10 911 ...

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	£ W1	
12,00 - 12,49	14	81	29	12.5	1,0	313.19	120
12,50 - 12,99	14	81	29	13.0	1,0	313.19	125
13,00 - 13,49	14	81	31	13.5	1,0	313.19	130
13,50 - 13,99	16	86	32	14.0	1,3	313.19	135
14,00 - 14,49	16	86	33	14.5	1,3	313.19	140
14,50 - 14,99	16	91	34	15.0	1,3	313.19	145
15,00 - 15,49	16	91	36	15.5	1,3	313.19	150
15,50 - 16,49	20	97	38	16.5	1,3	323.59	161
15,50 - 16,49	18	92	38	16.5	1,3	323.59	160
16,50 - 17,49	20	99	40	17.5	3,5	323.59	166
16,50 - 17,49	18	94	40	17.5	3,5	323.59	165
17,50 - 18,49	20	104	43	18.5	3,5	323.59	176
17,50 - 18,49	18	99	43	18.5	3,5	323.59	175
18,50 - 19,49	20	99	45	19.5	3,5	382.42	185
19,50 - 20,49	20	104	47	20.5	3,5	382.42	195
20,50 - 21,49	25	111	49	21.5	3,5	423.94	205
21,50 - 22,49	25	116	52	22.5	3,5	423.94	215
22,50 - 23,49	25	116	54	23.5	3,5	463.77	225
23,50 - 24,49	25	121	56	24.5	4,0	463.77	235
24,50 - 25,49	25	123	59	25.5	4,0	503.54	245
25,50 - 26,49	25	123	61	26.5	4,0	503.54	255
26,50 - 27,49	25	128	63	27.5	4,0	503.54	265
27,50 - 28,49	25	128	66	28.5	4,0	503.54	275
28,50 - 29,49	32	134	68	29.5	4,0	584.87	285
29,50 - 30,49	32	139	70	30.5	4,0	584.87	295
30,50 - 31,49	32	139	75	31.5	4,0	645.44	305
31,50 - 32,49	32	139	75	32.5	4,0	645.44	315
32,50 - 33,49	32	150	78	33.5	6,0	695.62	325
33,50 - 34,49	32	150	79	34.5	6,0	695.62	335
34,50 - 35,49	32	150	82	35.5	6,0	695.62	345
35,50 - 37,49	32	152	86	37.5	6,0	801.17	355
37,50 - 39,49	32	157	91	39.5	6,0	830.61	375
39,50 - 41,00	32	167	95	41.5	6,0	851.37	395

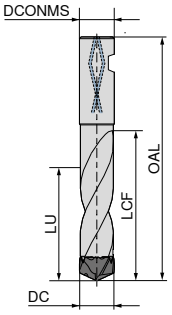
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver

≤ 3xD

Change







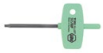
10 913 ...

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	£ W1	
12,00 - 12,49	14	100	53	38.0	1,0	354.12	120
12,50 - 12,99	14	105	55	39.0	1,0	354.12	125
13,00 - 13,49	14	105	57	40.0	1,0	354.12	130
13,50 - 13,99	16	110	59	42.0	1,3	354.12	135
14,00 - 14,49	16	115	61	43.0	1,3	354.12	140
14,50 - 14,99	16	115	63	45.0	1,3	354.12	145
15,00 - 15,49	16	115	65	46.0	1,3	354.12	150
15,50 - 16,49	18	120	70	50.0	1,3	345.43	160
15,50 - 16,49	20	125	70	50.0	1,3	345.43	161
16,50 - 17,49	18	125	74	53.0	3,5	345.43	165
16,50 - 17,49	20	130	74	50.0	3,5	345.43	166
17,50 - 18,49	18	130	78	55.0	3,5	345.43	175
17,50 - 18,49	20	135	78	50.0	3,5	345.43	176
18,50 - 19,49	20	135	82	58.0	3,5	408.50	185
19,50 - 20,49	20	140	87	62.0	3,5	408.50	195
20,50 - 21,49	25	150	91	65.0	3,5	451.08	205
21,50 - 22,49	25	155	95	67.0	3,5	451.08	215
22,50 - 23,49	25	160	99	70.0	3,5	493.84	225
23,50 - 24,49	25	165	103	73.0	3,5	493.84	235
24,50 - 25,49	25	165	108	77.0	4,0	536.37	245
25,50 - 26,49	25	175	112	80.0	4,0	536.37	255
26,50 - 27,49	25	175	116	82.0	4,0	536.37	265
27,50 - 28,49	25	180	120	85.0	4,0	536.37	275
28,50 - 29,49	32	190	124	88.0	4,0	621.74	285
29,50 - 30,49	32	195	129	92.0	4,0	621.74	295
30,50 - 31,49	32	195	133	94.0	4,0	686.76	305
31,50 - 32,49	32	200	137	97.0	4,0	686.76	315
32,50 - 33,49	32	210	144	100.5	6,0	809.83	325
33,50 - 34,49	32	215	148	103.5	6,0	809.83	335
34,50 - 35,49	32	220	153	106.5	6,0	809.83	345
35,50 - 37,49	32	227	161	112.5	6,0	930.96	355
37,50 - 39,49	32	237	170	118.5	6,0	965.58	375
39,50 - 41,00	32	247	178	124.5	6,0	989.80	395



Screw driver

80 950 ...



Screw driver

80 950 ...



Grub screw

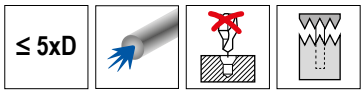
10 950 ...

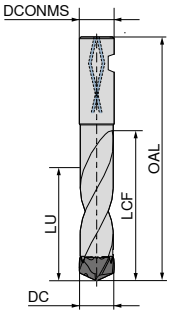
Spare parts DC		£ Y7			£ Y7			£ W1	
12,00 - 12,49	SW 1,3	4.78	132				M2,5 x 0,45 x 5	5.54	025
12,50 - 13,49	SW 1,3	4.78	132				M2,5 x 0,45 x 6	5.54	026
13,50 - 14,49				SW 1,5	6.22	133	M3 x 0,5 x 6	5.54	031
14,50 - 16,49				SW 1,5	6.22	133	M3 x 0,5 x 7	5.72	030
16,50 - 20,49				SW 2	5.92	134	M4 x 0,5 x 7,5	5.72	040
20,50 - 24,49				SW 2	5.92	134	M4 x 0,5 x 10	5.72	041
24,50 - 28,49				SW 2,5	5.56	135	M5 x 0,5 x 11	5.72	050
28,50 - 32,49				SW 2,5	5.56	135	M5 x 0,5 x 14	5.72	051
32,50 - 35,49				SW 3	5.56	136	M6 x 0,5 x 16	10.21	060
35,50 - 39,49				SW 3	5.56	136	M6 x 0,5 x 18	10.21	061
39,50 - 41,00				SW 3	5.56	136	M6 x 0,5 x 20	10.21	062

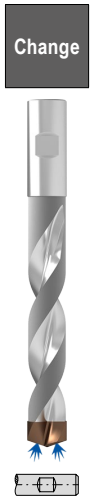
WTX – Holder for Exchangeable drills

▲ with radial teeth

Scope of supply:
Holder incl. screw driver





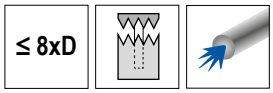


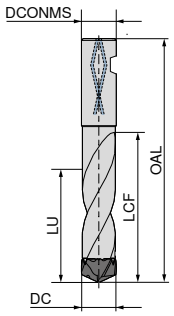
DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	10 915 ... £ W1	
12,00 - 12,49	14	125	78	62.0	1,0	398.64	120
12,50 - 12,99	14	130	81	65.0	1,0	398.64	125
13,00 - 13,49	14	130	84	67.0	1,0	398.64	130
13,50 - 13,99	16	140	88	70.0	1,3	398.64	135
14,00 - 14,49	16	140	90	72.0	1,3	398.64	140
14,50 - 14,99	16	145	94	75.0	1,3	398.64	145
15,00 - 15,49	16	145	96	77.0	1,3	398.64	150
15,50 - 16,49	18	155	103	82.0	1,3	408.50	160
15,50 - 16,49	20	160	103	82.0	1,3	408.50	161
16,50 - 17,49	18	160	109	87.0	3,5	408.50	165
16,50 - 17,49	20	165	109	87.0	3,5	408.50	166
17,50 - 18,49	18	165	115	92.0	3,5	408.50	175
17,50 - 18,49	20	170	115	92.0	3,5	408.50	176
18,50 - 19,49	20	175	121	97.0	3,5	473.51	185
19,50 - 20,49	20	180	128	102.0	3,5	473.51	195
20,50 - 21,49	25	195	134	107.0	3,5	514.16	205
21,50 - 22,49	25	200	140	112.0	3,5	514.16	215
22,50 - 23,49	25	205	146	117.0	3,5	558.84	225
23,50 - 24,49	25	210	152	122.0	3,5	558.84	235
24,50 - 25,49	25	220	159	127.0	4,0	601.43	245
25,50 - 26,49	25	225	165	132.0	4,0	601.43	255
26,50 - 27,49	25	230	171	137.0	4,0	601.43	265
27,50 - 28,49	25	240	177	142.0	4,0	601.43	275
28,50 - 29,49	32	250	183	146.0	4,0	686.76	285
29,50 - 30,49	32	255	190	152.0	4,0	686.76	295
30,50 - 31,49	32	260	196	157.0	4,0	749.81	305
31,50 - 32,49	32	265	202	162.0	4,0	749.81	315
32,50 - 33,49	32	275	210	167.5	6,0	915.38	325
33,50 - 34,49	32	285	217	172.5	6,0	915.38	335
34,50 - 35,49	32	290	224	177.5	6,0	915.38	345
35,50 - 37,49	32	302	236	187.5	6,0	1,029.57	355
37,50 - 39,49	32	317	249	197.5	6,0	1,067.68	375
39,50 - 41,00	32	327	261	207.5	6,0	1,091.86	395

WTX – Holder for Exchangeable drills

▲ Pilot hole is recommended
▲ With radial teeth

Scope of supply:
Holder incl. screw driver

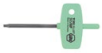






DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	10 918 ... £ W1	
12,00 - 12,49	14	165	116	100	1,0	506.99	120
12,50 - 12,99	14	170	121	104	1,0	506.99	125
13,00 - 13,49	14	175	126	108	1,0	506.99	130
13,50 - 13,99	16	180	129	111	1,3	506.99	135
14,00 - 14,49	16	185	134	115	1,3	506.99	140
14,50 - 14,99	16	190	139	120	1,3	506.99	145
15,00 - 15,49	16	195	144	124	1,3	506.99	150
15,50 - 16,49	18	205	152	131	1,3	516.66	160
15,50 - 16,49	20	210	152	131	1,3	516.66	161
16,50 - 17,49	18	215	161	138	3,5	516.66	165
16,50 - 17,49	20	220	161	138	3,5	516.66	166
17,50 - 18,49	18	220	171	147	3,5	516.66	175
17,50 - 18,49	20	225	171	147	3,5	516.66	176
18,50 - 19,49	20	235	180	155	3,5	594.07	185
19,50 - 20,49	20	240	189	163	3,5	594.07	195
20,50 - 21,49	25	260	198	170	3,5	646.31	205
21,50 - 22,49	25	270	207	178	3,5	646.31	215
22,50 - 23,49	25	275	217	187	3,5	725.66	225
23,50 - 24,49	25	285	226	194	3,5	725.66	235
24,50 - 25,49	25	295	235	202	4,0	830.13	245
25,50 - 26,49	25	305	244	210	4,0	830.13	255
26,50 - 27,49	25	315	253	218	4,0	830.13	265
27,50 - 28,49	25	325	263	226	4,0	830.13	275
28,50 - 29,49	32	340	272	234	4,0	959.78	285
29,50 - 30,49	32	345	281	242	4,0	959.78	295
30,50 - 31,49	32	355	290	249	4,0	1,064.29	305
31,50 - 32,00	32	360	299	257	4,0	1,064.29	315


Screw driver


Screw driver

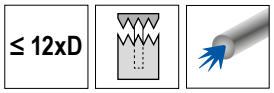

Grub screw

Spare parts DC		80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W1	
12,00 - 12,49	SW 1,3	4.78	132				M2,5 x 0,45 x 5	5.54	025
12,50 - 13,49	SW 1,3	4.78	132				M2,5 x 0,45 x 6	5.54	026
13,50 - 14,49				SW 1,5	6.22	133	M3 x 0,5 x 6	5.54	031
14,50 - 16,49				SW 1,5	6.22	133	M3 x 0,5 x 7	5.72	030
16,50 - 20,49				SW 2	5.92	134	M4 x 0,5 x 7,5	5.72	040
20,50 - 24,49				SW 2	5.92	134	M4 x 0,5 x 10	5.72	041
24,50 - 28,49				SW 2,5	5.56	135	M5 x 0,5 x 11	5.72	050
28,50 - 32,49				SW 2,5	5.56	135	M5 x 0,5 x 14	5.72	051
32,50 - 35,49				SW 3	5.56	136	M6 x 0,5 x 16	10.21	060
35,50 - 39,49				SW 3	5.56	136	M6 x 0,5 x 18	10.21	061
39,50 - 41,00				SW 3	5.56	136	M6 x 0,5 x 20	10.21	062

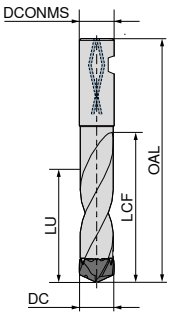
WTX – Holder for Exchangeable drills

▲ Pilot hole is recommended
▲ With radial teeth

Scope of supply:
Holder incl. screw driver





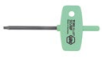




						10 912 ...	
DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	£ W1	
12,00 - 12,49	14	210	162	150	1,0	669.77	**12000**
12,50 - 12,99	14	216	168	156	1,0	669.77	**12500**
13,00 - 13,49	14	223	175	162	1,0	669.77	**13000**
13,50 - 13,99	16	235	182	168	1,3	669.77	**13500**
14,00 - 14,49	16	242	189	174	1,3	669.77	**14000**
14,50 - 14,99	16	248	195	180	1,3	669.77	**14500**
15,00 - 15,49	16	255	202	186	1,3	669.77	**15000**
15,50 - 16,49	18	262	209	198	1,3	729.61	**15500**
16,50 - 17,49	18	275	222	210	3,5	729.61	**16500**
17,50 - 18,49	18	289	236	222	3,5	729.61	**17500**
18,50 - 19,49	20	304	249	234	3,5	884.03	**18500**
19,50 - 20,49	20	318	263	246	3,5	884.03	**19500**
20,50 - 21,49	25	337	276	258	3,5	954.96	**20500**
21,50 - 22,49	25	351	290	270	3,5	954.96	**21500**
22,50 - 23,49	25	364	303	282	3,5	1,061.09	**22500**
23,50 - 24,49	25	378	317	294	3,5	1,061.09	**23500**
24,50 - 25,49	25	391	330	306	4,0	1,202.77	**24500**
25,50 - 26,49	25	405	344	318	4,0	1,202.77	**25500**
26,50 - 27,49	25	418	357	330	4,0	1,202.77	**26500**
27,50 - 28,49	25	432	371	342	4,0	1,202.77	**27500**
28,50 - 29,49	32	449	384	354	4,0	1,379.35	**28500**
29,50 - 30,49	32	463	398	366	4,0	1,379.35	**29500**
30,50 - 31,49	32	476	411	378	4,0	1,521.19	**30500**
31,50 - 32,00	32	490	425	390	4,0	1,521.19	**31500**



Screw driver



Screw driver



Grub screw

Spare parts		80 950 ...				80 950 ...				10 950 ...	
DC		£ Y7				£ Y7				£ W1	
12,00 - 12,49	SW 1,3	4.78	**132**					M2,5 x 0,45 x 5	5.54	**025**
12,50 - 13,49	SW 1,3	4.78	**132**					M2,5 x 0,45 x 6	5.54	**026**
13,50 - 14,49				SW 1,5	6.22	**133**		M3 x 0,5 x 6	5.54	**031**
14,50 - 16,49				SW 1,5	6.22	**133**		M3 x 0,5 x 7	5.72	**030**
16,50 - 20,49				SW 2	5.92	**134**		M4 x 0,5 x 7,5	5.72	**040**
20,50 - 24,49				SW 2	5.92	**134**		M4 x 0,5 x 10	5.72	**041**
24,50 - 28,49				SW 2,5	5.56	**135**		M5 x 0,5 x 11	5.72	**050**
28,50 - 32,49				SW 2,5	5.56	**135**		M5 x 0,5 x 14	5.72	**051**
32,50 - 35,49				SW 3	5.56	**136**		M6 x 0,5 x 16	10.21	**060**
35,50 - 39,49				SW 3	5.56	**136**		M6 x 0,5 x 18	10.21	**061**
39,50 - 41,00				SW 3	5.56	**136**		M6 x 0,5 x 20	10.21	**062**

WPC – Indexable insert for indexable insert drill

Scope of supply:

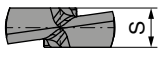
Indexable insert (clamping screws can be ordered separately, if necessary)

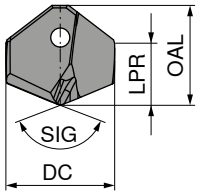


NEW

Change UNI

TPX74S







SIG 135°

HM

DC m7 mm	OAL mm	LPR mm	S mm	11 910 ... £ TS	
14.0	12.8	7.73	5.00	89.44	14000
14.1	12.8	7.73	5.00	89.44	14100
14.2	12.8	7.73	5.00	89.44	14200
14.3	12.8	7.73	5.00	89.44	14300
14.4	12.8	7.73	5.00	89.44	14400
14.5	13.1	7.84	5.00	89.44	14500
14.6	13.1	7.84	5.00	89.44	14600
14.7	13.1	7.84	5.00	89.44	14700
14.8	13.1	7.84	5.00	90.82	14800
14.9	13.1	7.84	5.00	90.82	14900
15.0	13.4	7.95	5.00	90.82	15000
15.1	13.4	7.95	5.00	90.82	15100
15.2	13.4	7.95	5.00	90.82	15200
15.3	13.4	7.95	5.00	90.82	15300
15.4	13.4	7.95	5.00	90.82	15400
15.5	13.7	8.05	5.00	90.82	15500
15.6	13.7	8.05	5.00	90.82	15600
15.7	13.7	8.05	5.00	90.82	15700
15.8	13.7	8.05	5.00	96.34	15800
15.9	13.7	8.05	5.00	96.34	15900
16.0	14.4	9.06	5.80	96.34	16000
16.1	14.4	9.06	5.80	96.34	16100
16.2	14.4	9.06	5.80	96.34	16200
16.3	14.4	9.06	5.80	96.34	16300
16.4	14.4	9.06	5.80	96.34	16400
16.5	14.7	9.17	5.80	96.34	16500
16.6	14.7	9.17	5.80	96.34	16600
16.7	14.7	9.17	5.80	96.34	16700
16.8	14.7	9.17	5.80	98.64	16800
16.9	14.7	9.17	5.80	98.64	16900
17.0	15.0	9.28	5.80	98.64	17000
17.1	15.0	9.28	5.80	98.64	17100
17.2	15.0	9.28	5.80	98.64	17200
17.3	15.0	9.28	5.80	98.64	17300
17.4	15.0	9.28	5.80	98.64	17400
17.5	15.3	9.39	5.80	98.64	17500
17.6	15.3	9.39	5.80	98.64	17600
17.7	15.3	9.39	5.80	98.64	17700
17.8	15.3	9.39	5.80	100.95	17800
17.9	15.3	9.39	5.80	100.95	17900
18.0	16.3	10.19	6.50	100.95	18000
18.1	16.3	10.19	6.50	100.95	18100
18.2	16.3	10.19	6.50	100.95	18200
18.3	16.3	10.19	6.50	100.95	18300
18.4	16.3	10.19	6.50	100.95	18400
18.5	16.6	10.30	6.50	100.95	18500
18.6	16.6	10.30	6.50	100.95	18600
18.7	16.6	10.30	6.50	100.95	18700
18.8	16.6	10.30	6.50	103.91	18800
18.9	16.6	10.30	6.50	103.91	18900
19.0	16.9	10.41	6.50	103.91	19000
19.1	16.9	10.41	6.50	103.91	19100
19.2	16.9	10.41	6.50	103.91	19200
19.3	16.9	10.41	6.50	103.91	19300
19.4	16.9	10.41	6.50	103.91	19400
19.5	17.2	10.52	6.50	103.91	19500
19.6	17.2	10.52	6.50	103.91	19600
19.7	17.2	10.52	6.50	103.91	19700
19.8	17.2	10.52	6.50	107.34	19800
19.9	17.2	10.52	6.50	107.34	19900

DC m7 mm	OAL mm	LPR mm	S mm	11 910 ... £ TS	
20.0	18.2	11.33	7.20	107.34	20000
20.1	18.2	11.33	7.20	107.34	20100
20.2	18.2	11.33	7.20	107.34	20200
20.3	18.2	11.33	7.20	107.34	20300
20.4	18.2	11.33	7.20	107.34	20400
20.5	18.5	11.43	7.20	107.34	20500
20.6	18.5	11.43	7.20	107.34	20600
20.7	18.5	11.43	7.20	107.34	20700
20.8	18.5	11.43	7.20	110.35	20800
20.9	18.5	11.43	7.20	110.35	20900
21.0	18.8	11.54	7.20	110.35	21000
21.1	18.8	11.54	7.20	110.35	21100
21.2	18.8	11.54	7.20	110.35	21200
21.3	18.8	11.54	7.20	110.35	21300
21.4	18.8	11.54	7.20	110.35	21400
21.5	19.1	11.65	7.20	110.35	21500
21.6	19.1	11.65	7.20	110.35	21600
21.7	19.1	11.65	7.20	110.35	21700
21.8	19.1	11.65	7.20	112.94	21800
21.9	19.1	11.65	7.20	112.94	21900
22.0	20.2	12.56	7.90	112.94	22000
22.1	20.2	12.56	7.90	112.94	22100
22.2	20.2	12.56	7.90	112.94	22200
22.3	20.2	12.56	7.90	112.94	22300
22.4	20.2	12.56	7.90	112.94	22400
22.5	20.5	12.67	7.90	112.94	22500
22.6	20.5	12.67	7.90	112.94	22600
22.7	20.5	12.67	7.90	112.94	22700
22.8	20.5	12.67	7.90	117.20	22800
22.9	20.5	12.67	7.90	117.20	22900
23.0	20.8	12.78	7.90	117.20	23000
23.1	20.8	12.78	7.90	117.20	23100
23.2	20.8	12.78	7.90	117.20	23200
23.3	20.8	12.78	7.90	117.20	23300
23.4	20.8	12.78	7.90	117.20	23400
23.5	21.1	12.88	7.90	117.20	23500
23.6	21.1	12.88	7.90	117.20	23600
23.7	21.1	12.88	7.90	117.20	23700
23.8	21.1	12.88	7.90	123.53	23800
23.9	21.1	12.88	7.90	123.53	23900
24.0	22.1	13.69	8.60	123.53	24000
24.1	22.1	13.69	8.60	123.53	24100
24.2	22.1	13.69	8.60	123.53	24200
24.3	22.1	13.69	8.60	123.53	24300
24.4	22.1	13.69	8.60	123.53	24400
24.5	22.4	13.80	8.60	123.53	24500
24.6	22.4	13.80	8.60	123.53	24600
24.7	22.4	13.80	8.60	123.53	24700
24.8	22.4	13.80	8.60	130.62	24800
24.9	22.4	13.80	8.60	130.62	24900
25.0	22.7	13.91	8.60	130.62	25000
25.1	22.7	13.91	8.60	130.62	25100
25.2	22.7	13.91	8.60	130.62	25200
25.3	22.7	13.91	8.60	130.62	25300
25.4	22.7	13.91	8.60	130.62	25400
25.5	23.0	14.02	8.60	130.62	25500
25.6	23.0	14.02	8.60	130.62	25600
25.7	23.0	14.02	8.60	130.62	25700
25.8	23.0	14.02	8.60	137.39	25800
25.9	23.0	14.02	8.60	137.39	25900
26.0	24.1	14.92	9.40	137.39	26000
26.5	24.4	15.03	9.40	137.39	26500
27.0	24.7	15.14	9.40	147.75	27000
27.5	25.0	15.25	9.40	147.75	27500
28.0	25.3	15.36	9.40	147.75	28000
28.5	25.6	15.47	9.40	154.07	28500
29.0	25.9	15.57	9.40	154.07	29000
29.5	26.2	15.68	9.40	159.82	29500
30.0	26.2	15.49	9.40	159.82	30000

P	●
M	
K	●
N	
S	
H	
O	

→ v_c Page 157

→ Application recommendation on page 163

When changing inserts, please observe the specified tightening torque.

WPC – Holder for indexable insert drill

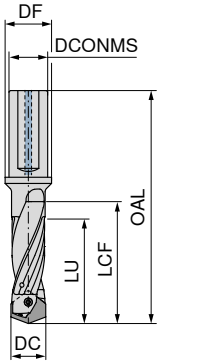
▲ Easy handling
▲ Insert can be changed in the machine
▲ Precise and stable insert seat, clamping via Torx Plus® screw

Scope of supply:
Holder incl. clamping screw

≤ 3xD

NEW

Change







							11 903 ...	
DC mm	DCONMS mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	£ TT	
14,00 - 14,49	16	108.9	50.8	43.5	20	0.9	263.49	14000
14,50 - 14,99	16	111.0	52.5	45.0	20	0.9	263.49	14500
15,00 - 15,49	20	115.1	54.3	46.5	25	0.9	263.49	15000
15,50 - 15,99	20	117.2	56.0	48.0	25	0.9	263.49	15500
16,00 - 16,49	20	119.3	57.8	49.5	25	1.2	289.10	16000
16,50 - 16,99	20	121.4	59.5	51.0	25	1.2	289.10	16500
17,00 - 17,49	20	123.5	61.3	52.5	25	1.2	289.10	17000
17,50 - 17,99	20	125.6	63.0	54.0	25	1.2	289.10	17500
18,00 - 18,49	20	127.7	64.8	55.5	25	2.2	308.22	18000
18,50 - 18,99	20	129.8	66.5	57.0	25	2.2	308.22	18500
19,00 - 19,49	25	137.9	68.3	58.5	30	2.2	308.22	19000
19,50 - 19,99	25	140.0	70.0	60.0	30	2.2	308.22	19500
20,00 - 20,49	25	142.1	71.8	61.5	30	2.2	327.33	20000
20,50 - 20,99	25	144.2	73.5	63.0	30	2.2	327.33	20500
21,00 - 21,49	25	146.3	75.3	64.5	30	2.2	356.01	21000
21,50 - 21,99	25	148.4	77.0	66.0	30	2.2	361.16	21500
22,00 - 22,49	25	150.5	78.8	67.5	30	3.2	366.20	22000
22,50 - 22,99	25	152.6	80.5	69.0	30	3.2	371.21	22500
23,00 - 23,49	25	154.7	82.3	70.5	30	3.2	376.48	23000
23,50 - 23,99	25	156.8	84.0	72.0	30	3.2	381.51	23500
24,00 - 24,49	32	162.9	85.8	73.5	39	5	386.54	24000
24,50 - 24,99	32	165.0	87.5	75.0	39	5	391.67	24500
25,00 - 25,49	32	167.1	89.3	76.5	39	5	396.69	25000
25,50 - 25,99	32	169.2	91.0	78.0	39	5	401.85	25500
26,00 - 26,49	32	171.3	92.8	79.5	39	6	406.88	26000
26,50 - 26,99	32	173.4	94.5	81.0	39	6	412.02	26500
27,00 - 27,49	32	175.5	96.3	82.5	39	6	417.04	27000
27,50 - 27,99	32	177.6	98.0	84.0	39	6	422.07	27500
28,00 - 28,49	32	179.7	99.8	85.5	39	6	427.33	28000
28,50 - 28,99	32	181.8	101.5	87.0	39	6	432.37	28500
29,00 - 29,49	32	183.9	103.3	88.5	39	6	437.38	29000
29,50 - 30,00	32	186.0	105.0	90.0	39	6	442.53	29500

WPC – Holder for indexable insert drill

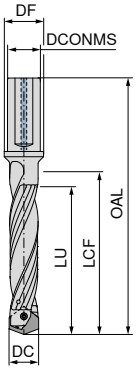
▲ Easy handling
▲ Insert can be changed in the machine
▲ Precise and stable insert seat, clamping via Torx Plus® screw

Scope of supply:
Holder incl. clamping screw

≤ 5xD

NEW

Change







							11 905 ...	
DC mm	DCONMS mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	£ TT	
14,00 - 14,49	16	137.9	79.8	72.5	20	0.9	285.55	14000
14,50 - 14,99	16	141.0	82.5	75.0	20	0.9	285.55	14500
15,00 - 15,49	20	146.1	85.3	77.5	25	0.9	285.55	15000
15,50 - 15,99	20	149.2	88.0	80.0	25	0.9	285.55	15500
16,00 - 16,49	20	152.3	90.8	82.5	25	1.2	310.90	16000
16,50 - 16,99	20	155.4	93.5	85.0	25	1.2	310.90	16500
17,00 - 17,49	20	158.5	96.3	87.5	25	1.2	310.90	17000
17,50 - 17,99	20	161.6	99.0	90.0	25	1.2	310.90	17500
18,00 - 18,49	20	164.7	101.8	92.5	25	2.2	330.77	18000
18,50 - 18,99	20	167.8	104.5	95.0	25	2.2	330.77	18500
19,00 - 19,49	25	176.9	107.3	97.5	30	2.2	330.77	19000
19,50 - 19,99	25	180.0	110.0	100.0	30	2.2	330.77	19500
20,00 - 20,49	25	183.1	112.8	102.5	30	2.2	349.39	20000
20,50 - 20,99	25	186.2	115.5	105.0	30	2.2	349.39	20500
21,00 - 21,49	25	189.3	118.3	107.5	30	2.2	379.17	21000
21,50 - 21,99	25	192.4	121.0	110.0	30	2.2	384.20	21500
22,00 - 22,49	25	195.5	123.8	112.5	30	3.2	389.22	22000
22,50 - 22,99	25	198.6	126.5	115.0	30	3.2	394.38	22500
23,00 - 23,49	25	201.7	129.3	117.5	30	3.2	399.51	23000
23,50 - 23,99	25	204.8	132.0	120.0	30	3.2	404.54	23500
24,00 - 24,49	32	211.9	134.8	122.5	39	5	409.70	24000
24,50 - 24,99	32	215.0	137.5	125.0	39	5	414.72	24500
25,00 - 25,49	32	218.1	140.3	127.5	39	5	419.85	25000
25,50 - 25,99	32	221.2	143.0	130.0	39	5	425.01	25500
26,00 - 26,49	32	224.3	145.8	132.5	39	6	430.04	26000
26,50 - 26,99	32	227.4	148.5	135.0	39	6	435.06	26500
27,00 - 27,49	32	230.5	151.3	137.5	39	6	440.20	27000
27,50 - 27,99	32	233.6	154.0	140.0	39	6	445.35	27500
28,00 - 28,49	32	236.7	156.8	142.5	39	6	450.38	28000
28,50 - 28,99	32	239.8	159.5	145.0	39	6	455.40	28500
29,00 - 29,49	32	242.9	162.3	147.5	39	6	460.56	29000
29,50 - 30,00	32	246.0	165.0	150.0	39	6	465.58	29500



Screwdriver

80 950 ...

Replaceable Blade for TORX PLUS®

80 950 ...



Torque screwdrivers

80 950 ...



Clamping screw

11 950 ...

Spare parts DC		£ Y7			£ Y7			£ Y7			£ TT	
14,00 - 15,99	T08 - IP	11.07	060	T08 - IP	8.91	043	0,5 - 2,0 Nm	217.91	191	M2,2x13 - 08IP	11.54	00100
16,00 - 17,99	T08 - IP	11.07	060	T08 - IP	8.91	043	0,5 - 2,0 Nm	217.91	191	M2,5x15 - 08IP	11.54	00200
18,00 - 21,99	T10 - IP	10.85	062	T10 - IP	8.91	053	2,0 - 7,0 Nm	244.07	193	M3,0x17 - 10IP	12.34	00300
22,00 - 23,99	T10 - IP	10.85	062	T10 - IP	8.91	053	2,0 - 7,0 Nm	244.07	193	M3,5x21 - 10IP	12.34	00400
24,00 - 25,99	T15 - IP	11.44	063	T15 - IP	8.91	054	2,0 - 7,0 Nm	244.07	193	M4,0x23 - 15IP	12.34	00500
26,00 - 30,00	T20 - IP	12.73	064	T20 - IP	8.91	055	2,0 - 7,0 Nm	244.07	193	M4,5x25 - 20IP	14.54	00600

MultiChange – Programme Overview

The "MultiChange" interchangeable head system enables an extremely fast and problem free tool change. Provides quick changeover and concentricity with the highest stability at the same time. For a multitude of applications, the suitable interchangeable heads are available in the following chapters.

Exchangeable heads

→ Chapter 2, Solid carbide drilling

Page No. 2|107

Solid Carbide NC Spot Drills

Ø 8, 10, 12, 16, 20 mm
NOF 2


SIG 90°


SIG 120°


SIG 142°

→ Chapter 4, Reaming and countersinking

Page No. 4|18 + 4|19

Replaceable reaming heads

Ø 8,00 – 30,20 mm


Through hole

Ø 12,20 – 30,20 mm


Blind hole

→ Chapter 14, Solid carbide milling cutters

Page No. 14|198 – 14|202

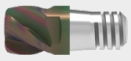
Solid carbide shoulder mills
Ø 8, 10, 12, 16, 20 mm /
ZEFP 3+4


Type PCR-UNI


Type PCR-ALU


Type N

Solid carbide torus bull nose milling cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 3+4


Type W


Type N

Solid carbide rough and finish milling cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 4+6


Type NF

Solid carbide finish milling cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 6


Type N

Solid carbide ball-nosed end mills
Ø 10, 12, 16, 20 mm / ZEFP 4


Type N

Solid carbide high-feed cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 6


Type N

Solid carbide quarter round cutter
Ø 8, 10, 12, 16, 20 mm / ZEFP 6


Type N

Solid carbide deburring cutters
Ø 10, 12, 16, 20 mm / ZEFP 4+6


Type N


Type N

NOF / ZEFP = Number of cutting edges

Tool holder

→ Catalogue – Clamping technology, Chapter 16 Accessories

Page No. 16|259 – 16|261

OAL 60 – 90 mm


Tapered 87° / Steel

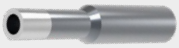

Cylindrical* / Steel

OAL 85 – 120 mm


Tapered 87° / Steel


Cylindrical* / Steel


Tapered 87° /
Solid carbide


Cylindrical* /
Solid carbide

OAL 110 – 150 mm


Tapered 87° / Solid carbide


Cylindrical* / Solid carbide

OAL 150 – 200 mm


Tapered 87° / Solid carbide


Cylindrical* / Steel


Cylindrical* / Solid carbide

OAL 200 – 250 mm


Cylindrical* / Steel


Cylindrical* / Solid carbide

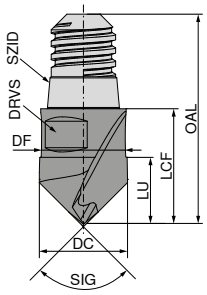
* only conditionally suitable for milling

MultiChange – NC Spot Drill

▲ SZID = Coupling Size
▲ NOF = No. of cutting edges



NC-A Ti1050 | NC-A Ti1050 | NC-A Ti1050





DC mm	SZID	LU mm	DF mm	LCF mm	OAL mm	NOF	DRVS mm	torque moment Nm	$a_{p\,max}$ mm	SIG 90° Solid carbide 10 709 ... £ T7		SIG 120° Solid carbide 10 712 ... £ T7		SIG 142° Solid carbide 10 714 ... £ T7	
8	06	6.0	7.8	11	20.4	2	6	5	4	43.04	**080**	43.04	**080**	43.04	**080**
10	08	7.5	9.8	13	26.9	2	8	12,5	5	47.69	**100**	47.69	**100**	47.69	**100**
12	10	9.0	11.8	16	30.1	2	10	15	6	61.19	**120**	61.19	**120**	61.19	**120**
16	12	12.0	15.8	20	37.3	2	13	20	8	86.54	**160**	86.54	**160**	86.54	**160**
20	16	15.0	19.8	25	47.2	2	16	25	10	125.89	**200**	125.89	**200**	125.89	**200**
P										●		●		●	
M										●		●		●	
K										●		●		●	
N										●		●		●	
S															
H															
O															

→ v_c Page 148

Torque wrench should be used for coupling sizes 06 and 08
For unstable applications, the cutting data should be reduced.

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values – WTX – Ti

Index	10 786 ..., 10 787 ...											
	3xD / 5xD											
	with through coolant	> Ø 2,5–3	> Ø 3–4	> Ø 4–5	> Ø 5–6	> Ø 6–8	> Ø 8–10	> Ø 10–12	> Ø 12–14	> Ø 14–16	> Ø 16–18	> Ø 18–20
	v_c (m/min)	f (mm/rev)										
P.1.1												
P.1.2	130	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
P.1.3	130	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
P.1.4	115	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
P.1.5	115	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
P.2.1												
P.2.2												
P.2.3	115	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
P.2.4	90	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
P.3.1												
P.3.2												
P.3.3	55	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
P.4.1	75	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.4.2	65	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
M.1.1	**70**	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
M.2.1	**70**	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
M.3.1	**70**	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1	**45**	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16	0,18	0,20	0,22
S.1.2	**45**	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16	0,18	0,20	0,22
S.2.1	**40**	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16	0,18	0,20	0,22
S.2.2	**40**	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16	0,18	0,20	0,22
S.2.3	**40**	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16	0,18	0,20	0,22
S.3.1	**55**	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16	0,18	0,20	0,22
S.3.2	**45**	0,02	0,04	0,05	0,07	0,09	0,11	0,13	0,16	0,18	0,20	0,22
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Cutting data standard values – WTX – UNI

Index	11 776 ..., 11 777 ..., 11 778 ..., 11 779 ..., 11 780 ..., 11 781 ...							
	3xD							
	without through coolant	with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20	Ø 20–25
	v_c (m/min)		f (mm/rev)					
P.1.1	110	120	0,13	0,18	0,25	0,30	0,34	0,37
P.1.2	105	115	0,12	0,18	0,24	0,29	0,33	0,36
P.1.3	100	110	0,12	0,17	0,23	0,28	0,31	0,34
P.1.4	95	105	0,11	0,16	0,21	0,26	0,30	0,32
P.1.5	90	100	0,11	0,15	0,20	0,25	0,28	0,30
P.2.1	105	120	0,15	0,22	0,29	0,36	0,41	0,44
P.2.2	95	110	0,14	0,20	0,27	0,33	0,37	0,40
P.2.3	85	100	0,13	0,18	0,24	0,29	0,33	0,36
P.2.4	65	75	0,12	0,16	0,21	0,26	0,29	0,32
P.3.1	70	85	0,12	0,18	0,24	0,29	0,33	0,36
P.3.2	60	65	0,11	0,15	0,20	0,24	0,27	0,29
P.3.3	50	65	0,09	0,12	0,15	0,19	0,21	0,23
P.4.1	50	65	0,08	0,12	0,16	0,19	0,22	0,24
P.4.2	50	65	0,08	0,12	0,16	0,19	0,22	0,24
M.1.1								
M.2.1								
M.3.1								
K.1.1	85	120	0,17	0,26	0,36	0,45	0,52	0,56
K.1.2	75	100	0,15	0,22	0,29	0,36	0,41	0,45
K.2.1	100	160	0,17	0,25	0,34	0,42	0,48	0,52
K.2.2	75	100	0,15	0,22	0,29	0,36	0,41	0,45
K.3.1	80	90	0,16	0,23	0,32	0,39	0,44	0,48
K.3.2	70	80	0,14	0,19	0,25	0,31	0,35	0,38
N.1.1								
N.1.2								
N.2.1								
N.2.2								
N.2.3								
N.3.1								
N.3.2								
N.3.3								
N.4.1								
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1	25	25	0,06	0,08	0,11	0,14	0,15	0,17
H.1.2								
H.1.3								
H.1.4								
H.2.1	35	35	0,08	0,11	0,14	0,18	0,20	0,22
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Index	11 782 ..., 11 783 ..., 11 784 ..., 11 785 ..., 11 786 ..., 11 787 ...								11 788 ..., 11 789 ..., 11 790 ...					
	5xD								8xD					
	without through coolant	with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20	Ø 20–25	with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
	v_c (m/min)		f (mm/rev)						v_c (m/min)	f (mm/rev)				
P.1.1	110	120	0,13	0,18	0,25	0,30	0,34	0,37	110	0,13	0,18	0,25	0,30	0,34
P.1.2	105	115	0,12	0,18	0,24	0,29	0,33	0,36	105	0,12	0,18	0,24	0,29	0,33
P.1.3	100	110	0,12	0,17	0,23	0,28	0,31	0,34	100	0,12	0,17	0,23	0,28	0,31
P.1.4	95	105	0,11	0,16	0,21	0,26	0,30	0,32	95	0,11	0,16	0,21	0,26	0,30
P.1.5	90	100	0,11	0,15	0,20	0,25	0,28	0,30	90	0,11	0,15	0,20	0,25	0,28
P.2.1	105	120	0,15	0,22	0,29	0,36	0,41	0,44	105	0,15	0,22	0,29	0,36	0,41
P.2.2	95	110	0,14	0,20	0,27	0,33	0,37	0,40	95	0,14	0,20	0,27	0,33	0,37
P.2.3	85	100	0,13	0,18	0,24	0,29	0,33	0,36	85	0,13	0,18	0,24	0,29	0,33
P.2.4	65	75	0,12	0,16	0,21	0,26	0,29	0,32	65	0,12	0,16	0,21	0,26	0,29
P.3.1	70	85	0,12	0,18	0,24	0,29	0,33	0,36	70	0,12	0,18	0,24	0,29	0,33
P.3.2	60	65	0,11	0,15	0,20	0,24	0,27	0,29	60	0,11	0,15	0,20	0,24	0,27
P.3.3	50	65	0,09	0,12	0,15	0,19	0,21	0,23	50	0,09	0,12	0,15	0,19	0,21
P.4.1	50	65	0,08	0,12	0,16	0,19	0,22	0,24	50	0,08	0,12	0,16	0,19	0,22
P.4.2	50	65	0,08	0,12	0,16	0,19	0,22	0,24	50	0,08	0,12	0,16	0,19	0,22
M.1.1														
M.2.1														
M.3.1														
K.1.1	85	120	0,17	0,26	0,36	0,45	0,52	0,56	85	0,17	0,26	0,36	0,45	0,52
K.1.2	75	100	0,15	0,22	0,29	0,36	0,41	0,45	75	0,15	0,22	0,29	0,36	0,41
K.2.1	100	160	0,17	0,25	0,34	0,42	0,48	0,52	100	0,17	0,25	0,34	0,42	0,48
K.2.2	75	100	0,15	0,22	0,29	0,36	0,41	0,45	75	0,15	0,22	0,29	0,36	0,41
K.3.1	80	90	0,16	0,23	0,32	0,39	0,44	0,48	80	0,16	0,23	0,32	0,39	0,44
K.3.2	70	80	0,14	0,19	0,25	0,31	0,35	0,38	70	0,14	0,19	0,25	0,31	0,35
N.1.1														
N.1.2														
N.2.1														
N.2.2														
N.2.3														
N.3.1														
N.3.2														
N.3.3														
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1	25	25	0,06	0,08	0,11	0,14	0,15	0,17	25	0,06	0,08	0,11	0,14	0,15
H.1.2														
H.1.3														
H.1.4														
H.2.1	35	35	0,08	0,11	0,14	0,18	0,20	0,22	35	0,08	0,11	0,14	0,18	0,20
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

Cutting data standard values – WTX – VA

Index	10 731 ..., 10 734 ...							10 740 ..., 10 745 ...						
	3xD							5xD						
	without through coolant	with through coolant	Ø 2–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20	without through coolant	with through coolant	Ø 2–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
	v_c (m/min)		f (mm/rev)					v_c (m/min)		f (mm/rev)				
P.1.1	100	110	0,09	0,13	0,18	0,22	0,25	100	110	0,09	0,13	0,18	0,22	0,25
P.1.2	95	105	0,09	0,13	0,17	0,21	0,24	95	105	0,09	0,13	0,17	0,21	0,24
P.1.3	90	100	0,09	0,12	0,16	0,20	0,23	90	100	0,09	0,12	0,16	0,20	0,23
P.1.4	85	95	0,08	0,12	0,16	0,19	0,22	85	95	0,08	0,12	0,16	0,19	0,22
P.1.5	80	90	0,08	0,11	0,15	0,18	0,20	80	90	0,08	0,11	0,15	0,18	0,20
P.2.1	95	110	0,11	0,16	0,21	0,26	0,29	95	110	0,11	0,16	0,21	0,26	0,29
P.2.2	85	100	0,10	0,14	0,19	0,24	0,27	85	100	0,10	0,14	0,19	0,24	0,27
P.2.3	75	90	0,09	0,13	0,17	0,21	0,24	75	90	0,09	0,13	0,17	0,21	0,24
P.2.4	60	70	0,09	0,12	0,16	0,19	0,21	60	70	0,09	0,12	0,16	0,19	0,21
P.3.1	65	75	0,09	0,13	0,17	0,21	0,24	65	75	0,09	0,13	0,17	0,21	0,24
P.3.2	55	60	0,08	0,11	0,14	0,17	0,20	55	60	0,08	0,11	0,14	0,17	0,20
P.3.3	45	60	0,06	0,09	0,11	0,14	0,15	45	60	0,06	0,09	0,11	0,14	0,15
P.4.1	45	60	0,06	0,09	0,11	0,14	0,16	45	60	0,06	0,09	0,11	0,14	0,16
P.4.2	45	60	0,06	0,09	0,11	0,14	0,16	45	60	0,06	0,09	0,11	0,14	0,16
M.1.1	**35**	**55**	0,08	0,11	0,14	0,18	0,20	**35**	**55**	0,08	0,11	0,14	0,18	0,20
M.2.1	**30**	**50**	0,06	0,09	0,12	0,15	0,17	**30**	**50**	0,06	0,09	0,12	0,15	0,17
M.3.1	**30**	**50**	0,06	0,09	0,12	0,15	0,17	**30**	**50**	0,06	0,09	0,12	0,15	0,17
K.1.1	85	120	0,15	0,24	0,33	0,41	0,47	85	120	0,15	0,24	0,33	0,41	0,47
K.1.2	75	100	0,14	0,20	0,27	0,33	0,37	75	100	0,14	0,20	0,27	0,33	0,37
K.2.1	100	160	0,15	0,22	0,31	0,38	0,43	100	160	0,15	0,22	0,31	0,38	0,43
K.2.2	75	100	0,14	0,20	0,27	0,33	0,37	75	100	0,14	0,20	0,27	0,33	0,37
K.3.1	80	90	0,15	0,21	0,29	0,35	0,40	80	90	0,15	0,21	0,29	0,35	0,40
K.3.2	70	80	0,12	0,17	0,23	0,28	0,32	70	80	0,12	0,17	0,23	0,28	0,32
N.1.1	220	330	0,10	0,16	0,22	0,30	0,33	220	330	0,10	0,16	0,22	0,30	0,33
N.1.2	200	300	0,09	0,12	0,20	0,25	0,30	200	300	0,09	0,12	0,20	0,25	0,30
N.2.1	180	250	0,11	0,15	0,26	0,33	0,39	180	250	0,11	0,15	0,26	0,33	0,39
N.2.2	150	220	0,11	0,15	0,26	0,33	0,39	150	220	0,11	0,15	0,26	0,33	0,39
N.2.3	120	180	0,11	0,15	0,26	0,33	0,39	120	180	0,11	0,15	0,26	0,33	0,39
N.3.1	160	200	0,15	0,24	0,33	0,41	0,47	160	200	0,15	0,24	0,33	0,41	0,47
N.3.2	90	120	0,14	0,20	0,27	0,33	0,37	90	120	0,14	0,20	0,27	0,33	0,37
N.3.3	100	140	0,12	0,15	0,21	0,25	0,28	100	140	0,12	0,15	0,21	0,25	0,28
N.4.1														
S.1.1	**20**	**30**	0,06	0,09	0,11	0,14	0,16	**20**	**30**	0,06	0,09	0,11	0,14	0,16
S.1.2	**15**	**20**	0,04	0,06	0,08	0,10	0,11	**15**	**20**	0,04	0,06	0,08	0,10	0,11
S.2.1	**15**	**20**	0,04	0,06	0,08	0,10	0,11	**15**	**20**	0,04	0,06	0,08	0,10	0,11
S.2.2	**10**	**15**	0,05	0,08	0,10	0,13	0,14	**10**	**15**	0,05	0,08	0,10	0,13	0,14
S.2.3	**10**	**15**	0,04	0,06	0,08	0,10	0,11	**10**	**15**	0,04	0,06	0,08	0,10	0,11
S.3.1														
S.3.2	**20**	**30**	0,06	0,09	0,12	0,15	0,17	**20**	**30**	0,06	0,09	0,12	0,15	0,17
S.3.3	**15**	**25**	0,05	0,08	0,10	0,13	0,14	**15**	**25**	0,05	0,08	0,10	0,13	0,14
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Index	10 770 ...					
	8xD					
	with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
	v_c (m/min)	f (mm/rev)				
P.1.1	110	0,09	0,13	0,18	0,22	0,25
P.1.2	105	0,09	0,13	0,17	0,21	0,24
P.1.3	100	0,09	0,12	0,16	0,20	0,23
P.1.4	95	0,08	0,12	0,16	0,19	0,22
P.1.5	90	0,08	0,11	0,15	0,18	0,20
P.2.1	110	0,11	0,16	0,21	0,26	0,29
P.2.2	100	0,10	0,14	0,19	0,24	0,27
P.2.3	90	0,09	0,13	0,17	0,21	0,24
P.2.4	70	0,09	0,12	0,16	0,19	0,21
P.3.1	75	0,09	0,13	0,17	0,21	0,24
P.3.2	60	0,08	0,11	0,14	0,17	0,20
P.3.3	60	0,06	0,09	0,11	0,14	0,15
P.4.1	60	0,06	0,09	0,11	0,14	0,16
P.4.2	60	0,06	0,09	0,11	0,14	0,16
M.1.1	**55**	0,08	0,11	0,14	0,18	0,20
M.2.1	**50**	0,06	0,09	0,12	0,15	0,17
M.3.1	**50**	0,06	0,09	0,12	0,15	0,17
K.1.1	120	0,15	0,24	0,33	0,41	0,47
K.1.2	100	0,14	0,20	0,27	0,33	0,37
K.2.1	160	0,15	0,22	0,31	0,38	0,43
K.2.2	100	0,14	0,20	0,27	0,33	0,37
K.3.1	90	0,15	0,21	0,29	0,35	0,40
K.3.2	80	0,12	0,17	0,23	0,28	0,32
N.1.1	330	0,10	0,16	0,22	0,30	0,33
N.1.2	300	0,09	0,12	0,20	0,25	0,30
N.2.1	250	0,11	0,15	0,26	0,33	0,39
N.2.2	220	0,11	0,15	0,26	0,33	0,39
N.2.3	180	0,11	0,15	0,26	0,33	0,39
N.3.1	200	0,15	0,24	0,33	0,41	0,47
N.3.2	120	0,14	0,20	0,27	0,33	0,37
N.3.3	140	0,12	0,15	0,21	0,25	0,28
N.4.1						
S.1.1	**30**	0,06	0,09	0,11	0,14	0,16
S.1.2	**20**	0,04	0,06	0,08	0,10	0,11
S.2.1	**20**	0,04	0,06	0,08	0,10	0,11
S.2.2	**15**	0,05	0,08	0,10	0,13	0,14
S.2.3	**15**	0,04	0,06	0,08	0,10	0,11
S.3.1						
S.3.2	**30**	0,06	0,09	0,12	0,15	0,17
S.3.3	**25**	0,05	0,08	0,10	0,13	0,14
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – WTX – Speed UNI

Index	10 781 ...						10 771 ...					
	3xD						5xD					
	with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20	with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
	v_c (m/min)	f (mm/rev)					v_c (m/min)	f (mm/rev)				
P.1.1	185	0,17	0,24	0,33	0,40	0,45	185	0,17	0,24	0,33	0,40	0,45
P.1.2	180	0,16	0,23	0,31	0,38	0,43	180	0,16	0,23	0,31	0,38	0,43
P.1.3	170	0,16	0,22	0,30	0,36	0,41	170	0,16	0,22	0,30	0,36	0,41
P.1.4	160	0,15	0,21	0,28	0,35	0,39	160	0,15	0,21	0,28	0,35	0,39
P.1.5	155	0,14	0,20	0,27	0,33	0,37	155	0,14	0,20	0,27	0,33	0,37
P.2.1	185	0,20	0,29	0,39	0,47	0,53	185	0,20	0,29	0,39	0,47	0,53
P.2.2	170	0,18	0,26	0,35	0,43	0,49	170	0,18	0,26	0,35	0,43	0,49
P.2.3	155	0,17	0,24	0,32	0,39	0,44	155	0,17	0,24	0,32	0,39	0,44
P.2.4	120	0,16	0,21	0,28	0,34	0,38	120	0,16	0,21	0,28	0,34	0,38
P.3.1	130	0,16	0,23	0,32	0,39	0,44	130	0,16	0,23	0,32	0,39	0,44
P.3.2	100	0,14	0,20	0,26	0,32	0,36	100	0,14	0,20	0,26	0,32	0,36
P.3.3	100	0,12	0,16	0,20	0,25	0,28	100	0,12	0,16	0,20	0,25	0,28
P.4.1	100	0,11	0,16	0,21	0,25	0,29	100	0,11	0,16	0,21	0,25	0,29
P.4.2	100	0,11	0,16	0,21	0,25	0,29	100	0,11	0,16	0,21	0,25	0,29
M.1.1	65	0,08	0,12	0,16	0,19	0,22	65	0,08	0,12	0,16	0,19	0,22
M.2.1	60	0,07	0,10	0,14	0,17	0,19	60	0,07	0,10	0,14	0,17	0,19
M.3.1	60	0,07	0,10	0,14	0,17	0,19	60	0,07	0,10	0,14	0,17	0,19
K.1.1	150	0,18	0,28	0,40	0,49	0,56	150	0,18	0,28	0,40	0,49	0,56
K.1.2	125	0,16	0,24	0,32	0,39	0,45	125	0,16	0,24	0,32	0,39	0,45
K.2.1	200	0,18	0,27	0,37	0,46	0,52	200	0,18	0,27	0,37	0,46	0,52
K.2.2	125	0,16	0,24	0,32	0,39	0,45	125	0,16	0,24	0,32	0,39	0,45
K.3.1	115	0,18	0,25	0,34	0,42	0,48	115	0,18	0,25	0,34	0,42	0,48
K.3.2	100	0,15	0,21	0,28	0,34	0,38	100	0,15	0,21	0,28	0,34	0,38
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Index	10 782 ...					
	8xD					
	with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
	v_c (m/min)	f (mm/rev)				
P.1.1	185	0,17	0,24	0,33	0,40	0,45
P.1.2	180	0,16	0,23	0,31	0,38	0,43
P.1.3	170	0,16	0,22	0,30	0,36	0,41
P.1.4	160	0,15	0,21	0,28	0,35	0,39
P.1.5	155	0,14	0,20	0,27	0,33	0,37
P.2.1	185	0,20	0,29	0,39	0,47	0,53
P.2.2	170	0,18	0,26	0,35	0,43	0,49
P.2.3	155	0,17	0,24	0,32	0,39	0,44
P.2.4	120	0,16	0,21	0,28	0,34	0,38
P.3.1	130	0,16	0,23	0,32	0,39	0,44
P.3.2	100	0,14	0,20	0,26	0,32	0,36
P.3.3	100	0,12	0,16	0,20	0,25	0,28
P.4.1	100	0,11	0,16	0,21	0,25	0,29
P.4.2	100	0,11	0,16	0,21	0,25	0,29
M.1.1	65	0,08	0,12	0,16	0,19	0,22
M.2.1	60	0,07	0,10	0,14	0,17	0,19
M.3.1	60	0,07	0,10	0,14	0,17	0,19
K.1.1	150	0,18	0,28	0,40	0,49	0,56
K.1.2	125	0,16	0,24	0,32	0,39	0,45
K.2.1	200	0,18	0,27	0,37	0,46	0,52
K.2.2	125	0,16	0,24	0,32	0,39	0,45
K.3.1	115	0,18	0,25	0,34	0,42	0,48
K.3.2	100	0,15	0,21	0,28	0,34	0,38
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – WTX – Feed UNI

Index	10 789 ...								
	5xD								
	with through coolant	Ø 4–6	Ø 6–7	Ø 7–8	Ø 8–10	Ø 10–12	Ø 12–15	Ø 15–17	Ø 17–20
	v_c (m/min)	f (mm/rev)							
P.1.1	125	0,28	0,34	0,37	0,42	0,48	0,54	0,59	0,63
P.1.2	120	0,27	0,32	0,35	0,40	0,46	0,52	0,56	0,60
P.1.3	115	0,25	0,31	0,34	0,38	0,44	0,49	0,54	0,57
P.1.4	110	0,24	0,29	0,32	0,36	0,41	0,47	0,51	0,54
P.1.5	105	0,23	0,27	0,30	0,34	0,39	0,44	0,48	0,52
P.2.1	125	0,33	0,40	0,44	0,50	0,57	0,64	0,70	0,75
P.2.2	115	0,30	0,36	0,40	0,45	0,51	0,58	0,63	0,68
P.2.3	105	0,27	0,32	0,36	0,41	0,46	0,52	0,57	0,61
P.2.4	80	0,25	0,29	0,32	0,36	0,41	0,46	0,50	0,54
P.3.1	85	0,27	0,32	0,36	0,41	0,46	0,52	0,57	0,61
P.3.2	70	0,23	0,27	0,30	0,33	0,38	0,43	0,47	0,50
P.3.3	70	0,18	0,22	0,24	0,26	0,30	0,33	0,36	0,38
P.4.1	70	0,18	0,21	0,24	0,27	0,30	0,34	0,38	0,40
P.4.2	70	0,18	0,21	0,24	0,27	0,30	0,34	0,38	0,40
M.1.1	55	0,13	0,16	0,18	0,20	0,23	0,26	0,28	0,30
M.2.1	50	0,11	0,14	0,15	0,17	0,20	0,22	0,24	0,26
M.3.1	50	0,11	0,14	0,15	0,17	0,20	0,22	0,24	0,26
K.1.1	140	0,38	0,47	0,53	0,61	0,70	0,80	0,89	0,95
K.1.2	115	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
K.2.1	185	0,37	0,45	0,50	0,57	0,66	0,75	0,82	0,88
K.2.2	115	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
K.3.1	105	0,35	0,42	0,47	0,53	0,61	0,69	0,76	0,81
K.3.2	90	0,29	0,35	0,38	0,43	0,49	0,55	0,60	0,64
N.1.1	380	0,28	0,34	0,37	0,42	0,48	0,54	0,59	0,63
N.1.2	345	0,25	0,31	0,34	0,38	0,44	0,49	0,54	0,57
N.2.1	290	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
N.2.2	255	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
N.2.3	205	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
N.3.1	230	0,38	0,47	0,53	0,61	0,70	0,80	0,89	0,95
N.3.2	140	0,24	0,29	0,33	0,37	0,43	0,48	0,53	0,57
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Index	with through coolant v_c (m/min)	10 794 ..., 10 796 ... 8xD / 12xD Ø 4–6 f (mm/rev)	Ø 6–7	Ø 7–8	Ø 8–10	Ø 10–12	Ø 12–15	Ø 15–17	Ø 17–20
P.1.1	125	0,28	0,34	0,37	0,42	0,48	0,54	0,59	0,63
P.1.2	120	0,27	0,32	0,35	0,40	0,46	0,52	0,56	0,60
P.1.3	115	0,25	0,31	0,34	0,38	0,44	0,49	0,54	0,57
P.1.4	110	0,24	0,29	0,32	0,36	0,41	0,47	0,51	0,54
P.1.5	105	0,23	0,27	0,30	0,34	0,39	0,44	0,48	0,52
P.2.1	125	0,33	0,40	0,44	0,50	0,57	0,64	0,70	0,75
P.2.2	115	0,30	0,36	0,40	0,45	0,51	0,58	0,63	0,68
P.2.3	105	0,27	0,32	0,36	0,41	0,46	0,52	0,57	0,61
P.2.4	80	0,25	0,29	0,32	0,36	0,41	0,46	0,50	0,54
P.3.1	85	0,27	0,32	0,36	0,41	0,46	0,52	0,57	0,61
P.3.2	70	0,23	0,27	0,30	0,33	0,38	0,43	0,47	0,50
P.3.3	70	0,18	0,22	0,24	0,26	0,30	0,33	0,36	0,38
P.4.1	70	0,18	0,21	0,24	0,27	0,30	0,34	0,38	0,40
P.4.2	70	0,18	0,21	0,24	0,27	0,30	0,34	0,38	0,40
M.1.1	55	0,13	0,16	0,18	0,20	0,23	0,26	0,28	0,30
M.2.1	50	0,11	0,14	0,15	0,17	0,20	0,22	0,24	0,26
M.3.1	50	0,11	0,14	0,15	0,17	0,20	0,22	0,24	0,26
K.1.1	140	0,38	0,47	0,53	0,61	0,70	0,80	0,89	0,95
K.1.2	115	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
K.2.1	185	0,37	0,45	0,50	0,57	0,66	0,75	0,82	0,88
K.2.2	115	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
K.3.1	105	0,35	0,42	0,47	0,53	0,61	0,69	0,76	0,81
K.3.2	90	0,29	0,35	0,38	0,43	0,49	0,55	0,60	0,64
N.1.1	380	0,28	0,34	0,37	0,42	0,48	0,54	0,59	0,63
N.1.2	345	0,25	0,31	0,34	0,38	0,44	0,49	0,54	0,57
N.2.1	290	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
N.2.2	255	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
N.2.3	205	0,32	0,39	0,44	0,50	0,57	0,64	0,70	0,75
N.3.1	230	0,38	0,47	0,53	0,61	0,70	0,80	0,89	0,95
N.3.2	140	0,24	0,29	0,33	0,37	0,43	0,48	0,53	0,57
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – WTX – Speed VA

Index	10 773 ...						10 774 ...					
	5xD						12xD					
	with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20	with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
	v_c (m/min)	f (mm/rev)					v_c (m/min)	f (mm/rev)				
P.1.1	165	0,12	0,17	0,23	0,28	0,31	110	0,09	0,13	0,18	0,22	0,25
P.1.2	160	0,11	0,16	0,22	0,26	0,30	105	0,09	0,13	0,17	0,21	0,24
P.1.3	150	0,11	0,15	0,20	0,25	0,28	100	0,09	0,12	0,16	0,20	0,23
P.1.4	145	0,10	0,15	0,19	0,24	0,27	95	0,08	0,12	0,16	0,19	0,22
P.1.5	135	0,10	0,14	0,18	0,23	0,26	90	0,08	0,11	0,15	0,18	0,20
P.2.1	165	0,14	0,20	0,27	0,33	0,37	110	0,11	0,16	0,21	0,26	0,29
P.2.2	150	0,13	0,18	0,24	0,30	0,34	100	0,10	0,14	0,19	0,24	0,27
P.2.3	135	0,11	0,16	0,22	0,27	0,30	90	0,09	0,13	0,17	0,21	0,24
P.2.4	105	0,11	0,15	0,19	0,24	0,27	70	0,09	0,12	0,16	0,19	0,21
P.3.1	115	0,11	0,16	0,22	0,27	0,30	75	0,09	0,13	0,17	0,21	0,24
P.3.2	90	0,10	0,13	0,18	0,22	0,25	60	0,08	0,11	0,14	0,17	0,20
P.3.3	90	0,08	0,11	0,14	0,17	0,19	60	0,06	0,09	0,11	0,14	0,15
P.4.1	70	0,08	0,11	0,14	0,18	0,20	60	0,06	0,09	0,11	0,14	0,16
P.4.2	70	0,08	0,11	0,14	0,18	0,20	60	0,06	0,09	0,11	0,14	0,16
M.1.1	80	0,09	0,13	0,18	0,22	0,25	55	0,08	0,11	0,14	0,18	0,20
M.2.1	75	0,08	0,11	0,15	0,19	0,21	50	0,06	0,09	0,12	0,15	0,17
M.3.1	75	0,08	0,11	0,15	0,19	0,21	50	0,06	0,09	0,12	0,15	0,17
K.1.1	150	0,15	0,24	0,33	0,41	0,47	120	0,15	0,24	0,33	0,41	0,47
K.1.2	125	0,14	0,20	0,27	0,33	0,37	100	0,14	0,20	0,27	0,33	0,37
K.2.1	200	0,15	0,22	0,31	0,38	0,43	160	0,15	0,22	0,31	0,38	0,43
K.2.2	125	0,14	0,20	0,27	0,33	0,37	100	0,14	0,20	0,27	0,33	0,37
K.3.1	115	0,15	0,21	0,29	0,35	0,40	90	0,15	0,21	0,29	0,35	0,40
K.3.2	100	0,12	0,17	0,23	0,28	0,32	80	0,12	0,17	0,23	0,28	0,32
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1							200	0,15	0,24	0,33	0,41	0,47
N.3.2	145	0,14	0,20	0,27	0,33	0,37	120	0,14	0,20	0,27	0,33	0,37
N.3.3												
N.4.1												
S.1.1	35	0,07	0,10	0,14	0,17	0,19	30	0,06	0,09	0,11	0,14	0,16
S.1.2	25	0,05	0,07	0,10	0,12	0,14	20	0,04	0,06	0,08	0,10	0,11
S.2.1	25	0,05	0,07	0,10	0,12	0,14	20	0,04	0,06	0,08	0,10	0,11
S.2.2	20	0,06	0,09	0,12	0,15	0,17	15	0,05	0,08	0,10	0,13	0,14
S.2.3	20	0,05	0,07	0,10	0,12	0,14	15	0,04	0,06	0,08	0,10	0,11
S.3.1												
S.3.2	35	0,08	0,11	0,15	0,18	0,20	30	0,06	0,09	0,12	0,15	0,17
S.3.3	30	0,06	0,09	0,12	0,15	0,17	25	0,05	0,08	0,10	0,13	0,14
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Cutting data standard values – WTX – H

Index	10 777 ...								
		3xD							
	without through coolant	Ø 2–3	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14
	v_c (m/min)	f (mm/rev)							
P.1.1	80	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.1.2	70	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.1.3	70	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.1.4	70	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.1.5	80	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.2.1	75	0,05	0,07	0,08	0,10	0,14	0,18	0,21	0,24
P.2.2	70	0,05	0,06	0,08	0,09	0,13	0,16	0,19	0,22
P.2.3	70	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.2.4	70	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21
P.3.1									
P.3.2									
P.3.3									
P.4.1									
P.4.2									
M.1.1									
M.2.1									
M.3.1									
K.1.1	**85**	0,08	0,10	0,13	0,15	0,19	0,23	0,27	0,34
K.1.2	**80**	0,08	0,10	0,13	0,15	0,19	0,23	0,27	0,34
K.2.1	**85**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25
K.2.2	**80**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25
K.3.1	**85**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25
K.3.2	**80**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1									
N.3.2									
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1	**30**	0,04	0,05	0,05	0,06	0,07	0,08	0,09	0,10
H.1.2	**15**	0,04	0,05	0,05	0,06	0,07	0,08	0,09	0,10
H.1.3	**10**	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07
H.1.4	**10**	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Cutting data standard values – WTX – Quattro 4F

Index	10 735 ...						10 736 ...					
	5xD						8xD					
	with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20	with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
	v_c (m/min)	f (mm/rev)					v_c (m/min)	f (mm/rev)				
P.1.1	110	0,12	0,17	0,23	0,28	0,31	110	0,12	0,17	0,23	0,28	0,31
P.1.2	105	0,11	0,16	0,22	0,26	0,30	105	0,11	0,16	0,22	0,26	0,30
P.1.3	100	0,11	0,15	0,20	0,25	0,28	100	0,11	0,15	0,20	0,25	0,28
P.1.4	95	0,10	0,15	0,19	0,24	0,27	95	0,10	0,15	0,19	0,24	0,27
P.1.5	90	0,10	0,14	0,18	0,23	0,26	90	0,10	0,14	0,18	0,23	0,26
P.2.1	110	0,14	0,20	0,27	0,33	0,37	110	0,14	0,20	0,27	0,33	0,37
P.2.2	100	0,13	0,18	0,24	0,30	0,34	100	0,13	0,18	0,24	0,30	0,34
P.2.3	90	0,11	0,16	0,22	0,27	0,30	90	0,11	0,16	0,22	0,27	0,30
P.2.4	70	0,11	0,15	0,19	0,24	0,27	70	0,11	0,15	0,19	0,24	0,27
P.3.1	75	0,11	0,16	0,22	0,27	0,30	75	0,11	0,16	0,22	0,27	0,30
P.3.2	60	0,10	0,13	0,18	0,22	0,25	60	0,10	0,13	0,18	0,22	0,25
P.3.3	60	0,08	0,11	0,14	0,17	0,19	60	0,08	0,11	0,14	0,17	0,19
P.4.1	60	0,08	0,11	0,14	0,18	0,20	60	0,08	0,11	0,14	0,18	0,20
P.4.2	60	0,08	0,11	0,14	0,18	0,20	60	0,08	0,11	0,14	0,18	0,20
M.1.1												
M.2.1												
M.3.1												
K.1.1	120	0,15	0,24	0,33	0,41	0,47	120	0,15	0,24	0,33	0,41	0,47
K.1.2	100	0,14	0,20	0,27	0,33	0,37	100	0,14	0,20	0,27	0,33	0,37
K.2.1	160	0,15	0,22	0,31	0,38	0,43	160	0,15	0,22	0,31	0,38	0,43
K.2.2	100	0,14	0,20	0,27	0,33	0,37	100	0,14	0,20	0,27	0,33	0,37
K.3.1	90	0,15	0,21	0,29	0,35	0,40	90	0,15	0,21	0,29	0,35	0,40
K.3.2	80	0,12	0,17	0,23	0,28	0,32	80	0,12	0,17	0,23	0,28	0,32
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1	25	0,05	0,07	0,09	0,12	0,13	25	0,05	0,07	0,09	0,12	0,13
H.1.2												
H.1.3												
H.1.4												
H.2.1	30	0,06	0,09	0,12	0,15	0,17	30	0,06	0,09	0,12	0,15	0,17
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Index	10 737 ...					
	12xD					
	with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
	v_c (m/min)	f (mm/rev)				
P.1.1	110	0,12	0,17	0,23	0,28	0,31
P.1.2	105	0,11	0,16	0,22	0,26	0,30
P.1.3	100	0,11	0,15	0,20	0,25	0,28
P.1.4	95	0,10	0,15	0,19	0,24	0,27
P.1.5	90	0,10	0,14	0,18	0,23	0,26
P.2.1	110	0,14	0,20	0,27	0,33	0,37
P.2.2	100	0,13	0,18	0,24	0,30	0,34
P.2.3	90	0,11	0,16	0,22	0,27	0,30
P.2.4	70	0,11	0,15	0,19	0,24	0,27
P.3.1	75	0,11	0,16	0,22	0,27	0,30
P.3.2	60	0,10	0,13	0,18	0,22	0,25
P.3.3	60	0,08	0,11	0,14	0,17	0,19
P.4.1	60	0,08	0,11	0,14	0,18	0,20
P.4.2	60	0,08	0,11	0,14	0,18	0,20
M.1.1						
M.2.1						
M.3.1						
K.1.1	120	0,15	0,24	0,33	0,41	0,47
K.1.2	100	0,14	0,20	0,27	0,33	0,37
K.2.1	160	0,15	0,22	0,31	0,38	0,43
K.2.2	100	0,14	0,20	0,27	0,33	0,37
K.3.1	90	0,15	0,21	0,29	0,35	0,40
K.3.2	80	0,12	0,17	0,23	0,28	0,32
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1	25	0,05	0,07	0,09	0,12	0,13
H.1.2						
H.1.3						
H.1.4						
H.2.1	30	0,06	0,09	0,12	0,15	0,17
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – WTX – AL

Index	10 791 ...											
	5xD											
	with through coolant	Ø 2–3	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
	v_c (m/min)	f (mm/rev)										
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1	360	0,15	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.1.2	400	0,15	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.2.1	360	0,20	0,23	0,25	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.2	400	0,20	0,23	0,25	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.3	350	0,15	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.3.1	200	0,08	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.3.2	200	0,08	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.3.3	160	0,08	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Index	10 792 ...										
	8xD										
	with through coolant	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
	v_c (m/min)	f (mm/rev)									
P.1.1											
P.1.2											
P.1.3											
P.1.4											
P.1.5											
P.2.1											
P.2.2											
P.2.3											
P.2.4											
P.3.1											
P.3.2											
P.3.3											
P.4.1											
P.4.2											
M.1.1											
M.2.1											
M.3.1											
K.1.1											
K.1.2											
K.2.1											
K.2.2											
K.3.1											
K.3.2											
N.1.1	320	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.1.2	360	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.2.1	320	0,23	0,25	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.2	360	0,23	0,25	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.3	310	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.3.1	160	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.3.2	160	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.3.3	140	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

Cutting data standard values – WTX – AL

Index	10 793 ...										
	12xD										
	with through coolant	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
	v_c (m/min)	f (mm/rev)									
P.1.1											
P.1.2											
P.1.3											
P.1.4											
P.1.5											
P.2.1											
P.2.2											
P.2.3											
P.2.4											
P.3.1											
P.3.2											
P.3.3											
P.4.1											
P.4.2											
M.1.1											
M.2.1											
M.3.1											
K.1.1											
K.1.2											
K.2.1											
K.2.2											
K.3.1											
K.3.2											
N.1.1	**250**	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.1.2	**280**	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.2.1	**250**	0,23	0,25	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.2	**280**	0,23	0,25	0,28	0,32	0,35	0,38	0,45	0,50	0,55	0,60
N.2.3	**245**	0,20	0,23	0,25	0,29	0,32	0,35	0,40	0,45	0,50	0,55
N.3.1	**150**	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.3.2	**150**	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.3.3	**120**	0,11	0,13	0,15	0,19	0,23	0,26	0,30	0,34	0,38	0,42
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Cutting data standard values – WTX – HFDS – high-feed drill

Index	10 797 ...						10 798 ...					
	3xD						5xD					
	with through coolant	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	with through coolant	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16
	v_c (m/min)	f (mm/rev)					v_c (m/min)	f (mm/rev)				
P.1.1	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.1.2	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.1.3	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.1.4	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.1.5	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.2.1	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.2.2	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**100**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.2.3	**90**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**90**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.2.4	**90**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9	**90**	0,3–0,4	0,5–0,6	0,7–0,8	0,8–0,9	0,8–0,9
P.3.1	**85**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7	**85**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7
P.3.2	**70**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7	**70**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7
P.3.3	**70**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7	**70**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7
P.4.1	**65**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7	**65**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7
P.4.2	**65**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7	**65**	0,2–0,3	0,3–0,4	0,5–0,6	0,6–0,7	0,6–0,7
M.1.1	65	0,2–0,25	0,3–0,4	0,5–0,6	0,6–0,6	0,6–0,6	65	0,2–0,25	0,3–0,4	0,5–0,6	0,6–0,6	0,6–0,6
M.2.1	65	0,2–0,25	0,3–0,4	0,5–0,6	0,6–0,6	0,6–0,6	65	0,2–0,25	0,3–0,4	0,5–0,6	0,6–0,6	0,6–0,6
M.3.1	55	0,2–0,25	0,3–0,4	0,5–0,6	0,6–0,6	0,6–0,6	55	0,2–0,25	0,3–0,4	0,5–0,6	0,6–0,6	0,6–0,6
K.1.1	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
K.1.2	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
K.2.1	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
K.2.2	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
K.3.1	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
K.3.2	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	**130**	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
N.3.2	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
N.3.3	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
N.4.1	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9	130	0,4–0,6	0,5–0,7	0,6–0,8	0,7–0,9	0,7–0,9
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1	110	0,6	0,6	0,8	0,9	1,0	110	0,6	0,6	0,8	0,9	1,0

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Cutting data standard values – WTX – 180

Index	10 720 ...					
	3xD					
	with through coolant	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
	v_c (m/min)	f (mm/rev)				
P.1.1	90	0,09	0,13	0,18	0,22	0,25
P.1.2	85	0,09	0,13	0,17	0,21	0,24
P.1.3	80	0,09	0,12	0,16	0,20	0,23
P.1.4	75	0,08	0,12	0,16	0,19	0,22
P.1.5	70	0,08	0,11	0,15	0,18	0,20
P.2.1	90	0,11	0,16	0,21	0,26	0,29
P.2.2	80	0,10	0,14	0,19	0,24	0,27
P.2.3	70	0,09	0,13	0,17	0,21	0,24
P.2.4	55	0,09	0,12	0,16	0,19	0,21
P.3.1	60	0,09	0,13	0,17	0,21	0,24
P.3.2	50	0,08	0,11	0,14	0,17	0,20
P.3.3	50	0,06	0,09	0,11	0,14	0,15
P.4.1	50	0,06	0,09	0,11	0,14	0,16
P.4.2	50	0,06	0,09	0,11	0,14	0,16
M.1.1	45	0,06	0,09	0,11	0,14	0,16
M.2.1	40	0,05	0,07	0,10	0,12	0,14
M.3.1	40	0,05	0,07	0,10	0,12	0,14
K.1.1	95	0,12	0,19	0,26	0,33	0,38
K.1.2	80	0,11	0,16	0,21	0,26	0,30
K.2.1	130	0,12	0,18	0,25	0,30	0,35
K.2.2	80	0,11	0,16	0,21	0,26	0,30
K.3.1	70	0,12	0,17	0,23	0,28	0,32
K.3.2	65	0,10	0,14	0,18	0,22	0,25
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Index	10 721 ... 5xD with through coolant v_c (m/min)	Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
		f (mm/rev)				
P.1.1	90	0,09	0,13	0,18	0,22	0,25
P.1.2	85	0,09	0,13	0,17	0,21	0,24
P.1.3	80	0,09	0,12	0,16	0,20	0,23
P.1.4	75	0,08	0,12	0,16	0,19	0,22
P.1.5	70	0,08	0,11	0,15	0,18	0,20
P.2.1	90	0,11	0,16	0,21	0,26	0,29
P.2.2	80	0,10	0,14	0,19	0,24	0,27
P.2.3	70	0,09	0,13	0,17	0,21	0,24
P.2.4	55	0,09	0,12	0,16	0,19	0,21
P.3.1	60	0,09	0,13	0,17	0,21	0,24
P.3.2	50	0,08	0,11	0,14	0,17	0,20
P.3.3	50	0,06	0,09	0,11	0,14	0,15
P.4.1	50	0,06	0,09	0,11	0,14	0,16
P.4.2	50	0,06	0,09	0,11	0,14	0,16
M.1.1	45	0,06	0,09	0,11	0,14	0,16
M.2.1	40	0,05	0,07	0,10	0,12	0,14
M.3.1	40	0,05	0,07	0,10	0,12	0,14
K.1.1	95	0,12	0,19	0,26	0,33	0,38
K.1.2	80	0,11	0,16	0,21	0,26	0,30
K.2.1	130	0,12	0,18	0,25	0,30	0,35
K.2.2	80	0,11	0,16	0,21	0,26	0,30
K.3.1	70	0,12	0,17	0,23	0,28	0,32
K.3.2	65	0,10	0,14	0,18	0,22	0,25
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Application Note:

Spot drilling with reduced feedrate

1. Feedrate f [mm/U] should be multiplied by correction factor A_k
2. Drill with reduced feed rate until tool is fully engaged in workpiece by approximately 0.25 x D
3. Retract from the hole at double the feed rate f in mm/U – only with inclined surfaces

   This operation is necessary in order to achieve maximum performance of the drill!
4. Drill the hole with feed rate f [mm/U] without pecking for chip evacuation

Correction factor A_k for f [mm/U] when spot drilling		
Inclination workpiece surface	A_k to 3xD (10 720 ...)	A_k to 5xD (10 721 ...)
15°	0,5	0,25
30°	0,4	not recommended
45°	0,25	not recommended

For drilling on flat surfaces (inclination 0 °) with the WTX – 180 5xD, we recommend the use of a pilot drill. (WTX – UNI 3xD)

Cutting data standard values – type UNI

Index	11 706 ..., 11 707 ..., 11 709 ..., 11 710 ...																
		3xD / 5xD															
	without through coolant	≤ Ø 1	Ø 1–1,25	Ø 1,25–1,5	Ø 1,5–2	Ø 2–2,5	Ø 2,5–3	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
	v_c (m/min)	f (mm/rev)															
P.1.1	90	0,03	0,04	0,05	0,06	0,08	0,09	0,13	0,16	0,19	0,22	0,25	0,28	0,31	0,34	0,36	0,38
P.1.2	75	0,03	0,03	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
P.1.3	75	0,03	0,03	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
P.1.4	70	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.1.5	70	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.2.1	80	0,03	0,04	0,05	0,06	0,08	0,09	0,13	0,16	0,19	0,22	0,25	0,28	0,31	0,34	0,36	0,38
P.2.2	70	0,03	0,03	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
P.2.3	70	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.2.4	55	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.3.1	70	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.3.2	55	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.3.3																	
P.4.1																	
P.4.2																	
M.1.1																	
M.2.1																	
M.3.1																	
K.1.1	90	0,04	0,05	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25	0,29	0,33	0,37	0,40	0,43	0,46
K.1.2	75	0,04	0,05	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25	0,29	0,33	0,37	0,40	0,43	0,46
K.2.1	75	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
K.2.2	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
K.3.1	75	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
K.3.2	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
S.3.2																	
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that must be corrected according to the usage conditions.

Index	11 700 ..., 11 701 ..., 11 702 ..., 11 703 ...																
		3xD / 5xD															
	with through coolant	≤ Ø 1	Ø 1–1,25	Ø 1,25–1,5	Ø 1,5–2	Ø 2–2,5	Ø 2,5–3	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
	v_c (m/min)	f (mm/rev)															
P.1.1	115	0,03	0,04	0,05	0,06	0,08	0,09	0,13	0,16	0,19	0,22	0,25	0,28	0,31	0,34	0,36	0,38
P.1.2	95	0,03	0,03	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
P.1.3	95	0,03	0,03	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
P.1.4	85	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.1.5	85	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.2.1	95	0,03	0,04	0,05	0,06	0,08	0,09	0,13	0,16	0,19	0,22	0,25	0,28	0,31	0,34	0,36	0,38
P.2.2	85	0,03	0,03	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
P.2.3	85	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.2.4	70	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.3.1	85	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.3.2	70	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.3.3	40	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.4.1	50	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.4.2	30	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
M.1.1	35	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
M.2.1	35	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
M.3.1	35	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
K.1.1	115	0,04	0,05	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25	0,29	0,33	0,37	0,40	0,43	0,46
K.1.2	95	0,04	0,05	0,06	0,08	0,10	0,13	0,16	0,18	0,22	0,25	0,29	0,33	0,37	0,40	0,43	0,46
K.2.1	95	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
K.2.2	90	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
K.3.1	95	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
K.3.2	90	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
N.1.1	200	0,03	0,03	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
N.1.2	200	0,03	0,03	0,04	0,05	0,07	0,08	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
N.2.1	160	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
N.2.2	160	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
N.2.3	140	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
N.3.1	120	0,02	0,02	0,03	0,03	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,13	0,14	0,15	0,16	0,18
N.3.2	120	0,02	0,02	0,03	0,03	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,13	0,14	0,15	0,16	0,18
N.3.3	100	0,02	0,02	0,03	0,03	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,13	0,14	0,15	0,16	0,18
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
S.3.2																	
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Cutting data standard values – type UNI

Index	11 704 ...										
		8xD									
	with through coolant	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
	v_c (m/min)	f (mm/rev)									
P.1.1	100	0,13	0,16	0,19	0,22	0,25	0,28	0,31	0,34	0,36	0,38
P.1.2	80	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
P.1.3	80	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
P.1.4	75	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.1.5	75	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.2.1	80	0,13	0,16	0,19	0,22	0,25	0,28	0,31	0,34	0,36	0,38
P.2.2	75	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
P.2.3	75	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.2.4	60	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.3.1	75	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.3.2	60	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.3.3	35	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.4.1	40	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.4.2	25	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
M.1.1	30	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
M.2.1	30	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
M.3.1	30	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
K.1.1	100	0,16	0,18	0,22	0,25	0,29	0,33	0,37	0,40	0,43	0,46
K.1.2	80	0,16	0,18	0,22	0,25	0,29	0,33	0,37	0,40	0,43	0,46
K.2.1	80	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
K.2.2	75	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
K.3.1	80	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
K.3.2	75	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Index	with through coolant	11 705 ... 12xD Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
	v_c (m/min)	f (mm/rev)									
P.1.1	90	0,13	0,16	0,19	0,22	0,25	0,28	0,31	0,34	0,36	0,38
P.1.2	75	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
P.1.3	75	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
P.1.4	70	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.1.5	70	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.2.1	80	0,13	0,16	0,19	0,22	0,25	0,28	0,31	0,34	0,36	0,38
P.2.2	70	0,12	0,15	0,18	0,21	0,24	0,27	0,30	0,32	0,35	0,37
P.2.3	70	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.2.4	55	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.3.1	70	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.3.2	55	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.3.3	35	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.4.1	40	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
P.4.2	25	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
M.1.1	30	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
M.2.1	30	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
M.3.1	30	0,06	0,08	0,10	0,12	0,14	0,15	0,18	0,20	0,23	0,25
K.1.1	90	0,16	0,18	0,22	0,25	0,29	0,33	0,37	0,40	0,43	0,46
K.1.2	75	0,16	0,18	0,22	0,25	0,29	0,33	0,37	0,40	0,43	0,46
K.2.1	75	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
K.2.2	70	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
K.3.1	75	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
K.3.2	70	0,10	0,13	0,15	0,18	0,20	0,23	0,26	0,30	0,34	0,38
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

Cutting data standard values – type VA

Index	11 711 ..., 11 712 ...																
		3xD															
	without through coolant	≤ Ø 1	Ø 1–1,25	Ø 1,25–1,5	Ø 1,5–2	Ø 2–2,5	Ø 2,5–3	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
	v_c (m/min)	f (mm/rev)															
P.1.1	75	0,03	0,03	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,15	0,18	0,20	0,23	0,24	0,26	0,27
P.1.2																	
P.1.3																	
P.1.4																	
P.1.5																	
P.2.1	65	0,03	0,03	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,15	0,18	0,20	0,23	0,24	0,26	0,27
P.2.2	60	0,03	0,03	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,15	0,18	0,20	0,23	0,24	0,26	0,27
P.2.3																	
P.2.4																	
P.3.1																	
P.3.2																	
P.3.3																	
P.4.1	**45**	0,03	0,03	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,15	0,18	0,20	0,23	0,24	0,26	0,27
P.4.2	**30**	0,01	0,02	0,02	0,03	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,17	0,19	0,20	0,21
M.1.1	**35**	0,01	0,02	0,02	0,03	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,17	0,19	0,20	0,21
M.2.1	**35**	0,01	0,02	0,02	0,03	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,17	0,19	0,20	0,21
M.3.1	**35**	0,01	0,02	0,02	0,03	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,17	0,19	0,20	0,21
K.1.1																	
K.1.2																	
K.2.1																	
K.2.2																	
K.3.1																	
K.3.2																	
N.1.1	160	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,16	0,20	0,24	0,27	0,31	0,32	0,34	0,36
N.1.2	160	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,16	0,20	0,24	0,27	0,31	0,32	0,34	0,36
N.2.1	130	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,16	0,20	0,24	0,27	0,31	0,32	0,34	0,36
N.2.2	130	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,16	0,20	0,24	0,27	0,31	0,32	0,34	0,36
N.2.3	110	0,03	0,04	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,15	0,18	0,20	0,23	0,24	0,26	0,27
N.3.1	160	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,16	0,20	0,24	0,27	0,31	0,32	0,34	0,36
N.3.2	160	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,16	0,20	0,24	0,27	0,31	0,32	0,34	0,36
N.3.3	225	0,03	0,04	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,15	0,18	0,20	0,23	0,24	0,26	0,27
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1	30	0,002	0,004	0,01	0,01	0,01	0,02	0,03	0,03	0,04	0,06	0,07	0,09	0,10	0,11	0,12	0,12
S.3.2	20	0,002	0,004	0,01	0,01	0,01	0,02	0,03	0,03	0,04	0,06	0,07	0,09	0,10	0,11	0,12	0,12
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1	100	0,01	0,02	0,02	0,03	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,17	0,19	0,2	0,21
O.1.2	80	0,002	0,004	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13	0,13	0,14	0,15
O.2.1																	
O.2.2																	
O.3.1																	

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that must be corrected according to the usage conditions.

Index	11 713 ..., 11 714 ..., 11 715 ..., 11 716 ...																	
		3xD / 5xD																
	with through coolant	≤ Ø 1	Ø 1–1,25	Ø 1,25–1,5	Ø 1,5–2	Ø 2–2,5	Ø 2,5–3	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
	v_c (m/min)	f (mm/rev)																
P.1.1	85	0,03	0,03	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,15	0,18	0,20	0,23	0,24	0,26	0,27
P.1.2																		
P.1.3																		
P.1.4																		
P.1.5																		
P.2.1	75	0,03	0,03	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,15	0,18	0,20	0,23	0,24	0,26	0,27
P.2.2	65	0,03	0,03	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,15	0,18	0,20	0,23	0,24	0,26	0,27
P.2.3																		
P.2.4																		
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	**55**	0,03	0,03	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,15	0,18	0,20	0,23	0,24	0,26	0,27
P.4.2	**40**	0,01	0,02	0,02	0,03	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,17	0,19	0,20	0,21
M.1.1	**45**	0,01	0,02	0,02	0,03	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,17	0,19	0,20	0,21
M.2.1	**45**	0,01	0,02	0,02	0,03	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,17	0,19	0,20	0,21
M.3.1	**45**	0,01	0,02	0,02	0,03	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,17	0,19	0,20	0,21
K.1.1																		
K.1.2																		
K.2.1																		
K.2.2																		
K.3.1																		
K.3.2																		
N.1.1	**200**	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,16	0,20	0,24	0,27	0,31	0,32	0,34	0,36
N.1.2	**200**	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,16	0,20	0,24	0,27	0,31	0,32	0,34	0,36
N.2.1	**160**	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,16	0,20	0,24	0,27	0,31	0,32	0,34	0,36
N.2.2	**160**	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,16	0,20	0,24	0,27	0,31	0,32	0,34	0,36
N.2.3	**140**	0,03	0,03	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,15	0,18	0,2	0,23	0,24	0,26	0,27
N.3.1	**200**	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,16	0,20	0,24	0,27	0,31	0,32	0,34	0,36
N.3.2	**200**	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,16	0,20	0,24	0,27	0,31	0,32	0,34	0,36
N.3.3	**280**	0,03	0,03	0,04	0,05	0,07	0,08	0,10	0,11	0,12	0,15	0,18	0,20	0,23	0,24	0,26	0,27
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1	15	0,002	0,004	0,01	0,01	0,01	0,02	0,03	0,03	0,04	0,06	0,07	0,09	0,10	0,11	0,12	0,12
S.2.2	15	0,002	0,004	0,01	0,01	0,01	0,02	0,03	0,03	0,04	0,06	0,07	0,09	0,10	0,11	0,12	0,12
S.2.3	15	0,002	0,004	0,01	0,01	0,01	0,02	0,03	0,03	0,04	0,06	0,07	0,09	0,10	0,11	0,12	0,12
S.3.1	35	0,002	0,004	0,01	0,01	0,01	0,02	0,03	0,03	0,04	0,06	0,07	0,09	0,10	0,11	0,12	0,12
S.3.2	25	0,002	0,004	0,01	0,01	0,01	0,02	0,03	0,03	0,04	0,06	0,07	0,09	0,10	0,11	0,12	0,12
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1	120	0,01	0,02	0,02	0,03	0,04	0,05	0,06	0,08	0,09	0,11	0,13	0,15	0,17	0,19	0,20	0,21
O.1.2	100	0,002	0,004	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13	0,13	0,14	0,15
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – Type N – Twist drills

Index	10 700 ..., 10 710 ...														
	3xD / 5xD														
	without through coolant	≤ Ø 1	Ø 1–1,5	Ø 1,5–2	Ø 2–3	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
	v_c (m/min)	f (mm/rev)													
P.1.1	75	0,03	0,05	0,07	0,10	0,12	0,14	0,16	0,2	0,24	0,28	0,31	0,35	0,40	0,45
P.1.2	65	0,03	0,05	0,07	0,10	0,12	0,14	0,16	0,2	0,24	0,28	0,31	0,35	0,40	0,45
P.1.3	65	0,03	0,05	0,07	0,10	0,12	0,14	0,16	0,2	0,24	0,28	0,31	0,35	0,40	0,45
P.1.4	65	0,03	0,04	0,05	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
P.1.5	65	0,03	0,04	0,05	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
P.2.1	70	0,03	0,05	0,07	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31	0,35	0,40	0,45
P.2.2	65	0,03	0,04	0,05	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
P.2.3	65	0,03	0,04	0,05	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
P.2.4	50	0,03	0,04	0,05	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
P.3.1	65	0,03	0,04	0,05	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
P.3.2	50	0,03	0,04	0,05	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
P.3.3															
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1	70	0,03	0,04	0,05	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
K.1.2	70	0,03	0,04	0,05	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
K.2.1	70	0,03	0,04	0,05	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
K.2.2	70	0,03	0,04	0,05	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
K.3.1	70	0,03	0,04	0,05	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
K.3.2	70	0,03	0,04	0,05	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23	0,26	0,29	0,33
N.1.1	200	0,01	0,01	0,01	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13	0,15	0,18	0,20
N.1.2	200	0,01	0,01	0,01	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13	0,15	0,18	0,20
N.2.1	160	0,01	0,01	0,01	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13	0,15	0,18	0,20
N.2.2	160	0,01	0,01	0,01	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13	0,15	0,18	0,20
N.2.3	130	0,01	0,01	0,01	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13	0,15	0,18	0,20
N.3.1	160	0,003	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14	0,16	0,18	0,20
N.3.2	160	0,003	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14	0,16	0,18	0,20
N.3.3	100	0,003	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14	0,16	0,18	0,20
N.4.1	200	0,01	0,01	0,01	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13	0,15	0,18	0,20
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	30	0,002	0,003	0,003	0,01	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	0,09	0,10
S.3.2	20	0,002	0,003	0,003	0,01	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	0,09	0,10
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Cutting data standard values – WTX – SB

Index	10 767 ..., 10 772 ..., 10 783 ..., 10 788 ...					
	3xD					
	without through coolant	with through coolant	Ø 2–5	Ø 5–8	Ø 8–12	Ø 12–16
	v_c (m/min)		f (mm/rev)			
P.1.1	110	120	0,13	0,18	0,25	0,30
P.1.2	105	115	0,12	0,18	0,24	0,29
P.1.3	100	110	0,12	0,17	0,23	0,28
P.1.4	95	105	0,11	0,16	0,21	0,26
P.1.5	90	100	0,11	0,15	0,20	0,25
P.2.1	105	120	0,15	0,22	0,29	0,36
P.2.2	95	110	0,14	0,20	0,27	0,33
P.2.3	85	100	0,13	0,18	0,24	0,29
P.2.4	65	75	0,12	0,16	0,21	0,26
P.3.1	70	85	0,12	0,18	0,24	0,29
P.3.2	60	65	0,11	0,15	0,20	0,24
P.3.3	50	65	0,09	0,12	0,15	0,19
P.4.1	50	65	0,08	0,12	0,16	0,19
P.4.2	50	65	0,08	0,12	0,16	0,19
M.1.1						
M.2.1						
M.3.1						
K.1.1	85	120	0,17	0,26	0,36	0,45
K.1.2	75	100	0,15	0,22	0,29	0,36
K.2.1	100	160	0,17	0,25	0,34	0,42
K.2.2	75	100	0,15	0,22	0,29	0,36
K.3.1	80	90	0,16	0,23	0,32	0,39
K.3.2	70	80	0,14	0,19	0,25	0,31
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1	25	25	0,06	0,08	0,11	0,14
H.1.2						
H.1.3						
H.1.4						
H.2.1	35	35	0,08	0,11	0,14	0,18
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Cutting data standard values – WTX – Mini

Index	11 770 ...				
	5xD				
	without through coolant	≤ Ø 1,0	> Ø 1,0–1,5	> Ø 1,5–2,0	> Ø 2,0–2,9
	v_c (m/min)	f (mm/rev)			
P.1.1	75	0,01	0,01	0,013	0,015
P.1.2	65	0,02	0,02	0,025	0,03
P.1.3	65	0,01	0,01	0,013	0,015
P.1.4	65	0,01	0,01	0,013	0,015
P.1.5	70	0,01	0,01	0,013	0,015
P.2.1	70	0,01	0,01	0,013	0,015
P.2.2	65	0,01	0,01	0,013	0,015
P.2.3	65	0,02	0,02	0,025	0,03
P.2.4	65	0,01	0,01	0,013	0,015
P.3.1					
P.3.2					
P.3.3					
P.4.1					
P.4.2					
M.1.1					
M.2.1					
M.3.1					
K.1.1	70	0,01	0,01	0,013	0,015
K.1.2	70	0,01	0,01	0,013	0,015
K.2.1	70	0,01	0,01	0,013	0,015
K.2.2	70	0,01	0,01	0,013	0,015
K.3.1	70	0,01	0,01	0,013	0,015
K.3.2	70	0,01	0,01	0,013	0,015
N.1.1	200	0,01	0,01	0,013	0,015
N.1.2	200	0,01	0,01	0,013	0,015
N.2.1	160	0,01	0,01	0,013	0,015
N.2.2	180	0,01	0,01	0,013	0,015
N.2.3	130	0,01	0,01	0,013	0,015
N.3.1	160	0,01	0,01	0,013	0,015
N.3.2	160	0,01	0,01	0,013	0,015
N.3.3	100	0,01	0,01	0,013	0,015
N.4.1	200	0,01	0,01	0,013	0,015
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1	30	0,01	0,01	0,013	0,015
S.3.2	20	0,01	0,01	0,013	0,015
S.3.3					
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					
O.1.2					
O.2.1					
O.2.2					
O.3.1					

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Cutting data standard values – WTX – Micro

Index	10 693 ...							
	5xD							
	with through coolant	MMS	≤ Ø 1,0	> Ø 1,0–1,25	> Ø 1,25–1,5	> Ø 1,5–2,0	> Ø 2,0–2,5	> Ø 2,5–3,0
	v_c (m/min)		f (mm/rev)					
P.1.1	70	51	0,028	0,034	0,045	0,070	0,095	0,115
P.1.2	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.1.3	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.1.4	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.1.5	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.2.1	70	51	0,028	0,034	0,045	0,070	0,095	0,115
P.2.2	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.2.3	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.2.4								
P.3.1	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.3.2	50	34	0,028	0,034	0,045	0,070	0,095	0,115
P.3.3								
P.4.1	50		0,015	0,018	0,024	0,040	0,060	0,080
P.4.2	35		0,015	0,018	0,024	0,040	0,060	0,080
M.1.1	40		0,015	0,018	0,024	0,040	0,060	0,080
M.2.1	40		0,015	0,018	0,024	0,040	0,060	0,080
M.3.1	40		0,015	0,018	0,024	0,040	0,060	0,080
K.1.1	70	51	0,028	0,034	0,045	0,070	0,095	0,115
K.1.2	70	51	0,028	0,034	0,045	0,070	0,095	0,115
K.2.1	70	51	0,028	0,034	0,045	0,070	0,095	0,115
K.2.2	70	51	0,028	0,034	0,045	0,070	0,095	0,115
K.3.1	70	51	0,028	0,034	0,045	0,070	0,095	0,115
K.3.2	70	51	0,028	0,034	0,045	0,070	0,095	0,115
N.1.1								
N.1.2								
N.2.1								
N.2.2								
N.2.3								
N.3.1								
N.3.2								
N.3.3								
N.4.1								
S.1.1	15		0,015	0,018	0,024	0,040	0,060	0,080
S.1.2	15		0,015	0,018	0,024	0,040	0,060	0,080
S.2.1	10		0,015	0,018	0,024	0,040	0,060	0,080
S.2.2	10		0,015	0,018	0,024	0,040	0,060	0,080
S.2.3								
S.3.1	30		0,015	0,018	0,024	0,040	0,060	0,080
S.3.2	20		0,015	0,018	0,024	0,040	0,060	0,080
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

Cutting data standard values – WTX – Micro

Index	10 694 ..., 10 695 ...							
	8xD / 12xD							
	with through coolant	MMS	≤ Ø 1,0	> Ø 1,0–1,25	> Ø 1,25–1,5	> Ø 1,5–2,0	> Ø 2,0–2,5	> Ø 2,5–3,0
	v_c (m/min)		f (mm/rev)					
P.1.1	70	51	0,028	0,034	0,045	0,070	0,095	0,115
P.1.2	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.1.3	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.1.4	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.1.5	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.2.1	70	51	0,028	0,034	0,045	0,070	0,095	0,115
P.2.2	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.2.3	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.2.4								
P.3.1	60	43	0,028	0,034	0,045	0,070	0,095	0,115
P.3.2	50	34	0,028	0,034	0,045	0,070	0,095	0,115
P.3.3								
P.4.1	50		0,015	0,018	0,024	0,040	0,060	0,080
P.4.2	35		0,015	0,018	0,024	0,040	0,060	0,080
M.1.1	40		0,015	0,018	0,024	0,040	0,060	0,080
M.2.1	40		0,015	0,018	0,024	0,040	0,060	0,080
M.3.1	40		0,015	0,018	0,024	0,040	0,060	0,080
K.1.1	70	51	0,028	0,034	0,045	0,070	0,095	0,115
K.1.2	70	51	0,028	0,034	0,045	0,070	0,095	0,115
K.2.1	70	51	0,028	0,034	0,045	0,070	0,095	0,115
K.2.2	70	51	0,028	0,034	0,045	0,070	0,095	0,115
K.3.1	70	51	0,028	0,034	0,045	0,070	0,095	0,115
K.3.2	70	51	0,028	0,034	0,045	0,070	0,095	0,115
N.1.1								
N.1.2								
N.2.1								
N.2.2								
N.2.3								
N.3.1								
N.3.2								
N.3.3								
N.4.1								
S.1.1	15		0,015	0,018	0,024	0,040	0,060	0,080
S.1.2	15		0,015	0,018	0,024	0,040	0,060	0,080
S.2.1	10		0,015	0,018	0,024	0,040	0,060	0,080
S.2.2	10		0,015	0,018	0,024	0,040	0,060	0,080
S.2.3								
S.3.1	30		0,015	0,018	0,024	0,040	0,060	0,080
S.3.2	20		0,015	0,018	0,024	0,040	0,060	0,080
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Index	10 696 ..., 10 697 ..., 10 698 ..., 10 699 ...						
	16xD / 20xD / 25xD / 30xD						
	with through coolant	≤ Ø 1,0	> Ø 1,0–1,25	> Ø 1,25–1,5	> Ø 1,5–2,0	> Ø 2,0–2,5	> Ø 2,5–3,0
	v_c (m/min)	f (mm/rev)					
P.1.1	58	0,028	0,034	0,045	0,070	0,095	0,115
P.1.2	50	0,028	0,034	0,045	0,070	0,095	0,115
P.1.3	50	0,028	0,034	0,045	0,070	0,095	0,115
P.1.4	50	0,028	0,034	0,045	0,070	0,095	0,115
P.1.5	50	0,028	0,034	0,045	0,070	0,095	0,115
P.2.1	58	0,028	0,034	0,045	0,070	0,095	0,115
P.2.2	50	0,028	0,034	0,045	0,070	0,095	0,115
P.2.3	50	0,028	0,034	0,045	0,070	0,095	0,115
P.2.4							
P.3.1	50	0,028	0,034	0,045	0,070	0,095	0,115
P.3.2	42	0,028	0,034	0,045	0,070	0,095	0,115
P.3.3							
P.4.1	42	0,015	0,018	0,024	0,040	0,060	0,080
P.4.2	30	0,015	0,018	0,024	0,040	0,060	0,080
M.1.1	34	0,015	0,018	0,024	0,040	0,060	0,080
M.2.1	34	0,015	0,018	0,024	0,040	0,060	0,080
M.3.1	34	0,015	0,018	0,024	0,040	0,060	0,080
K.1.1	58	0,028	0,034	0,045	0,070	0,095	0,115
K.1.2	58	0,028	0,034	0,045	0,070	0,095	0,115
K.2.1	58	0,028	0,034	0,045	0,070	0,095	0,115
K.2.2	58	0,028	0,034	0,045	0,070	0,095	0,115
K.3.1	58	0,028	0,034	0,045	0,070	0,095	0,115
K.3.2	58	0,028	0,034	0,045	0,070	0,095	0,115
N.1.1							
N.1.2							
N.2.1							
N.2.2							
N.2.3							
N.3.1							
N.3.2							
N.3.3							
N.4.1							
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1							
S.3.2							
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1							
O.1.2							
O.2.1							
O.2.2							
O.3.1							

Pilot hole required for WTX – Micro deep hole twist drill – see recommended application for WTX – Micro on → **page 161**

Cutting data standard values – WTX – Feed BR

Index	10 707 ..., 10 711 ...										
	3xD										
	with through coolant	With external coolant	MMS	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16
	v_c (m/min)			f (mm/rev)							
P.1.1	75	70	70	0,19	0,22	0,25	0,31	0,36	0,40	0,44	0,47
P.1.2	75	65	65	0,18	0,21	0,24	0,30	0,34	0,39	0,42	0,45
P.1.3	70	65	65	0,17	0,20	0,23	0,28	0,33	0,37	0,40	0,43
P.1.4	65	60	60	0,16	0,19	0,22	0,27	0,31	0,35	0,38	0,41
P.1.5	65	55	55	0,16	0,18	0,21	0,25	0,29	0,33	0,36	0,39
P.2.1	75	65	65	0,22	0,26	0,30	0,37	0,43	0,48	0,52	0,56
P.2.2	70	60	60	0,20	0,24	0,27	0,33	0,39	0,43	0,47	0,51
P.2.3	65	55	55	0,18	0,22	0,25	0,30	0,35	0,39	0,43	0,46
P.2.4	50	40	40	0,17	0,20	0,22	0,27	0,31	0,35	0,38	0,40
P.3.1	55	45	45	0,18	0,21	0,24	0,30	0,35	0,39	0,43	0,46
P.3.2	40	40	40	0,15	0,18	0,20	0,25	0,29	0,32	0,35	0,37
P.3.3	40	30	35	0,13	0,15	0,16	0,20	0,23	0,25	0,27	0,29
P.4.1	40	30	35	0,12	0,14	0,16	0,20	0,23	0,26	0,28	0,30
P.4.2	40	30	35	0,12	0,14	0,16	0,20	0,23	0,26	0,28	0,30
M.1.1	40	25	25	0,09	0,11	0,12	0,15	0,17	0,19	0,21	0,23
M.2.1	35	20	20	0,08	0,09	0,10	0,13	0,15	0,17	0,18	0,19
M.3.1	35	20	20	0,08	0,09	0,10	0,13	0,15	0,17	0,18	0,19
K.1.1	100	70	70	0,25	0,30	0,35	0,45	0,53	0,60	0,66	0,71
K.1.2	85	65	65	0,22	0,26	0,30	0,37	0,43	0,48	0,53	0,56
K.2.1	135	85	100	0,24	0,29	0,34	0,42	0,49	0,56	0,61	0,66
K.2.2	85	65	65	0,22	0,26	0,30	0,37	0,43	0,48	0,53	0,56
K.3.1	75	70	70	0,23	0,28	0,32	0,39	0,46	0,52	0,57	0,61
K.3.2	70	60	60	0,20	0,23	0,26	0,32	0,37	0,41	0,45	0,48
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Index	10 713 ..., 10 719 ...												
	5xD												
	with through coolant	With external coolant	MMS	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20
	v_c (m/min)			f (mm/rev)									
P.1.1	75	70	70	0,19	0,22	0,25	0,31	0,36	0,40	0,44	0,47	0,50	0,52
P.1.2	75	65	65	0,18	0,21	0,24	0,30	0,34	0,39	0,42	0,45	0,48	0,50
P.1.3	70	65	65	0,17	0,20	0,23	0,28	0,33	0,37	0,40	0,43	0,45	0,47
P.1.4	65	60	60	0,16	0,19	0,22	0,27	0,31	0,35	0,38	0,41	0,43	0,45
P.1.5	65	55	55	0,16	0,18	0,21	0,25	0,29	0,33	0,36	0,39	0,41	0,43
P.2.1	75	65	65	0,22	0,26	0,30	0,37	0,43	0,48	0,52	0,56	0,59	0,62
P.2.2	70	60	60	0,20	0,24	0,27	0,33	0,39	0,43	0,47	0,51	0,54	0,56
P.2.3	65	55	55	0,18	0,22	0,25	0,30	0,35	0,39	0,43	0,46	0,48	0,50
P.2.4	50	40	40	0,17	0,20	0,22	0,27	0,31	0,35	0,38	0,40	0,42	0,44
P.3.1	55	45	45	0,18	0,21	0,24	0,30	0,35	0,39	0,43	0,46	0,48	0,50
P.3.2	40	40	40	0,15	0,18	0,20	0,25	0,29	0,32	0,35	0,37	0,39	0,41
P.3.3	40	30	35	0,13	0,15	0,16	0,20	0,23	0,25	0,27	0,29	0,30	0,32
P.4.1	40	30	35	0,12	0,14	0,16	0,20	0,23	0,26	0,28	0,30	0,32	0,33
P.4.2	40	30	35	0,12	0,14	0,16	0,20	0,23	0,26	0,28	0,30	0,32	0,33
M.1.1	40	25	25	0,09	0,11	0,12	0,15	0,17	0,19	0,21	0,23	0,24	0,25
M.2.1	35	20	20	0,08	0,09	0,10	0,13	0,15	0,17	0,18	0,19	0,20	0,21
M.3.1	35	20	20	0,08	0,09	0,10	0,13	0,15	0,17	0,18	0,19	0,20	0,21
K.1.1	100	70	70	0,25	0,30	0,35	0,45	0,53	0,60	0,66	0,71	0,75	0,79
K.1.2	85	65	65	0,22	0,26	0,30	0,37	0,43	0,48	0,53	0,56	0,60	0,62
K.2.1	135	85	100	0,24	0,29	0,34	0,42	0,49	0,56	0,61	0,66	0,69	0,72
K.2.2	85	65	65	0,22	0,26	0,30	0,37	0,43	0,48	0,53	0,56	0,60	0,62
K.3.1	75	70	70	0,23	0,28	0,32	0,39	0,46	0,52	0,57	0,61	0,64	0,67
K.3.2	70	60	60	0,20	0,23	0,26	0,32	0,37	0,41	0,45	0,48	0,51	0,53
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1													
N.3.2													
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1													
S.2.2													
S.2.3													
S.3.1													
S.3.2													
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Cutting data standard values – WTX – Co-pilot deep hole twist drills

Index	11 018 ...					
	20xD					
	with through coolant	Ø 3–4	Ø > 4–5	Ø > 5–6	Ø > 6–8	Ø > 8–10
	v_c (m/min)	f (mm/rev)				
P.1.1	100	0,07	0,08	0,10	0,12	0,14
P.1.2	90	0,07	0,08	0,10	0,12	0,14
P.1.3	90	0,05	0,06	0,08	0,10	0,11
P.1.4	90	0,05	0,06	0,08	0,10	0,11
P.1.5	95	0,05	0,06	0,08	0,10	0,11
P.2.1	95	0,07	0,08	0,10	0,12	0,14
P.2.2	90	0,05	0,06	0,08	0,10	0,11
P.2.3	90	0,07	0,08	0,10	0,12	0,14
P.2.4	90	0,05	0,06	0,08	0,10	0,11
P.3.1	45	0,03	0,04	0,05	0,06	0,08
P.3.2	70	0,05	0,06	0,08	0,10	0,11
P.3.3	70	0,05	0,06	0,08	0,10	0,11
P.4.1	70	0,03	0,04	0,05	0,06	0,08
P.4.2	45	0,03	0,04	0,05	0,06	0,08
M.1.1	50	0,03	0,04	0,05	0,06	0,08
M.2.1	50	0,03	0,04	0,05	0,06	0,08
M.3.1	50	0,03	0,04	0,05	0,06	0,08
K.1.1	100	0,10	0,13	0,15	0,19	0,23
K.1.2	95	0,10	0,13	0,15	0,19	0,23
K.2.1	100	0,08	0,10	0,13	0,16	0,18
K.2.2	95	0,08	0,10	0,13	0,16	0,18
K.3.1	100	0,08	0,10	0,13	0,16	0,18
K.3.2	95	0,08	0,10	0,13	0,16	0,18
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3	70	0,05	0,06	0,08	0,10	0,11
S.3.1	30	0,01	0,02	0,02	0,03	0,04
S.3.2	20	0,01	0,02	0,02	0,03	0,04
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Cutting data standard values – WTX – TB UNI

Index	11 016 ... 16xD with through coolant v_c (m/min)	Ø 2–3	Ø > 3–4	Ø > 4–5	Ø > 5–6	Ø > 6–8	Ø > 8–10	Ø > 10–12	11 020 ... 20xD with through coolant v_c (m/min)	Ø 2–3	Ø > 3–4	Ø > 4–5	Ø > 5–6	Ø > 6–8	Ø > 8–10	Ø > 10–12
		f (mm/rev)								f (mm/rev)						
P.1.1	105	0,05	0,07	0,08	0,10	0,12	0,14	0,16	100	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.1.2	95	0,05	0,07	0,08	0,10	0,12	0,14	0,16	90	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.1.3	95	0,04	0,05	0,06	0,08	0,10	0,11	0,13	90	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.1.4	95	0,04	0,05	0,06	0,08	0,10	0,11	0,13	90	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.1.5	100	0,04	0,05	0,06	0,01	0,10	0,11	0,13	95	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.2.1	100	0,05	0,07	0,08	0,10	0,12	0,14	0,16	95	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.2.2	95	0,04	0,05	0,06	0,10	0,10	0,11	0,13	90	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.2.3	95	0,05	0,07	0,08	0,10	0,12	0,14	0,16	90	0,05	0,07	0,08	0,10	0,12	0,14	0,16
P.2.4	95	0,04	0,05	0,06	0,10	0,10	0,11	0,13	90	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.3.1	50	0,03	0,03	0,04	0,05	0,06	0,08	0,10	45	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.3.2	75	0,04	0,05	0,06	0,10	0,10	0,11	0,13	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.3.3	75	0,04	0,05	0,06	0,10	0,10	0,11	0,13	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.4.1	75	0,03	0,03	0,04	0,05	0,06	0,08	0,10	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.4.2	50	0,03	0,03	0,04	0,05	0,06	0,08	0,10	45	0,03	0,03	0,04	0,05	0,06	0,08	0,10
M.1.1	55	0,03	0,03	0,04	0,05	0,06	0,08	0,10	50	0,03	0,03	0,04	0,05	0,06	0,08	0,10
M.2.1	55	0,03	0,03	0,04	0,05	0,06	0,08	0,10	50	0,03	0,03	0,04	0,05	0,06	0,08	0,10
M.3.1	55	0,03	0,03	0,04	0,05	0,06	0,08	0,10	50	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.1.1	105	0,08	0,10	0,13	0,15	0,19	0,23	0,27	100	0,08	0,10	0,13	0,15	0,19	0,23	0,27
K.1.2	100	0,08	0,10	0,13	0,15	0,19	0,23	0,27	95	0,08	0,10	0,13	0,15	0,19	0,23	0,27
K.2.1	105	0,06	0,08	0,10	0,13	0,16	0,18	0,22	100	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.2.2	100	0,06	0,08	0,10	0,13	0,16	0,18	0,22	95	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.3.1	105	0,06	0,08	0,10	0,13	0,16	0,18	0,22	100	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.3.2	100	0,06	0,08	0,10	0,13	0,16	0,18	0,22	95	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3	75	0,04	0,05	0,06	0,08	0,10	0,11	0,13	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13
S.3.1	35	0,01	0,01	0,02	0,02	0,03	0,04	0,05	30	0,01	0,01	0,02	0,02	0,03	0,04	0,05
S.3.2	25	0,01	0,01	0,02	0,02	0,03	0,04	0,05	20	0,01	0,01	0,02	0,02	0,03	0,04	0,05
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

All solid carbide WTX deep hole drills must be used with a pilot bore. The tool must never be run at high speed while not engaged in a material.
Please refer to the strategy for the production of deep holes on → **Page 160**.

Cutting data standard values – WTX – TB UNI

Index	11 025 ...								11 030 ...							
	25xD								30xD							
	with through coolant	Ø 2–3	Ø > 3–4	Ø > 4–5	Ø > 5–6	Ø > 6–8	Ø > 8–10	Ø > 10–12	with through coolant	Ø 2–3	Ø > 3–4	Ø > 4–5	Ø > 5–6	Ø > 6–8	Ø > 8–10	Ø > 10–12
	v_c (m/min)	f (mm/rev)							v_c (m/min)	f (mm/rev)						
P.1.1	90	0,05	0,07	0,09	0,10	0,12	0,14	0,16	85	0,05	0,07	0,09	0,10	0,12	0,14	0,16
P.1.2	80	0,05	0,07	0,09	0,10	0,12	0,14	0,16	75	0,05	0,07	0,09	0,10	0,12	0,14	0,16
P.1.3	80	0,04	0,05	0,06	0,08	0,10	0,11	0,13	75	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.1.4	80	0,04	0,05	0,06	0,08	0,10	0,11	0,13	75	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.1.5	85	0,04	0,05	0,06	0,08	0,10	0,11	0,13	80	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.2.1	85	0,05	0,07	0,09	0,10	0,12	0,14	0,16	80	0,05	0,07	0,09	0,10	0,12	0,14	0,16
P.2.2	80	0,04	0,05	0,06	0,08	0,10	0,11	0,13	75	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.2.3	80	0,05	0,07	0,09	0,10	0,12	0,14	0,16	75	0,05	0,07	0,09	0,10	0,12	0,14	0,16
P.2.4	80	0,04	0,05	0,06	0,08	0,10	0,11	0,13	75	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.3.1	45	0,03	0,03	0,04	0,05	0,06	0,08	0,10	40	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.3.2	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	60	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.3.3	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	60	0,04	0,05	0,06	0,08	0,10	0,11	0,13
P.4.1	65	0,03	0,03	0,04	0,05	0,06	0,08	0,10	60	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.4.2	45	0,03	0,03	0,04	0,05	0,06	0,08	0,10	40	0,03	0,03	0,04	0,05	0,06	0,08	0,10
M.1.1	50	0,03	0,03	0,04	0,05	0,06	0,08	0,10	45	0,03	0,03	0,04	0,05	0,06	0,08	0,10
M.2.1	50	0,03	0,03	0,04	0,05	0,06	0,08	0,10	45	0,03	0,03	0,04	0,05	0,06	0,08	0,10
M.3.1	50	0,03	0,03	0,04	0,05	0,06	0,08	0,10	45	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.1.1	90	0,08	0,10	0,13	0,15	0,19	0,23	0,27	85	0,08	0,10	0,13	0,15	0,19	0,23	0,27
K.1.2	85	0,08	0,10	0,13	0,15	0,19	0,23	0,27	80	0,08	0,10	0,13	0,15	0,19	0,23	0,27
K.2.1	90	0,06	0,08	0,10	0,13	0,16	0,18	0,22	85	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.2.2	85	0,06	0,08	0,10	0,13	0,16	0,18	0,22	80	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.3.1	90	0,06	0,08	0,10	0,13	0,16	0,18	0,22	85	0,06	0,08	0,10	0,13	0,16	0,18	0,22
K.3.2	85	0,06	0,08	0,10	0,13	0,16	0,18	0,22	80	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	60	0,04	0,05	0,06	0,08	0,10	0,11	0,13
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Index	11 040 ... 40xD						11 050 ... 50xD				
	with through coolant	Ø 3–4	Ø > 4–5	Ø > 5–6	Ø > 6–8	Ø > 8–10	with through coolant	Ø 3–4	Ø > 4–5	Ø > 5–6	Ø > 6–8
	v_c (m/min)	f (mm/rev)					v_c (m/min)	f (mm/rev)			
P.1.1	70	0,05	0,06	0,08	0,10	0,11	70	0,05	0,06	0,08	0,10
P.1.2	60	0,05	0,06	0,08	0,10	0,11	60	0,05	0,06	0,08	0,10
P.1.3	60	0,03	0,04	0,05	0,06	0,08	60	0,03	0,04	0,05	0,06
P.1.4	60	0,03	0,04	0,05	0,06	0,08	60	0,03	0,04	0,05	0,06
P.1.5	65	0,03	0,04	0,05	0,06	0,08	65	0,03	0,04	0,05	0,06
P.2.1	65	0,05	0,06	0,08	0,10	0,11	65	0,05	0,06	0,08	0,10
P.2.2	60	0,03	0,04	0,05	0,06	0,08	60	0,03	0,04	0,05	0,06
P.2.3	60	0,05	0,06	0,08	0,10	0,11	60	0,05	0,06	0,08	0,10
P.2.4	60	0,03	0,04	0,05	0,06	0,08	60	0,03	0,04	0,05	0,06
P.3.1	35	0,03	0,03	0,04	0,05	0,06	35	0,03	0,03	0,04	0,05
P.3.2	50	0,03	0,04	0,05	0,06	0,08	50	0,03	0,04	0,05	0,06
P.3.3	50	0,03	0,04	0,05	0,06	0,08	50	0,03	0,04	0,05	0,06
P.4.1	50	0,03	0,03	0,04	0,05	0,06	50	0,03	0,03	0,04	0,05
P.4.2	35	0,03	0,03	0,04	0,05	0,06	35	0,03	0,03	0,04	0,05
M.1.1	40	0,03	0,03	0,04	0,05	0,06	40	0,03	0,03	0,04	0,05
M.2.1	40	0,03	0,03	0,04	0,05	0,06	40	0,03	0,03	0,04	0,05
M.3.1	40	0,03	0,03	0,04	0,05	0,06	40	0,03	0,03	0,04	0,05
K.1.1	70	0,08	0,10	0,13	0,16	0,18	70	0,08	0,10	0,13	0,16
K.1.2	65	0,08	0,10	0,13	0,16	0,18	65	0,08	0,10	0,13	0,16
K.2.1	70	0,07	0,09	0,10	0,12	0,14	70	0,07	0,09	0,10	0,12
K.2.2	65	0,07	0,09	0,10	0,12	0,14	65	0,07	0,09	0,10	0,12
K.3.1	70	0,07	0,09	0,10	0,12	0,14	70	0,07	0,09	0,10	0,12
K.3.2	65	0,07	0,09	0,10	0,12	0,14	65	0,07	0,09	0,10	0,12
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3	50	0,03	0,04	0,05	0,06	0,08	50	0,03	0,04	0,05	0,06
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

All solid carbide WTX deep hole drills must be used with a pilot bore. The tool must never be run at high speed while not engaged in a material.
Please refer to the strategy for the production of deep holes on → **Page 160**.

Cutting data standard values – WTX – TB ALU

Index	11 017 ... 16xD								11 021 ... 20xD							
	with through coolant	Ø 2–3	Ø > 3–4	Ø > 4–5	Ø > 5–6	Ø > 6–8	Ø > 8–10	Ø > 10–12	with through coolant	Ø 2–3	Ø > 3–4	Ø > 4–5	Ø > 5–6	Ø > 6–8	Ø > 8–10	Ø > 10–12
	v_c (m/min)	f (mm/rev)							v_c (m/min)	f (mm/rev)						
P.1.1																
P.1.2																
P.1.3																
P.1.4																
P.1.5																
P.2.1																
P.2.2																
P.2.3																
P.2.4																
P.3.1																
P.3.2																
P.3.3																
P.4.1																
P.4.2																
M.1.1																
M.2.1																
M.3.1																
K.1.1																
K.1.2																
K.2.1																
K.2.2																
K.3.1																
K.3.2																
N.1.1	**160**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**150**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.1.2	**180**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**170**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.2.1	**160**	0,08	0,11	0,13	0,15	0,19	0,23	0,26	**150**	0,08	0,11	0,13	0,15	0,19	0,23	0,26
N.2.2	**190**	0,08	0,11	0,13	0,15	0,19	0,23	0,26	**180**	0,08	0,11	0,13	0,15	0,19	0,23	0,26
N.2.3	**140**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**130**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.3.1	**115**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**100**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.3.2	**115**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**100**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.3.3	**90**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**80**	0,06	0,08	0,10	0,13	0,16	0,18	0,22
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

Index	11 026 ... 25xD with through coolant	Ø 2–3	> 3–4	> 4–5	> 5–6	> 6–8	> 8–10	> 10–12	11 031 ... 30xD with through coolant	Ø 2–3	> 3–4	> 4–5	> 5–6	> 6–8	> 8–10	> 10–12
	v_c (m/min)	f (mm/rev)							v_c (m/min)	f (mm/rev)						
P.1.1																
P.1.2																
P.1.3																
P.1.4																
P.1.5																
P.2.1																
P.2.2																
P.2.3																
P.2.4																
P.3.1																
P.3.2																
P.3.3																
P.4.1																
P.4.2																
M.1.1																
M.2.1																
M.3.1																
K.1.1																
K.1.2																
K.2.1																
K.2.2																
K.3.1																
K.3.2																
N.1.1	**130**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**120**	0,04	0,05	0,07	0,08	0,12	0,15	0,18
N.1.2	**150**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**140**	0,04	0,05	0,07	0,08	0,12	0,15	0,18
N.2.1	**130**	0,08	0,11	0,13	0,15	0,19	0,23	0,26	**120**	0,08	0,11	0,13	0,15	0,19	0,23	0,26
N.2.2	**160**	0,08	0,11	0,13	0,15	0,19	0,23	0,26	**150**	0,08	0,11	0,13	0,15	0,19	0,23	0,26
N.2.3	**120**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**110**	0,04	0,05	0,07	0,08	0,12	0,15	0,18
N.3.1	**90**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**80**	0,04	0,05	0,07	0,08	0,12	0,15	0,18
N.3.2	**90**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**80**	0,04	0,05	0,07	0,08	0,12	0,15	0,18
N.3.3	**75**	0,06	0,08	0,10	0,13	0,16	0,18	0,22	**70**	0,01	0,01	0,02	0,02	0,03	0,04	0,05
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

All solid carbide WTX deep hole drills must be used with a pilot bore. The tool must never be run at high speed while not engaged in a material.
Please refer to the strategy for the production of deep holes on → **Page 160**.

Cutting data standard values – Solid Carbide NC Spot Drills, Centre Drills

Index	10 709 ..., 10 712 ..., 10 714 ... MultiChange						10 708 ... ZB							
	without through coolant	Ø 8	Ø 10	Ø 12	Ø 16	Ø 20	without through coolant	Ø 0,5–1,5	Ø 1,5–2	Ø 2–3	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8
	v_c (m/min)	f (mm/rev)					v_c (m/min)	f (mm/rev)						
P.1.1	160	0,08	0,10	0,11	0,14	0,16	75	0,03	0,04	0,05	0,07	0,08	0,10	0,12
P.1.2	160	0,08	0,10	0,11	0,14	0,16	65	0,03	0,04	0,05	0,07	0,08	0,10	0,12
P.1.3	160	0,08	0,10	0,11	0,14	0,16	65	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.1.4	160	0,08	0,10	0,11	0,14	0,16	65	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.1.5	130	0,08	0,09	0,11	0,13	0,15	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.2.1	145	0,08	0,10	0,11	0,14	0,16	70	0,03	0,04	0,05	0,07	0,08	0,10	0,12
P.2.2	100	0,07	0,08	0,10	0,12	0,14	65	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.2.3	80	0,07	0,08	0,10	0,12	0,14	65	0,03	0,04	0,05	0,07	0,08	0,10	0,12
P.2.4	80	0,07	0,08	0,10	0,12	0,14	65	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.3.1	95	0,08	0,09	0,11	0,13	0,16								
P.3.2	95	0,08	0,09	0,11	0,13	0,16								
P.3.3	95	0,08	0,09	0,11	0,13	0,16								
P.4.1	65	0,04	0,05	0,05	0,07	0,08								
P.4.2	65	0,04	0,05	0,05	0,07	0,08								
M.1.1	45	0,05	0,06	0,07	0,08	0,10								
M.2.1	45	0,05	0,06	0,07	0,08	0,10								
M.3.1	40	0,04	0,05	0,06	0,07	0,08								
K.1.1	175	0,13	0,16	0,19	0,24	0,27	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.1.2	160	0,11	0,14	0,16	0,20	0,23	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.2.1	130	0,09	0,11	0,13	0,17	0,19	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.2.2	130	0,09	0,11	0,13	0,17	0,19	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.3.1	160	0,11	0,14	0,16	0,20	0,23	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.3.2	130	0,09	0,11	0,13	0,17	0,19	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
N.1.1	600	0,13	0,16	0,19	0,24	0,27	200	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.1.2	400	0,14	0,17	0,20	0,25	0,29	200	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.2.1	320	0,15	0,18	0,21	0,26	0,30	160	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.2.2	320	0,15	0,18	0,21	0,26	0,30	180	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.2.3	230	0,16	0,19	0,23	0,28	0,33	130	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.3.1	175	0,11	0,13	0,15	0,19	0,22	160	0,01	0,01	0,01	0,01	0,01	0,01	0,02
N.3.2	230	0,11	0,13	0,15	0,19	0,22	160	0,01	0,01	0,01	0,01	0,01	0,01	0,02
N.3.3	175	0,11	0,13	0,15	0,19	0,22	100	0,01	0,01	0,01	0,01	0,01	0,01	0,02
N.4.1	290	0,07	0,08	0,09	0,12	0,14								
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Index	10 702 ..., 10 703 ..., 10 704 ...											
	NC-A											
	without through coolant	Ø 2–3	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
	v_c (m/min)	f (mm/rev)										
P.1.1	75	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.1.2	65	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.1.3	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.1.4	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.1.5	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.2.1	70	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.2.2	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.2.3	65	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.2.4	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	70	0,04	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,27
K.1.2	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.2.1	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.2.2	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.3.1	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.3.2	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
N.1.1	200	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.1.2	200	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.1	160	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.2	180	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.3	130	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.3.1	160	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.3.2	160	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.3.3	100	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – Solid Carbide NC-A TiAlN

Index	10 716 ..., 10 717 ..., 10 718 ... NC-A TiAlN											
	without through coolant	Ø 2–3	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16	Ø 16–18	Ø 18–20
	v_c (m/min)	f (mm/rev)										
P.1.1	75	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.1.2	65	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.1.3	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.1.4	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.1.5	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.2.1	70	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.2.2	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.2.3	65	0,05	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24	0,28	0,31
P.2.4	65	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	70	0,04	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20	0,23	0,26
K.1.2	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.2.1	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.2.2	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.3.1	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
K.3.2	70	0,04	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18	0,20	0,23
N.1.1	200	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.1.2	200	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.1	160	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.2	180	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.2.3	130	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09	0,11	0,13
N.3.1	160	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.3.2	160	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.3.3	100	0,01	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09	0,11	0,14
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1	28	0,02	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07	0,08	0,08
H.1.2	16	0,02	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07	0,08	0,08
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Index	10 724 ..., 10 726 ..., 10 727 ...								
	NC-A TiAlN								
	without through coolant	Ø 3–4	Ø 4–5	Ø 5–6	Ø 6–8	Ø 8–10	Ø 10–12	Ø 12–14	Ø 14–16
	v_c (m/min)	f (mm/rev)							
P.1.1	75	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24
P.1.2	65	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24
P.1.3	65	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
P.1.4	65	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
P.1.5	70	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
P.2.1	70	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24
P.2.2	65	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
P.2.3	65	0,07	0,08	0,10	0,12	0,14	0,16	0,20	0,24
P.2.4	65	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
P.3.1									
P.3.2									
P.3.3									
P.4.1									
P.4.2									
M.1.1									
M.2.1									
M.3.1									
K.1.1	70	0,05	0,06	0,08	0,10	0,13	0,15	0,18	0,20
K.1.2	70	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
K.2.1	70	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
K.2.2	70	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
K.3.1	70	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
K.3.2	70	0,05	0,06	0,08	0,10	0,11	0,13	0,15	0,18
N.1.1	200	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09
N.1.2	200	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09
N.2.1	160	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09
N.2.2	180	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09
N.2.3	130	0,01	0,02	0,02	0,03	0,04	0,05	0,07	0,09
N.3.1	160	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09
N.3.2	160	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09
N.3.3	100	0,01	0,01	0,01	0,02	0,03	0,04	0,06	0,09
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1	30	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07
H.1.2	15	0,03	0,04	0,04	0,05	0,06	0,06	0,07	0,07
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – WTX – Change

Index	10 919 ... UNI with through coolant v_c (m/min)	≥ Ø 12–15,7 f (mm/rev)	> Ø 15,7–20 f (mm/rev)	> Ø 20–25 f (mm/rev)	> Ø 25–32 f (mm/rev)	> Ø 32–41 f (mm/rev)
P.1.1	120	0,27	0,31	0,34	0,36	0,36
P.1.2	115	0,26	0,30	0,32	0,34	0,35
P.1.3	110	0,25	0,28	0,31	0,32	0,33
P.1.4	105	0,24	0,27	0,29	0,31	0,31
P.1.5	100	0,22	0,25	0,28	0,29	0,30
P.2.1	120	0,32	0,37	0,40	0,42	0,43
P.2.2	110	0,29	0,33	0,36	0,38	0,39
P.2.3	100	0,26	0,30	0,33	0,35	0,35
P.2.4	75	0,23	0,26	0,29	0,30	0,31
P.3.1	85	0,26	0,30	0,33	0,35	0,35
P.3.2	65	0,22	0,25	0,27	0,28	0,29
P.3.3	65	0,17	0,19	0,21	0,22	0,22
P.4.1	65	0,17	0,20	0,22	0,23	0,23
P.4.2	65	0,17	0,20	0,22	0,23	0,23
M.1.1						
M.2.1						
M.3.1						
K.1.1	110	0,37	0,42	0,46	0,49	0,50
K.1.2	90	0,29	0,33	0,36	0,38	0,39
K.2.1	145	0,34	0,39	0,42	0,45	0,46
K.2.2	90	0,29	0,33	0,36	0,38	0,39
K.3.1	80	0,35	0,40	0,44	0,46	0,47
K.3.2	70	0,28	0,32	0,34	0,36	0,37
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Index	10 923 ... with through coolant					
	P					
	v_c (m/min)	≥ Ø 12–15,7	> Ø 15,7–20	> Ø 20–25	> Ø 25–32	> Ø 32–41
		f (mm/rev)				
P.1.1	120	0,32	0,36	0,39	0,41	0,42
P.1.2	115	0,30	0,34	0,37	0,39	0,40
P.1.3	110	0,29	0,32	0,35	0,37	0,38
P.1.4	105	0,27	0,31	0,34	0,35	0,36
P.1.5	100	0,26	0,29	0,32	0,34	0,34
P.2.1	120	0,37	0,42	0,46	0,49	0,49
P.2.2	110	0,34	0,38	0,42	0,44	0,45
P.2.3	100	0,30	0,35	0,38	0,40	0,40
P.2.4	75	0,27	0,30	0,33	0,35	0,35
P.3.1	85	0,30	0,35	0,38	0,40	0,40
P.3.2	65	0,25	0,28	0,31	0,32	0,33
P.3.3	65	0,19	0,22	0,24	0,25	0,25
P.4.1	65	0,20	0,23	0,25	0,26	0,27
P.4.2	65	0,20	0,23	0,25	0,26	0,27
M.1.1						
M.2.1						
M.3.1						
K.1.1	110	0,41	0,47	0,51	0,54	0,55
K.1.2	90	0,33	0,37	0,41	0,43	0,43
K.2.1	145	0,38	0,43	0,47	0,50	0,51
K.2.2	90	0,33	0,37	0,41	0,43	0,43
K.3.1	80	0,35	0,40	0,44	0,46	0,47
K.3.2	70	0,28	0,32	0,34	0,36	0,37
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

For through holes, the feed must be reduced by approx. 30% when exiting the hole. For more accurate positioning, precentre with a 142° NC spot drill.
With Type VA 5xD and 8xD, enter the hole with reduced feed of 0.05 – 0.06 mm/revolution.

Cutting data standard values – WTX – Change

Index	10 921 ... VA					10 924 ... GG				
	with through coolant	≥ Ø 12–15,7	> Ø 15,7–20	> Ø 20–25	> Ø 25–32	with through coolant	≥ Ø 12–15,7	> Ø 15,7–20	> Ø 20–25	> Ø 25–32
	v_c (m/min)	f (mm/rev)				v_c (m/min)	f (mm/rev)			
P.1.1	110	0,25	0,28	0,30	0,32					
P.1.2	105	0,24	0,27	0,29	0,31					
P.1.3	100	0,22	0,25	0,28	0,29					
P.1.4	95	0,21	0,24	0,26	0,28					
P.1.5	90	0,20	0,23	0,25	0,26					
P.2.1	110	0,29	0,33	0,36	0,38					
P.2.2	100	0,26	0,30	0,33	0,35					
P.2.3	90	0,24	0,27	0,29	0,31					
P.2.4	70	0,21	0,24	0,26	0,27					
P.3.1	75	0,24	0,27	0,30	0,31					
P.3.2	60	0,19	0,22	0,24	0,25					
P.3.3	60	0,15	0,17	0,18	0,19					
P.4.1	60	0,16	0,18	0,19	0,20					
P.4.2	60	0,16	0,18	0,19	0,20					
M.1.1	**55**	0,20	0,23	0,25	0,26					
M.2.1	**50**	0,17	0,19	0,21	0,22					
M.3.1	**50**	0,17	0,19	0,21	0,22					
K.1.1	**95**	0,37	0,42	0,46	0,49	**120**	0,49	0,56	0,62	0,65
K.1.2	**80**	0,29	0,33	0,36	0,38	**100**	0,39	0,45	0,49	0,51
K.2.1	**130**	0,34	0,39	0,42	0,45	**160**	0,45	0,52	0,57	0,60
K.2.2	**80**	0,29	0,33	0,36	0,38	**100**	0,39	0,45	0,49	0,51
K.3.1	**70**	0,32	0,36	0,39	0,41	**90**	0,42	0,48	0,52	0,55
K.3.2	**65**	0,25	0,28	0,31	0,33	**80**	0,34	0,38	0,41	0,44
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1	**30**	0,14	0,16	0,17	0,18					
S.1.2	**20**	0,10	0,11	0,12	0,13					
S.2.1	**20**	0,10	0,11	0,12	0,13					
S.2.2	**15**	0,12	0,14	0,15	0,16					
S.2.3	**15**	0,10	0,11	0,12	0,13					
S.3.1	**40**	0,17	0,20	0,22	0,23					
S.3.2	**30**	0,15	0,17	0,18	0,19					
S.3.3	**25**	0,12	0,14	0,15	0,16					
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Index	10 922 ...				
	AL				
	with through coolant	≥ Ø 12–15,7	> Ø 15,7–20	> Ø 20–25	> Ø 25–32
	v_c (m/min)	f (mm/rev)			
P.1.1					
P.1.2					
P.1.3					
P.1.4					
P.1.5					
P.2.1					
P.2.2					
P.2.3					
P.2.4					
P.3.1					
P.3.2					
P.3.3					
P.4.1					
P.4.2					
M.1.1					
M.2.1					
M.3.1					
K.1.1					
K.1.2					
K.2.1					
K.2.2					
K.3.1					
K.3.2					
N.1.1	330	0,27	0,31	0,34	0,36
N.1.2	300	0,25	0,28	0,31	0,32
N.2.1	250	0,33	0,37	0,41	0,43
N.2.2	220	0,33	0,37	0,41	0,43
N.2.3	180	0,33	0,37	0,41	0,43
N.3.1	200	0,41	0,47	0,51	0,54
N.3.2	120	0,33	0,37	0,41	0,43
N.3.3	140	0,25	0,28	0,31	0,32
N.4.1					
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1					
S.3.2					
S.3.3					
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					
O.1.2					
O.2.1					
O.2.2					
O.3.1					

With through-holes the feedrate should be reduced at the break out by approx. 30 %. Use 142° NC Spot Drill to ensure positional accuracy.
Use reduced feedrate of 0.05 – 0.06 mm/U when using type VA 5xD and 8xD drill.

Cutting data standard values – WTX – Change Feed

Index	10 925 ...							
	UNI							
	with through coolant	With external coolant	MMS	≥ Ø 14,0	> Ø 17,5	> Ø 21,5	> Ø 26,0	Ø 32,0
	v_c (m/min)			f (mm/rev)				
P.1.1	100	90	90	0,45	0,51	0,55	0,58	0,60
P.1.2	95	85	85	0,43	0,48	0,53	0,55	0,57
P.1.3	90	80	80	0,41	0,46	0,50	0,53	0,54
P.1.4	85	75	75	0,39	0,44	0,48	0,50	0,51
P.1.5	80	75	75	0,37	0,42	0,45	0,47	0,49
P.2.1	100	85	85	0,54	0,60	0,65	0,69	0,71
P.2.2	90	75	75	0,49	0,55	0,59	0,62	0,64
P.2.3	80	70	70	0,44	0,49	0,53	0,56	0,58
P.2.4	65	55	55	0,39	0,43	0,47	0,49	0,51
P.3.1	70	60	60	0,44	0,49	0,53	0,56	0,58
P.3.2	55	50	50	0,36	0,40	0,43	0,46	0,47
P.3.3	55	40	45	0,28	0,31	0,33	0,35	0,36
P.4.1	55	40	45	0,29	0,32	0,35	0,37	0,38
P.4.2	55	40	45	0,29	0,32	0,35	0,37	0,38
M.1.1								
M.2.1								
M.3.1								
K.1.1	110	75	75	0,68	0,77	0,83	0,88	0,90
K.1.2	90	70	70	0,54	0,61	0,66	0,69	0,71
K.2.1	145	90	110	0,63	0,71	0,77	0,81	0,83
K.2.2	90	70	70	0,54	0,61	0,66	0,69	0,71
K.3.1	80	70	70	0,58	0,65	0,71	0,75	0,77
K.3.2	70	65	65	0,46	0,52	0,56	0,59	0,61
N.1.1								
N.1.2								
N.2.1								
N.2.2								
N.2.3								
N.3.1								
N.3.2								
N.3.3								
N.4.1								
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								



The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Cutting data standard values – WPC – Change

Index	11 910 ...				
	UNI				
	with through coolant	Ø 14–16	> Ø 16–20	> Ø 20–25	> Ø 25–30
	v_c (m/min)	f (mm/rev)			
P.1.1	100	0,22	0,25	0,28	0,32
P.1.2	100	0,27	0,31	0,35	0,39
P.1.3	100	0,27	0,31	0,35	0,39
P.1.4	90	0,25	0,28	0,32	0,35
P.1.5	90	0,25	0,28	0,32	0,35
P.2.1	100	0,25	0,28	0,32	0,35
P.2.2	100	0,25	0,28	0,32	0,35
P.2.3	100	0,25	0,28	0,32	0,35
P.2.4	80	0,21	0,24	0,27	0,30
P.3.1	70	0,20	0,22	0,25	0,28
P.3.2	70	0,18	0,21	0,24	0,26
P.3.3	60	0,17	0,19	0,22	0,24
P.4.1	55	0,17	0,19	0,22	0,24
P.4.2	55	0,17	0,19	0,22	0,24
M.1.1					
M.2.1					
M.3.1					
K.1.1	110	0,37	0,42	0,47	0,53
K.1.2	100	0,31	0,35	0,39	0,44
K.2.1	100	0,37	0,42	0,47	0,53
K.2.2	90	0,31	0,35	0,39	0,44
K.3.1	100	0,37	0,42	0,47	0,53
K.3.2	90	0,31	0,35	0,39	0,44
N.1.1					
N.1.2					
N.2.1					
N.2.2					
N.2.3					
N.3.1					
N.3.2					
N.3.3					
N.4.1					
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1					
S.3.2					
S.3.3					
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					
O.1.2					
O.2.1					
O.2.2					
O.3.1					

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Type overview – WTX High performance drilling tools

- ▲ good self-centring
- ▲ optimum swarf control
- ▲ precise radial run-out
- ▲ excellent alignment precision
- ▲ high-quality surface finish
- ▲ close drilling tolerances
- ▲ limited hardening of peripheral zones of the material
- ▲ good chip evacuation even with large drilling depths

For all products that are marked with the video icon, a relevant product video can be viewed at **cutting.tools/gb/en/type-overview-wtx**

UNI		▲ high-performance solid carbide drill for universal application, for all materials up to 1200 N/mm²	DRAGONSKIN	▶
Feed UNI		▲ solid carbide high feed drills with 3 cutting edges ▲ very good positional accuracy	DRAGONSKIN	▶
Speed UNI		▲ for double the cutting speed ▲ asymetric point geometry permits performance improvement when drilling steel and cast iron by up to 60 %	DRAGONSKIN	▶
Quattro 4F		▲ with additional guide land for best alignment accuracy, concentricity and positional accuracy	DRAGONSKIN	
180		▲ for inclined surfaces up to 45° and flat bottom holes		
TB		▲ solid carbide deep hole drill, up to 50xD without peck drilling ▲ 4 or 6 facet head geometry for excellent alignment accuracy		
CP		▲ Ensures an even safer deep hole drilling process ▲ For optimal guidance of the deep hole twist drill for hole depths > 30xD		
VA		▲ first choice for corrosion and acid resistant seels ▲ for volume production		
Speed VA		▲ Designed for high cutting speeds in corrosion and acid-resistant steels		
AL		▲ solid carbide high performance drill specailly for the machining of aluminium, copper and brass ▲ 6 facet geometry for excellent hole quality	DRAGONSKIN	
Ti		▲ Specialist for the cost-effective machining of titanium, titanium alloys and heat-resistant alloys ▲ Also suitable for machining corrosion-resistant and acid-resistant steels	DRAGONSKIN	
H		▲ high-performance drill for hardened steels from 45 to 70 HRC	DRAGONSKIN	▶
HFDS		▲ Four fluted high-feed drill ▲ Specially designed for steel processing ▲ Innovative cutting edge geometry guarantees high positioning accuracy	DRAGONSKIN	▶
MINI		▲ solid carbide micro drill for the precise manufacture of very small holes from Ø 0.1 to 2.9 mm		
MICRO		▲ Universal high-performance micro drill ▲ Specialised geometry and coating ▲ Pilot drill for WTX Micro deep hole twist drill	DRAGONSKIN	▶
Change		▲ replaceable head drills with the performance level of a solid carbide drill, from Ø 12.0 mm to 41.0 mm		▶
Change Feed		▲ exchangeable head drill with three cutting edges for even greater performance, from Ø 14.0 mm to 32.0 mm		▶
Feed BR		▲ Solid carbide high-performance drill reamer ▲ Drilling and reaming in one operation ▲ Three drilling edges and six reaming edges	DRAGONSKIN	
SB		▲ Solid carbide short step drill for steels and cast iron materials ▲ For core hole plus countersink for thread cutting and forming	DRAGONSKIN	

Important application criteria for WTX drills

Offset
The axial run-out of the axis between a rotating work piece and a stationary tool must not exceed 0.04 mm. A larger run-out reduces tool life and drilling quality and can lead to tool breakage.

Run-out
The concentricity error when the tool is rotating should not exceed 0.015 mm.

Cooling lubricant
With internally cooled tools the coolant pressure should be min. 20 bar.
High-quality semi-synthetic or emulsion coolants with min. 10 % oil content and EP additives are recommended. This allows better life, and achieves higher tolerance accuracy and better surface quality. A fine filter system is recommended to prevent possible clogging of the coolant channels.

Drilling into full material
Due to the geometric design of the solid carbide drills, they are suitable for drilling into solid material.
With solid carbide drills ≤ 12xD drilling can be carried out in solid material without the need for centering and spot drilling operations.

Flute run-out
When using WTX drills a safety margin of at least 1 to 1.5 x D must be maintained between the work piece and the flute outlet groove of the drill to ensure optimum chip evacuation and prevent chip clogging and tool fracture.

Peck drilling
Pecking should be avoided as there is a very high risk of fracture caused by chips left behind or flushed into the hole.

Secondary tools
If a smaller diameter WTX drill is used as a following tool in the same hole, it should have a smaller drill point angle to ensure that it centres properly.

Interrupted cut
Reduce the feedrate on entry to and from cross holes

Drill exit
To avoid severe burr formation, reduce v_c and f.

Workpiece clamping
To avoid tool breakages, care must be taken to ensure a proper workpiece clamping without vibration or workpiece deflection.

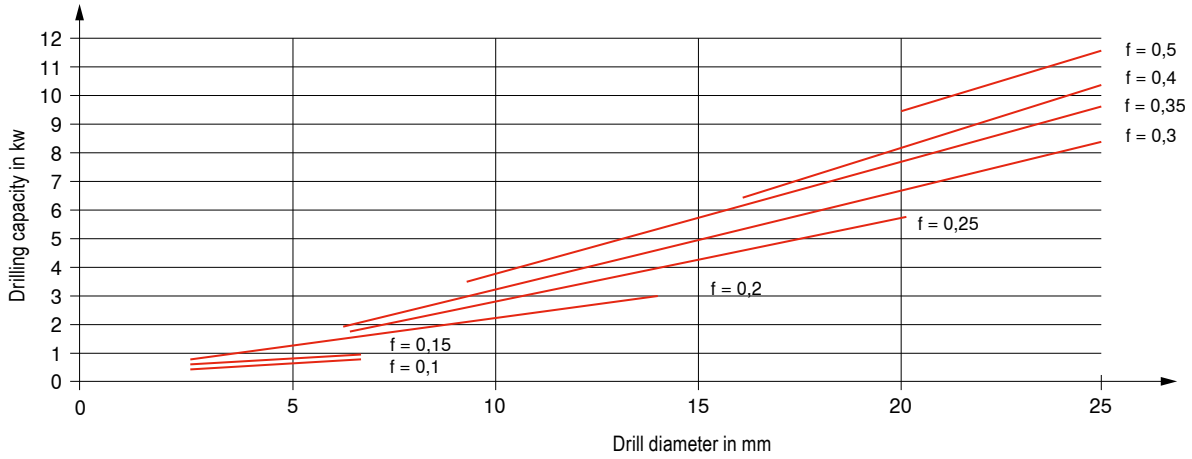
Tool Clamping
With optimum clamping high alignment accuracy and tolerances (IT7-8) are possible.
Due to the high surface quality reaming operations can often be dispensed with.

Machine Requirements
Please note the performance diagram

Cutting data table
To control the chip length (comma chip) the feed rates should be no lower than the lower limits quoted in the cutting data table.

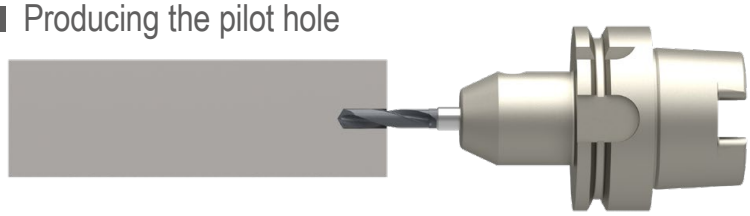
Feed rate f in mm/rev.
Drilling capacity relative to the diameter: v_c = 80 m/min.

Tensile strength of the material = 600 N/mm²



Strategy for the production of deep holes with the WTX solid carbide deep hole drill

1 Producing the pilot hole



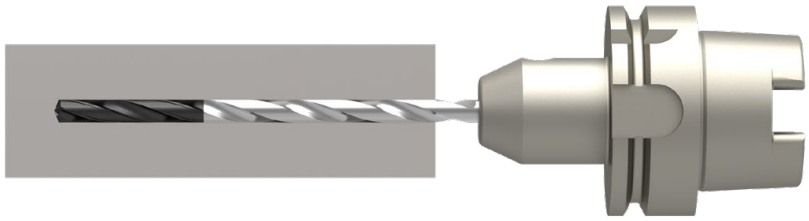
- For the pilot hole, we recommend a WTX drill 3xD / 5xD with the same nominal diameter
- The pilot hole should be 0.01–0.03 mm larger in diameter and at least 3xD deep.
- It is essential to ensure that the point angle of the pilot drill is bigger than the point angle of the deep hole drill.
- From a hole depth of 40xD, we recommend a pilot hole with our Co-Pilot deep hole twist drill CP 20 UNI.

2 Movement of the deep hole drill into the pilot hole



- Move the WTX deep hole drill without coolant pressure and with reduced speed (n = 200–300 1/min) into the pilot hole at a feed of v_f = 1.000 mm/min
- Approx. 2 mm before reaching the bottom of the hole (end of the pilot hole), stop the feed, switch on the coolant and wait for a short time until the recommended pressure is reached. Then increase the spindle speed to the recommended speed as smoothly as possible.

3 Drilling to required depth without pecking



- Reduce feed rate for cross holes and at drill exit by 50%

4 Retracting the drill



- Retract the drill to approximately the depth of the pilot hole.
- Reduce the rpm to a low speed (n = 200–300 1/min).
- Use normal rapid feed (V_f = 3.000 mm/min) when exiting the hole.

For horizontal deep drilling operations from 40xD, move the deep hole drill into the hole counter-clockwise at 200 1/min. This prevents sagging of the deep hole drill.

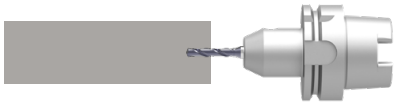
It is essential to ensure that deep hole drills **never** run unsupported at full speed in the machine !

WTX – Micro – recommended application

General references

- During vertical machining, a pilot hole is not required for regular and straight surfaces from Ø 1.0 mm up to a length of 12xD due to the excellent self-centring. During horizontal drilling, a pilot drill must be used for irregular and angled surfaces.
  The WTX Micro 5xD is recommended as a pilot drill.
- To guarantee problem-free insertion of the deep hole twist drill in the pilot hole, during horizontal machining 90° countersinking with suitable NC countersink is recommended.
- During vertical machining, drills from Ø 1.0 mm up to a length of 12xD can also be operated outside the pilot hole without a reduction in speed.
- For through holes, the feed per revolution must be reduced by 50% before exiting the hole.
- For long-chipping materials, pecking may be required every 3xD from a hole depth of 10xD. Peck drilling (retraction) should occur at the pilot hole depth.
- Due to the small thro' coolant Ø during micro drilling, effective filtration of the cooling medium is of the utmost importance.
  Drill < Ø 2.0 mm Filter ≤ 0.010 mm
  Drill < Ø 3.0 mm Filter ≤ 0.020 mm
- The longer the coolant is in the machine, suspended particles and particulate matter in the cooling medium prevent effective coolant flow. Regular replacement of the coolant is therefore recommended.
- A suitable clamping device with maximum radial run-out accuracy and balance quality is required for process-secure production.
  Radial run-out accuracy ≤ 0.003 mm
  Suitable for high-speed areas
- To guarantee a process-secure drilling process, a minimum pressure of 30 bar must be present.

1 Producing the pilot hole



- Pilot hole depth: min. 3xD
- It must be ensured that the prepared pilot hole is free from chips to avoid blocking of the micro deep hole twist drill cutting edges

2 Entering the pilot hole with a deep hole twist drill



- Speed 300 1/min (reverse rotation sometimes possible)
- Entry speed approx. 1.000 mm/min
- Switch on cooling
- Increase parameters 0.5–1.0 mm before reaching the bottom of the pilot hole

3 Deep hole drilling



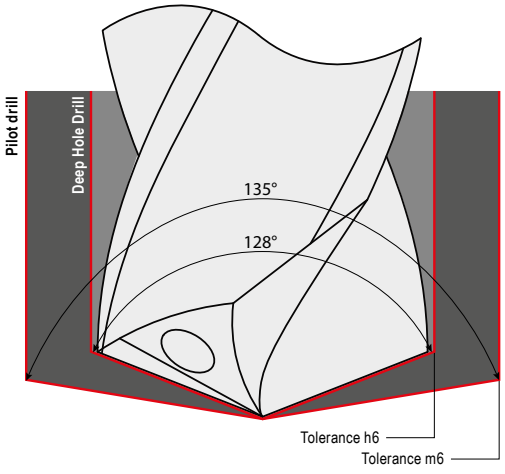
- At hole depth without pecking

4 Retracting the drill

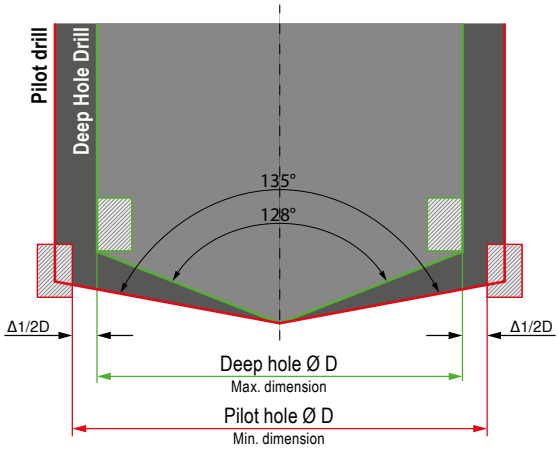


- Retract drill approx. 1xD
- Reduce speed to 300 1/min
- Exit speed approx. 1.000 mm/min
- Switch off emulsion before exiting the hole

Tolerances and angles



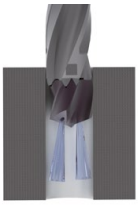
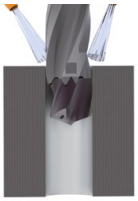
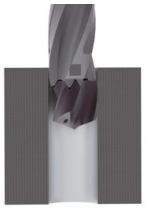
The following must apply to use the pilot and deep hole twist drill consecutively and without collisions:
$\Delta D = ØD$ (pilot hole) – $ØD$ (deep hole) > 0



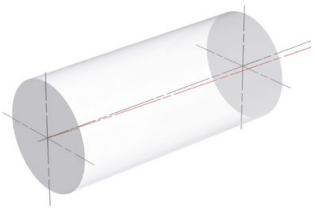
Application notes for WTX – Change Feed and WTX – Change exchangeable head drills

Coolant conditions

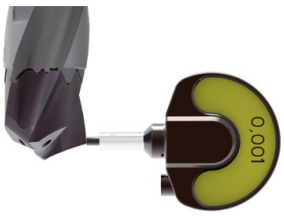
Coolant pressure dependent on drilling depth:

with thro' coolant		with external cooling		without coolant supply
				
1xD: 8 bar	✓	1xD: 8 bar	✓	
3xD: 8 bar	✓	3xD: 8 bar	✓	
5xD: 12 bar	✓	5xD: 12 bar	✗	max. bore depth: 3xD
8xD: 25 bar	✓	8xD: 25 bar	✗	
12xD: 25 bar	✓	12xD: 25 bar	✗	

Runout accuracy

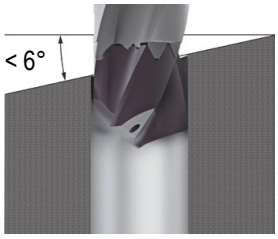


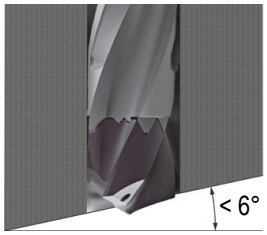
max. 0,02 mm



max. 0,04 mm

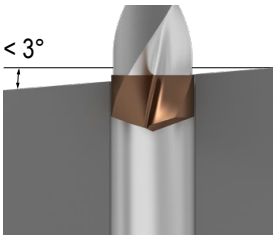
Max. entry and exit angle for the WTX – Change Feed

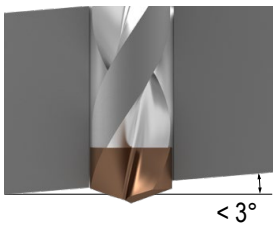




When entering and exiting angled surfaces, reduce v_f by 50 %.

Max. entry and exit angle for the WTX – Change





When entering and exiting angled surfaces, reduce v_f by 50 %.

Exiting a through hole

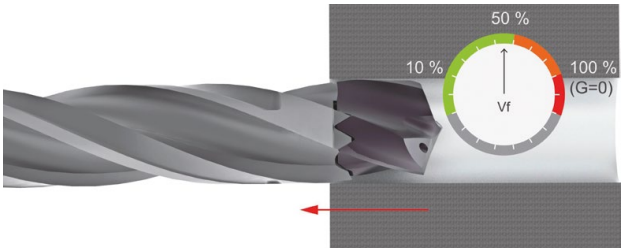
▲ WTX – Change Feed and WTX – Change



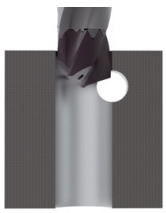
For through holes, it must be ensured that the exchangeable head does not fully protrude from the hole.

Do not retract at rapid feedrate

For withdrawal, a rate of 5 times the value of the feed rate is recommended.

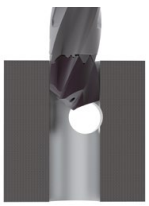


Machining situations



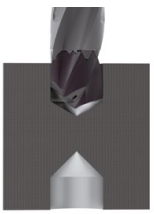
Offset cross hole point is engaged

WTX – Change Feed ✓
WTX – Change ✓



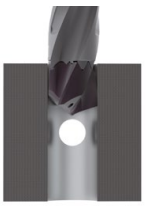
Offset cross hole point is not engaged

WTX – Change Feed ✗
WTX – Change ✗



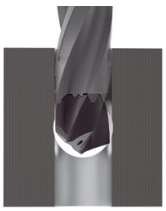
Breakthrough at counterbore

WTX – Change Feed ✓
WTX – Change ✗



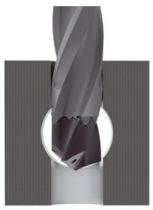
Hole on centre and smaller Ø

WTX – Change Feed ✓
WTX – Change ✓



Hole on centre and same Ø

WTX – Change Feed ✗
WTX – Change ✗

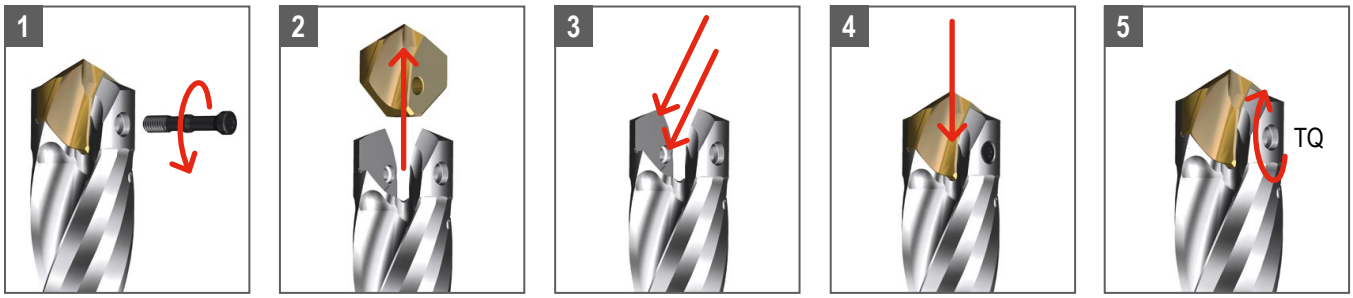


Hole on centre and larger Ø

WTX – Change Feed ✗
WTX – Change ✗

Application notes for WPC – Change indexable insert drill

Assembly of the indexable insert



1 Loosen the clamping screw anti-clockwise using a TORX PLUS® screwdriver (screwdriver not included in the scope of supply).

2 Remove the indexable insert from the insert seat.

3 Clean the insert seat and screw thread with compressed air.

4 Insert the new indexable insert in the insert seat.

5 Insert clamping screw from correct side and tighten clockwise with the specified torque.
Observe the change interval of the clamping screw!

Notes

- ▲ Only insert indexable inserts in the diameter range designated for the respective holder.
- ▲ The clamping screw must also be replaced upon every fifth replacement of the indexable insert.
- ▲ The tightening torque and item number of the clamping screw are labelled on the holder.
- ▲ Use only original spare parts.

Clamping screws and tightening torques

Diameter range	Article no. Clamping screw	Drive	Torque moment TQ
14,00–15,99 mm	11 950 00100	08IP	0,9 Nm
16,00–17,99 mm	11 950 00200	08IP	1,2 Nm
18,00–21,99 mm	11 950 00300	10IP	2,2 Nm
22,00–23,99 mm	11 950 00400	10IP	3,2 Nm
24,00–25,99 mm	11 950 00500	15IP	5,0 Nm
26,00–30,00 mm	11 950 00600	20IP	6,0 Nm

Notes on drilling technology



Solid drilling



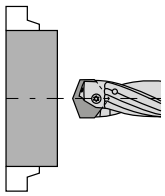
Stack plate drilling: stable clamping of closely spaced stack plates required.



When drilling into angled surfaces < 3°, reduce the feed by approx. 50%.
For an angled drill entrance > 3°, prior spot facing is required.



When exiting at an angle < 3°, reduce the feed by approx. 50%.
Machining angled drill exits > 3° is not recommended.



When machining with a stationary tool (turning machines), a precise centre position of the tool in relation to the rotational axis of the workpiece must be ensured. Maximum permissible offset ± 0.02 mm.



To achieve the optimal results, it is recommended to use the tool with thro' coolant only.
The recommended minimum coolant pressure should be 12 bar.

Recommendations for solid carbide drilling operations

Reasons for ...	Solutions ...
... Built-up edge	
v_c too low	Increase v_c
Too much material taken off at main cutting edge	Reduce cut
Uncoated cutting edge	Coating
... Corners broken off	
Unstable conditions	Change clamping
Run out too high	Optimise runout
Interrupted cut	Reduce feed
... Heavy flank wear	
v_c too low	Reduce v_c
Feed rate too low	Increase feed rate
Clearance angle too small	Increase clearance angle
... Scoring on the tool flanks	
Unstable conditions	Change clamping
Run out too high	Correct runout
Interrupted cut	Reduce feed
Abrasive materials	Thicker emulsion or oil
... Round chamfer wear	
Unstable conditions	More stable clamping
Run out too high	Check radial run-out
Back taper too small	Increase back taper
Wrong emulsion or too thin emulsion	Thicker emulsion or oil
... Material broken off at main cutting edge	
Unstable conditions	More stable clamping
Interrupted cut	Reduce feed
Wrong type of tool	Optimise tool
Max. tool life has been exceeded	Change tool earlier
... Heavy wear at chisel edge	
v_c too low	Increase v_c
Feed rate too high	Reduce feed
Too much material taken off at main cutting edge	Optimise cutting edge
... Material broken off at intersections, drill point and main cutting edge	
Clearance angle too small	Increase clearance angle
Too much material taken off at main cutting edge	Optimize cutting edge
Wrong tool	Other tool
... Plastic deformation of cutting corner	
v_c too high	Reduce v_c
Insufficient emulsion	Increase amount of coolant
Wrong or no corner chamfer	Correct corner chamfer
... Poor surface quality	
Excessive runout error	Check radial run-out
Cooling too low	More emulsion
Unstable conditions	Change toolholding
... Heavy burring on hole exit	
Feed too high	Reduce feed
Excessive honing of main cutting edge	Minimise cutting edge

Further information
cutting.tools/en/en/tips-solid-carbide-drilling

Coatings

Ti800
- AlTiN nanolayer coating
- Maximum application temperature: 1100 °C

Ti700
- TiAlN multilayer coating
- Maximum application temperature: 1100 °C

TiAlN
- TiAlN multilayer coating
- Maximum application temperature: 900 °C

TiB
- TiB monolayer coating
- Specially for aluminium machining
- Maximum application temperature: 900 °C

TiSi
- TiSi multilayer coating
- Maximum application temperature: 800 °C

Ti1050
- Ti multilayer coating
- $HV_{0.005}$ = 3300
- Coefficient of friction (against steel) = 0.3 – 0.5
- Maximum application temperature: 900 °C

Ti750
- TiAlN nanolayer coating
- Maximum application temperature: 1000 °C

TPX74S
- TiAlN-based PVD multilayer coating
- Universally applicable grade with high wear-resistance
- Maximum application temperature: 900 °C

DPX74S DRAGONSKIN
- Special TiAlN nanolayer coating
- Maximum application temperature: 1000 °C

DPA54 DRAGONSKIN
- Special multilayer coating
- High hardness and heat resistance
- Maximum application temperature: 800 °C

DLC DRAGONSKIN
- Diamond-like carbon coating
- Specially for machining non-ferrous metals
- Maximum application temperature: 400 °C

DPX14S DRAGONSKIN
- TiAlN nanolayer coating
- Coefficient of friction (dry, against steel) = 0.35
- Maximum application temperature: 1000 °C

DPX64U DRAGONSKIN
- Special TiAlN monolayer coating
- Perfected for hardened materials
- Optimised coating and surface structure
- Maximum application temperature: 800 °C

DPX74M DRAGONSKIN
- Universal AlCrN-based monolayer coating developed for micro tools
- High oxidation, heat and wear resistance
- Maximum application temperature 1100 °C

New products for machining technicians

NEW SOGX indexable inserts



BK8430 -21

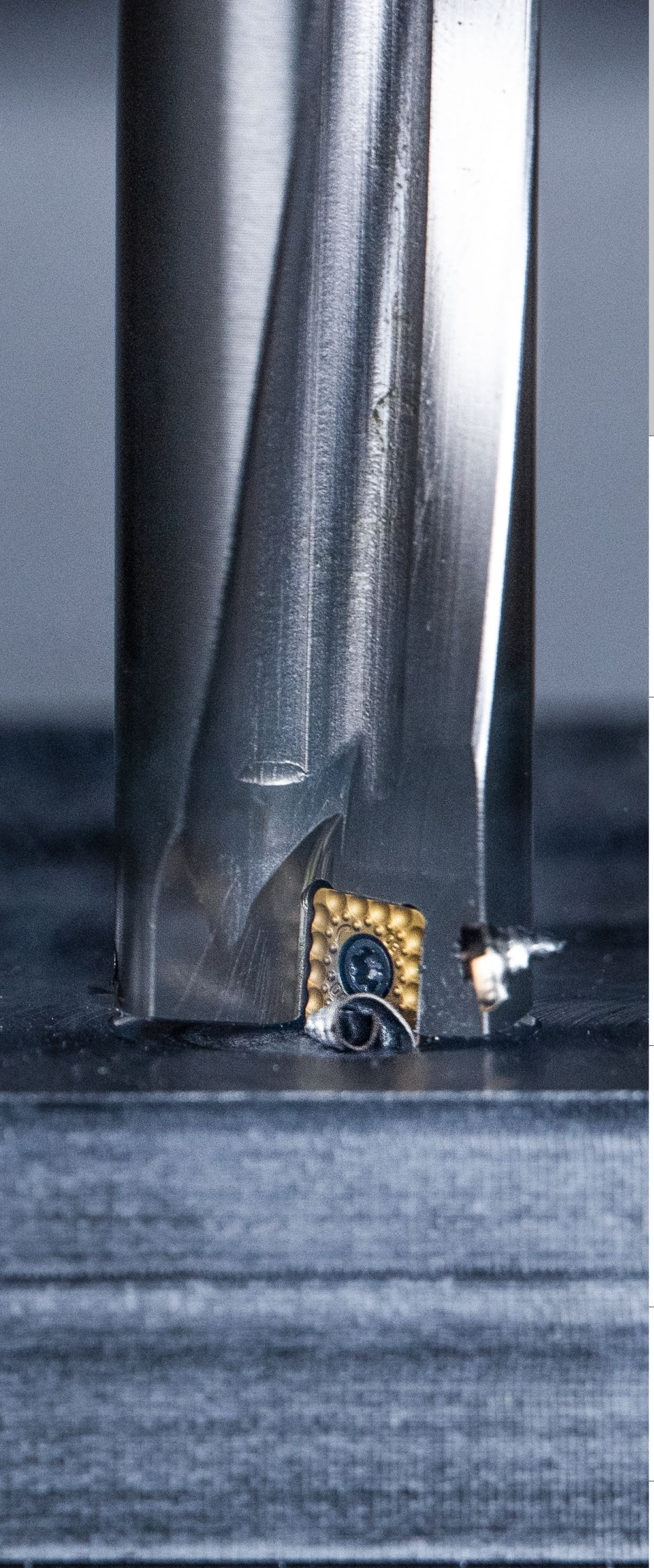
- Highly positive and soft-cutting topography
- Universal applicable and high wear-resistance grade
- Can be used for centre and periphery



BK7935 -21

- Highly positive and soft-cutting topography
- Tougher grade, particularly suitable for machining stainless and acid-resistant steels as well as special alloys
- Recommended only for the peripheral insert

→ Page 30



Solid drilling and bore machining

1 HSS drilling
2 Solid carbide drilling
3 Indexable insert drilling 3
4 Reaming and Countersinking
5 Spindle Tooling

Threading

6 Taps and thread formers
7 Circular and Thread Milling
8 Thread turning

Turning

9 Turning Tools
10 Multifunctional Tools – EcoCut and FreeTurn
11 Grooving Tools
12 Miniature turning tools

Milling

13 HSS Milling Cutters
14 Solid Carbide milling cutters
15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories
17 Workpiece clamping

18 Material examples and article no. Index

List of contents

Symbol explanation	4
Application tips – eccentric sleeves	5
Toolfinder	6+7
Product programme	8–60
Technical Information	
Cutting Data	61–77
Maximum Offset Range	78–80
Coding example, coolant supply	81
Indexable insert drilling – problems / possible causes / solutions	82
KUB Centron – drilling instructions + problems / possible causes / solutions	83+84
Overview of grades and chip breakers, application	85–87

KOMET \ Performance

Premium quality tools for high performance.

The premium quality tools from the **KOMET Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

KOMET \ Standard

Quality tools for standard applications.

The quality tools of the **KOMET Standard** product line are high quality, high performance, reliable and enjoy the highest level of trust among our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Symbol explanation

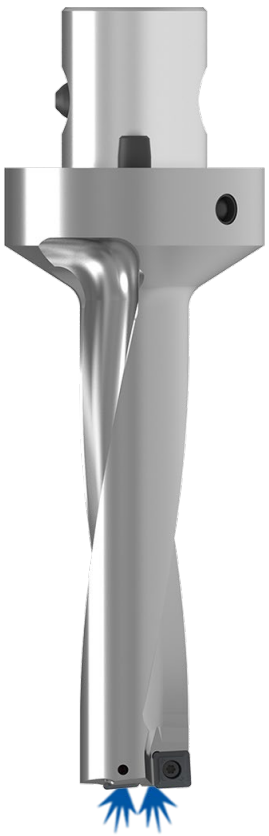
Shank

C
Cylindrical shank with clamping flat
Guarantees optimum clamping of the tool and can be clamped in every standard adapter.

K
Drill with combi shank
This drill shank has two clamping flats (DIN 6535HE, DIN 6595) that guarantee pull-out protection and good face contact of the drill. Both Weldon and Whistle Notch adapters can be used.

ABS
Drill with ABS connection.
The ABS connection by Komet is a modular coupling system for rotating tools and stationary tools, and offers a number of advantages, such as improved force transmission.
Technical information and spare parts
→ Chapter 16 Adapters and accessories, page 314.

PSC
Drill with polygonal shank
The polygonal shank offers the best rigidity during the transmission of force from the drill to the adapter. The tapered polygonal shape easily absorbs torsional forces and bending forces.



Version


Drill with thro' coolant supply
The tried-and-tested thro' coolant system guarantees a reduction in heat at the cutting edges of the tool as well as improved chip removal.


left-hand cutting

● = **Main Application**
○ = Extended application

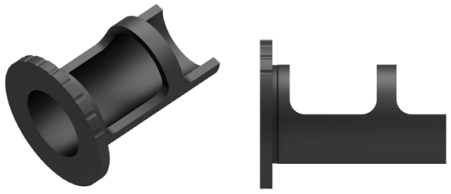
Application tips – eccentric sleeves

Using eccentric sleeves, the diameter of the hole can be varied and adjusted by +/- 0.3 mm with ease.

Two types of eccentric sleeve are available:
One for use with the indexable insert drill adapter and one for use with a Weldon adapter.
The difference lies solely in the design and position of the slots for the adapter's clamping screws.
There are four sizes per type, which are tailored to the shank diameter.



Eccentric sleeve for indexable insert drill adapter



Eccentric sleeve for Weldon adapter

Designation		Page No.
Eccentric sleeves for indexable insert drill adapters		58+59
Eccentric sleeves for Weldon adapters		58+59

Designation		Page No.
Adjuster with ABS connection		60

Adapters can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

Designation	
Adapters with ABS connection	
Indexable insert drill adapter	

→ **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

Toolfinder

KUB Pentron
KOMET \ Performance



- ▲ High-performance indexable insert drill for process-secure drilling under a wide range of conditions
- ▲ Ideal for extreme machining situations

Boring depth	Solid drilling	Boring	Drilling through a transverse hole	Stack plate drilling	Spot drilling uneven surfaces	Spot drilling an edge	Spot drilling convex surfaces	Angled hole entrance	Spot drilling pointed contours	Chain drilling	Drilling through a centre or pre-op
2xD	●	○	●	●	●	●	●	●	●	●	●
3xD	●	○	●	●	●	●	●	●	●	●	●
4xD	●	-	●	●	○	●	●	●	●	○	●
5xD	●	-	●	○	○	●	○	●	○	-	○

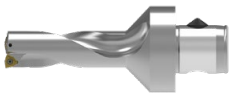
KUB Pentron CS
KOMET \ Performance



- ▲ Process-secure, reliable, modular system for creating large holes with a diameter of up to 96.00 mm

Boring depth	Solid drilling	Boring	Drilling through a transverse hole	Stack plate drilling	Spot drilling uneven surfaces	Spot drilling an edge	Spot drilling convex surfaces	Angled hole entrance	Spot drilling pointed contours	Chain drilling	Drilling through a centre or pre-op
3xD	●	-	●	○	●	●	●	●	●	●	●

KUB Trigon
KOMET \ Performance



- ▲ Ideal for machining under unstable conditions
- ▲ Well-suited to machining on less powerful machines
- ▲ The first choice for creating dimensionally accurate holes

Boring depth	Solid drilling	Boring	Drilling through a transverse hole	Stack plate drilling	Spot drilling uneven surfaces	Spot drilling an edge	Spot drilling convex surfaces	Angled hole entrance	Spot drilling pointed contours	Chain drilling	Drilling through a centre or pre-op
2xD	●	●	●	-	●	○	●	●	○	●	○
3xD	●	●	●	-	●	○	●	●	○	●	○
4xD	●	-	○	-	○	-	○	○	-	○	○

KUB Centron
KOMET \ Performance



- ▲ Cost-effective and process-secure drilling
- ▲ Hole depths up to 9xD in virtually all materials
- ▲ HSS or solid carbide centring tip for optimum positioning accuracy

Boring depth	Solid drilling	Boring	Drilling through a transverse hole	Stack plate drilling	Spot drilling uneven surfaces	Spot drilling an edge	Spot drilling convex surfaces	Angled hole entrance	Spot drilling pointed contours	Chain drilling	Drilling through a centre or pre-op
4xD	●	-	○	-	●	-	○	-	-	○	●
6xD	●	-	○	-	●	-	○	-	-	○	●
9xD	●	-	○	-	●	-	○	-	-	○	●

MaxiDrill 900
KOMET \ Standard



- ▲ Provides perfect drilling quality even under enormous loads
- ▲ Ideal for large drilling depths: The high feed rates increase productivity
- ▲ For stable machining situations

Boring depth	Solid drilling	Boring	Drilling through a transverse hole	Stack plate drilling	Spot drilling uneven surfaces	Spot drilling an edge	Spot drilling convex surfaces	Angled hole entrance	Spot drilling pointed contours	Chain drilling	Drilling through a centre or pre-op
2xD 3xD	●	○	●	●	●	●	●	●	●	○	●
4xD 5xD	●	○	●	○	○	●	●	●	●	○	●

Shank	Diameter in mm Ø DC	Direction of cut	Tool holder Page No.	Insert type	Cutting edges per insert	Steel P / Stainless steel M / Cast iron K / Non-ferrous metals N / Heat-resistant S / Tempered steel H / Non-metal materials O	Inserts Page No.
ABS	**14–65**	**R**	8+9	 SOGX	4	● ● ● ● ● ○ ○ → v_c Page 62–67	29+30
C	**14–46**	**R**	18+19				
ABS	**14–65**	**R**	10+11				
PSC	**14–37**	**R**	16+17				
C	**14–46**	**R**	20+21				
ABS	**14–46**	**R**	12+13				
C	**14–46**	**R**	22+23				
ABS	**14–46**	**R**	14+15				
C	**14–46**	**R**	24+25				
ABS	**64–96**	**R**	26–28	 SOGX	4	● ● ● ● ● ○ ○ → v_c Page 62–67	29+30
ABS	**14–82**	**R**	31–33	 WOEX	3	● ● ● ● ● ○ ○ → v_c Page 68–71	48–49
ABS	**14–44**	**L**	34				
K	**14–44**	**R**	40				
ABS	**14–82**	**R**	35–37				
ABS	**14–44**	**L**	38				
K	**14–44**	**R**	41				
ABS	**14–44**	**R**	39				
K	**14–35**	**R**	42				
ABS	**20–81**	**R**		 WOEX	3	● ● ● ● ● ○ ○	48–49
				KUB Centron – centring tips	Ø		
ABS	**20–81**	**R**	43		5–12 mm	● ● ● ● ● ○ → v_c Page 72+73	47
				KUB Centron – drill bits	Ø		
ABS	**20–81**	**R**			20–81 mm		44–47
C	**12–63**	**R**	50+51	 SONT	2 / 4	● ● ● ○ ○ → v_c Page 74–77	57
C	**12–63**	**R**	52+53				
C	**12–54**	**R**	54–55				
C	**12–41**	**R**	56				

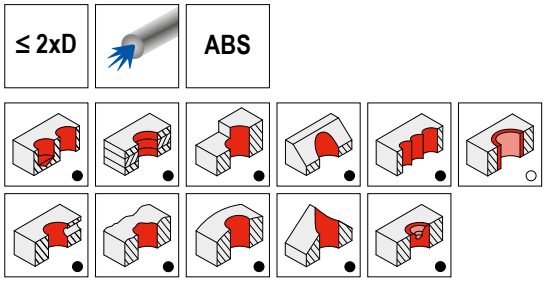
Further information on grades and chip breakers can be found on → **page 85 + 86**.

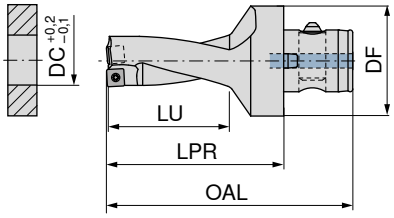
KUB Pentron – Indexable insert drill

▲ ZEFF = Number of Inserts

Scope of supply:

Indexable Insert Drill incl. clamping screws







10 872 ...

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	ZEFF	Insert	£ 2B/6#	
KUB-P.2D.140.R.04-ABS50	U42 51400	14	50	86	28	55	0,38	2	SOGX 040204	439.59	14095
KUB-P.2D.145.R.04-ABS50	U42 51450	14.5	50	89	30	58	0,38	2	SOGX 040204	439.59	14595
KUB-P.2D.150.R.04-ABS50	U42 51500	15	50	89	30	58	0,38	2	SOGX 040204	439.59	15095
KUB-P.2D.155.R.04-ABS50	U42 51550	15.5	50	93	32	62	0,38	2	SOGX 040204	439.59	15595
KUB-P.2D.160.R.04-ABS50	U42 51600	16	50	93	32	62	0,38	2	SOGX 040204	439.59	16095
KUB-P.2D.165.R.05-ABS50	U42 51650	16.5	50	96	34	65	0,62	2	SOGX 050204	448.06	16595
KUB-P.2D.170.R.05-ABS50	U42 51700	17	50	96	34	65	0,62	2	SOGX 050204	448.06	17095
KUB-P.2D.175.R.05-ABS50	U42 51750	17.5	50	98	36	67	0,62	2	SOGX 050204	448.06	17595
KUB-P.2D.180.R.05-ABS50	U42 51800	18	50	98	36	67	0,62	2	SOGX 050204	448.06	18095
KUB-P.2D.185.R.06-ABS50	U42 51850	18.5	50	101	38	70	1,01	2	SOGX 060206	461.25	18595
KUB-P.2D.190.R.06-ABS50	U42 51900	19	50	101	38	70	1,01	2	SOGX 060206	461.25	19095
KUB-P.2D.195.R.06-ABS50	U42 51950	19.5	50	103	40	72	1,01	2	SOGX 060206	461.25	19595
KUB-P.2D.200.R.06-ABS50	U42 52000	20	50	103	40	72	1,01	2	SOGX 060206	461.25	20095
KUB-P.2D.205.R.07-ABS50	U42 52050	20.5	50	105	42	74	1,01	2	SOGX 07T208	476.88	20595
KUB-P.2D.210.R.07-ABS50	U42 52100	21	50	105	42	74	1,01	2	SOGX 07T208	476.88	21095
KUB-P.2D.215.R.07-ABS50	U42 52150	21.5	50	107	44	76	1,01	2	SOGX 07T208	476.88	21595
KUB-P.2D.220.R.07-ABS50	U42 52200	22	50	107	44	76	1,01	2	SOGX 07T208	476.88	22095
KUB-P.2D.225.R.07-ABS50	U42 52250	22.5	50	109	46	78	1,01	2	SOGX 07T208	476.88	22595
KUB-P.2D.230.R.07-ABS50	U42 52300	23	50	109	46	78	1,01	2	SOGX 07T208	476.88	23095
KUB-P.2D.235.R.08-ABS50	U42 52350	23.5	50	111	48	80	1,28	2	SOGX 080308	491.37	23595
KUB-P.2D.240.R.08-ABS50	U42 52400	24	50	111	48	80	1,28	2	SOGX 080308	491.37	24095
KUB-P.2D.245.R.08-ABS50	U42 52450	24.5	50	114	50	83	1,28	2	SOGX 080308	491.37	24595
KUB-P.2D.250.R.08-ABS50	U42 52500	25	50	114	50	83	1,28	2	SOGX 080308	491.37	25095
KUB-P.2D.255.R.08-ABS50	U42 52550	25.5	50	116	52	85	1,28	2	SOGX 080308	491.37	25595
KUB-P.2D.260.R.08-ABS50	U42 52600	26	50	116	52	85	1,28	2	SOGX 080308	491.37	26095
KUB-P.2D.265.R.09-ABS50	U42 52650	26.5	50	119	54	88	2,25	2	SOGX 09T308	545.55	26595
KUB-P.2D.270.R.09-ABS50	U42 52700	27	50	119	54	88	2,25	2	SOGX 09T308	545.55	27095
KUB-P.2D.275.R.09-ABS50	U42 52750	27.5	50	121	56	90	2,25	2	SOGX 09T308	545.55	27595
KUB-P.2D.280.R.09-ABS50	U42 52800	28	50	121	56	90	2,25	2	SOGX 09T308	545.55	28095
KUB-P.2D.285.R.09-ABS50	U42 52850	28.5	50	124	58	93	2,25	2	SOGX 09T308	545.55	28595
KUB-P.2D.290.R.09-ABS50	U42 52900	29	50	124	58	93	2,25	2	SOGX 09T308	545.55	29095
KUB-P.2D.295.R.09-ABS50	U42 52950	29.5	50	126	60	95	2,25	2	SOGX 09T308	545.55	29595
KUB-P.2D.300.R.09-ABS50	U42 53000	30	50	126	60	95	2,25	2	SOGX 09T308	545.55	30095
KUB-P.2D.305.R.10-ABS63	U42 63050	30.5	63	139	62	101	2,8	2	SOGX 100408	574.51	30596
KUB-P.2D.310.R.10-ABS63	U42 63100	31	63	139	62	101	2,8	2	SOGX 100408	574.51	31096
KUB-P.2D.315.R.10-ABS63	U42 63150	31.5	63	141	64	103	2,8	2	SOGX 100408	574.51	31596
KUB-P.2D.320.R.10-ABS63	U42 63200	32	63	141	64	103	2,8	2	SOGX 100408	574.51	32096
KUB-P.2D.325.R.10-ABS63	U42 63250	32.5	63	144	66	106	2,8	2	SOGX 100408	574.51	32596
KUB-P.2D.330.R.10-ABS63	U42 63300	33	63	144	66	106	2,8	2	SOGX 100408	574.51	33096
KUB-P.2D.335.R.11-ABS63	U42 63350	33.5	63	146	68	108	2,8	2	SOGX 110408	613.07	33596
KUB-P.2D.340.R.11-ABS63	U42 63400	34	63	146	68	108	2,8	2	SOGX 110408	613.07	34096
KUB-P.2D.345.R.11-ABS63	U42 63450	34.5	63	149	70	111	2,8	2	SOGX 110408	613.07	34596
KUB-P.2D.350.R.11-ABS63	U42 63500	35	63	149	70	111	2,8	2	SOGX 110408	613.07	35096
KUB-P.2D.355.R.11-ABS63	U42 63550	35.5	63	152	72	113	2,8	2	SOGX 110408	613.07	35596
KUB-P.2D.360.R.11-ABS63	U42 63600	36	63	152	72	113	2,8	2	SOGX 110408	613.07	36096
KUB-P.2D.365.R.11-ABS63	U42 63650	36.5	63	154	74	116	2,8	2	SOGX 110408	613.07	36596
KUB-P.2D.370.R.11-ABS63	U42 63700	37	63	154	74	116	2,8	2	SOGX 110408	613.07	37096
KUB-P.2D.375.R.12-ABS63	U42 63750	37.5	63	156	76	118	6,25	2	SOGX 120408	641.91	37596
KUB-P.2D.380.R.12-ABS63	U42 63800	38	63	156	76	118	6,25	2	SOGX 120408	641.91	38096
KUB-P.2D.385.R.12-ABS63	U42 63850	38.5	63	159	78	121	6,25	2	SOGX 120408	641.91	38596
KUB-P.2D.390.R.12-ABS63	U42 63900	39	63	159	78	121	6,25	2	SOGX 120408	641.91	39096
KUB-P.2D.395.R.12-ABS63	U42 63950	39.5	63	161	80	123	6,25	2	SOGX 120408	641.91	39596
KUB-P.2D.400.R.12-ABS63	U42 64000	40	63	161	80	123	6,25	2	SOGX 120408	641.91	40096
KUB-P.2D.405.R.12-ABS63	U42 64050	40.5	63	164	82	126	6,25	2	SOGX 120408	641.91	40596
KUB-P.2D.410.R.12-ABS63	U42 64100	41	63	164	82	126	6,25	2	SOGX 120408	641.91	41096

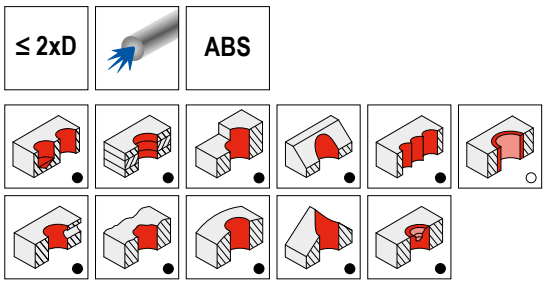
Continued on next page

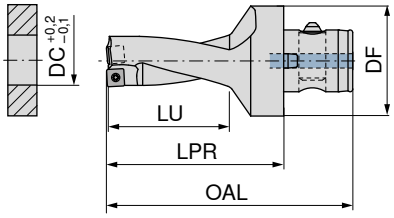
KUB Pentron – Indexable insert drill

▲ ZEFF = Number of Inserts

Scope of supply:

Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	ZEFF	Insert	10 872 ... £ 2B/6#	
KUB-P.2D.415.R.12-ABS63	U42 64150	**41.5**	63	166	84	128	6,25	2	SOGX 120408	641.91	**41596**
KUB-P.2D.420.R.12-ABS63	U42 64200	**42**	63	166	84	128	6,25	2	SOGX 120408	641.91	**42096**
KUB-P.2D.425.R.13-ABS63	U42 64250	**42.5**	63	169	86	131	6,25	2	SOGX 130508	641.91	**42596**
KUB-P.2D.430.R.13-ABS63	U42 64300	**43**	63	169	86	131	6,25	2	SOGX 130508	641.91	**43096**
KUB-P.2D.435.R.13-ABS63	U42 64350	**43.5**	63	171	88	133	6,25	2	SOGX 130508	641.91	**43596**
KUB-P.2D.440.R.13-ABS63	U42 64400	**44**	63	171	88	133	6,25	2	SOGX 130508	641.91	**44096**
KUB-P.2D.445.R.13-ABS63	U42 64450	**44.5**	63	174	90	136	6,25	2	SOGX 130508	641.91	**44596**
KUB-P.2D.450.R.13-ABS63	U42 64500	**45**	63	174	90	136	6,25	2	SOGX 130508	641.91	**45096**
KUB-P.2D.455.R.13-ABS63	U42 64550	**45.5**	63	173	92	135	6,25	2	SOGX 130508	641.91	**45596**
KUB-P.2D.460.R.13-ABS63	U42 64600	**46**	63	173	92	135	6,25	2	SOGX 130508	641.91	**46096**
KUB-P.2D.470.R.08-ABS63	U42 64700	**47**	63	187	94	149	1,28	4	SOGX 080308	686.15	**47096**
KUB-P.2D.480.R.08-ABS63	U42 64800	**48**	63	189	96	151	1.28	4	SOGX 080308	686.15	**48096**
KUB-P.2D.490.R.08-ABS63	U42 64900	**49**	63	191	98	153	1,28	4	SOGX 080308	686.15	**49096**
KUB-P.2D.500.R.08-ABS63	U42 65000	**50**	63	193	100	155	1,28	4	SOGX 080308	686.15	**50096**
KUB-P.2D.510.R.08-ABS63	U42 65100	**51**	63	195	102	157	1,28	4	SOGX 080308	686.15	**51096**
KUB-P.2D.520.R.08-ABS63	U42 65200	**52**	63	197	104	159	1,28	4	SOGX 080308	686.15	**52096**
KUB-P.2D.530.R.10-ABS63	U42 65300	**53**	63	199	106	161	2,8	4	SOGX 100408	686.15	**53096**
KUB-P.2D.540.R.10-ABS63	U42 65400	**54**	63	201	108	163	2,8	4	SOGX 100408	686.15	**54096**
KUB-P.2D.550.R.10-ABS80	U42 75500	**55**	80	208	110	165	2,8	4	SOGX 100408	828.34	**55098**
KUB-P.2D.560.R.10-ABS80	U42 75600	**56**	80	210	112	167	2,8	4	SOGX 100408	828.34	**56098**
KUB-P.2D.570.R.10-ABS80	U42 75700	**57**	80	212	114	169	2,8	4	SOGX 100408	828.34	**57098**
KUB-P.2D.580.R.10-ABS80	U42 75800	**58**	80	214	116	171	2,8	4	SOGX 100408	828.34	**58098**
KUB-P.2D.590.R.10-ABS80	U42 75900	**59**	80	216	118	173	2,8	4	SOGX 100408	828.34	**59098**
KUB-P.2D.600.R.10-ABS80	U42 76000	**60**	80	218	120	175	2,8	4	SOGX 100408	828.34	**60098**
KUB-P.2D.610.R.10-ABS80	U42 76100	**61**	80	220	122	177	2,8	4	SOGX 100408	828.34	**61098**
KUB-P.2D.620.R.10-ABS80	U42 76200	**62**	80	222	124	179	2,8	4	SOGX 100408	828.34	**62098**
KUB-P.2D.630.R.10-ABS80	U42 76300	**63**	80	224	126	181	2,8	4	SOGX 100408	828.34	**63098**
KUB-P.2D.640.R.10-ABS80	U42 76400	**64**	80	226	128	183	2,8	4	SOGX 100408	828.34	**64098**
KUB-P.2D.650.R.10-ABS80	U42 76500	**65**	80	228	130	185	2,8	4	SOGX 100408	828.34	**65098**



Screwdriver



Key D



Clamping screw

Spare parts DC		80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W7/6B	
14 - 16	T05 - IP	10.21	**057**				M1,8x3,8 - 05IP	2.86	**10100**
16,5 - 18				T06 - IP	18.22	**123**	M2,0x4,3 - 06IP	2.86	**10000**
18,5 - 23				T06 - IP	18.22	**123**	M2,2x5,5 - 06IP	2.86	**10700**
23,5 - 26				T08 - IP	17.97	**125**	M2,5x6,3 - 08IP	2.86	**10800**
26,5 - 30				T08 - IP	17.97	**125**	M3,0x7,6 - 08IP	2.86	**10200**
30,5 - 37				T15 - IP	21.01	**128**	M3,5x7,5 - 15IP	2.86	**10300**
37,5 - 46				T20 - IP	22.06	**129**	M4,5x10 - 20IP	2.86	**10400**
47 - 52				T08 - IP	17.97	**125**	M2,5x6,3 - 08IP	2.86	**10800**
53 - 65				T08 - IP	17.97	**125**	M3,5x7,5 - 15IP	2.86	**10300**

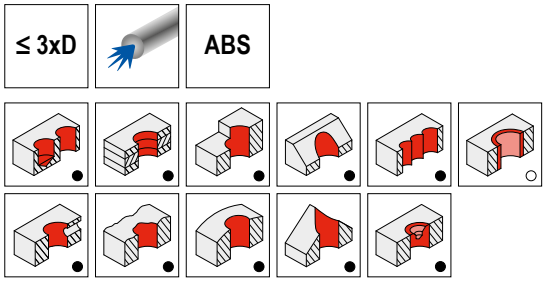
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

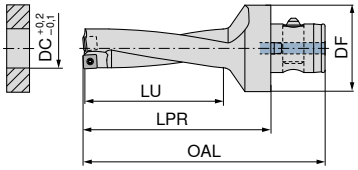
KUB Pentron – Indexable insert drill

▲ ZEFF = Number of Inserts

Scope of supply:

Indexable Insert Drill incl. clamping screws







10 873 ...

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	ZEFF	Insert	£ 2B/6#	
KUB-P.3D.140.R.04-ABS50	U43 51400	14	50	100	42	69	0,38	2	SOGX 040204	468.55	14095
KUB-P.3D.145.R.04-ABS50	U43 51450	14.5	50	104	45	73	0,38	2	SOGX 040204	468.55	14595
KUB-P.3D.150.R.04-ABS50	U43 51500	15	50	104	45	73	0,38	2	SOGX 040204	468.55	15095
KUB-P.3D.155.R.04-ABS50	U43 51550	15.5	50	109	48	78	0,38	2	SOGX 040204	468.55	15595
KUB-P.3D.160.R.04-ABS50	U43 51600	16	50	109	48	78	0,38	2	SOGX 040204	468.55	16095
KUB-P.3D.165.R.05-ABS50	U43 51650	16.5	50	113	51	82	0,62	2	SOGX 050204	479.31	16595
KUB-P.3D.170.R.05-ABS50	U43 51700	17	50	113	51	82	0,62	2	SOGX 050204	479.31	17095
KUB-P.3D.175.R.05-ABS50	U43 51750	17.5	50	116	54	85	0,62	2	SOGX 050204	479.31	17595
KUB-P.3D.180.R.05-ABS50	U43 51800	18	50	116	54	85	0,62	2	SOGX 050204	479.31	18095
KUB-P.3D.185.R.06-ABS50	U43 51850	18.5	50	120	57	89	1,01	2	SOGX 060206	491.37	18595
KUB-P.3D.190.R.06-ABS50	U43 51900	19	50	120	57	89	1,01	2	SOGX 060206	491.37	19095
KUB-P.3D.195.R.06-ABS50	U43 51950	19.5	50	123	60	92	1,01	2	SOGX 060206	491.37	19595
KUB-P.3D.200.R.06-ABS50	U43 52000	20	50	123	60	92	1,01	2	SOGX 060206	491.37	20095
KUB-P.3D.205.R.07-ABS50	U43 52050	20.5	50	126	63	95	1,01	2	SOGX 07T208	505.83	20595
KUB-P.3D.210.R.07-ABS50	U43 52100	21	50	126	63	95	1,01	2	SOGX 07T208	505.83	21095
KUB-P.3D.215.R.07-ABS50	U43 52150	21.5	50	129	66	98	1,01	2	SOGX 07T208	505.83	21595
KUB-P.3D.220.R.07-ABS50	U43 52200	22	50	129	66	98	1,01	2	SOGX 07T208	505.83	22095
KUB-P.3D.225.R.07-ABS50	U43 52250	22.5	50	132	69	101	1,01	2	SOGX 07T208	505.83	22595
KUB-P.3D.230.R.07-ABS50	U43 52300	23	50	132	69	101	1,01	2	SOGX 07T208	505.83	23095
KUB-P.3D.235.R.08-ABS50	U43 52350	23.5	50	135	72	104	1,28	2	SOGX 080308	521.46	23595
KUB-P.3D.240.R.08-ABS50	U43 52400	24	50	135	72	104	1,28	2	SOGX 080308	521.46	24095
KUB-P.3D.245.R.08-ABS50	U43 52450	24.5	50	139	75	108	1,28	2	SOGX 080308	521.46	24595
KUB-P.3D.250.R.08-ABS50	U43 52500	25	50	139	75	108	1,28	2	SOGX 080308	521.46	25095
KUB-P.3D.255.R.08-ABS50	U43 52550	25.5	50	142	78	111	1,28	2	SOGX 080308	521.46	25595
KUB-P.3D.260.R.08-ABS50	U43 52600	26	50	142	78	111	1,28	2	SOGX 080308	521.46	26095
KUB-P.3D.265.R.09-ABS50	U43 52650	26.5	50	146	81	115	2,25	2	SOGX 09T308	584.13	26595
KUB-P.3D.270.R.09-ABS50	U43 52700	27	50	146	81	115	2,25	2	SOGX 09T308	584.13	27095
KUB-P.3D.275.R.09-ABS50	U43 52750	27.5	50	149	84	118	2,25	2	SOGX 09T308	584.13	27595
KUB-P.3D.280.R.09-ABS50	U43 52800	28	50	149	84	118	2,25	2	SOGX 09T308	584.13	28095
KUB-P.3D.285.R.09-ABS50	U43 52850	28.5	50	153	87	122	2,25	2	SOGX 09T308	584.13	28595
KUB-P.3D.290.R.09-ABS50	U43 52900	29	50	153	87	122	2,25	2	SOGX 09T308	584.13	29095
KUB-P.3D.295.R.09-ABS50	U43 52950	29.5	50	156	90	125	2,25	2	SOGX 09T308	584.13	29595
KUB-P.3D.300.R.09-ABS50	U43 53000	30	50	156	90	125	2,25	2	SOGX 09T308	584.13	30095
KUB-P.3D.305.R.10-ABS63	U43 63050	30.5	63	170	93	132	2,8	2	SOGX 100408	610.64	30596
KUB-P.3D.310.R.10-ABS63	U43 63100	31	63	170	93	132	2,8	2	SOGX 100408	610.64	31096
KUB-P.3D.315.R.10-ABS63	U43 63150	31.5	63	173	96	135	2,8	2	SOGX 100408	610.64	31596
KUB-P.3D.320.R.10-ABS63	U43 63200	32	63	173	96	135	2,8	2	SOGX 100408	610.64	32096
KUB-P.3D.325.R.10-ABS63	U43 63250	32.5	63	177	99	139	2,8	2	SOGX 100408	610.64	32596
KUB-P.3D.330.R.10-ABS63	U43 63300	33	63	177	99	139	2,8	2	SOGX 100408	610.64	33096
KUB-P.3D.335.R.11-ABS63	U43 63350	33.5	63	180	102	142	2,8	2	SOGX 110408	650.36	33596
KUB-P.3D.340.R.11-ABS63	U43 63400	34	63	180	102	142	2,8	2	SOGX 110408	650.36	34096
KUB-P.3D.345.R.11-ABS63	U43 63450	34.5	63	184	105	146	2,8	2	SOGX 110408	650.36	34596
KUB-P.3D.350.R.11-ABS63	U43 63500	35	63	184	105	146	2,8	2	SOGX 110408	650.36	35096
KUB-P.3D.355.R.11-ABS63	U43 63550	35.5	63	187	108	149	2,8	2	SOGX 110408	650.36	35596
KUB-P.3D.360.R.11-ABS63	U43 63600	36	63	187	108	149	2,8	2	SOGX 110408	650.36	36096
KUB-P.3D.365.R.11-ABS63	U43 63650	36.5	63	191	111	153	2,8	2	SOGX 110408	650.36	36596
KUB-P.3D.370.R.11-ABS63	U43 63700	37	63	191	111	153	2,8	2	SOGX 110408	650.36	37096
KUB-P.3D.375.R.12-ABS63	U43 63750	37.5	63	194	114	156	6,25	2	SOGX 120408	681.62	37596
KUB-P.3D.380.R.12-ABS63	U43 63800	38	63	194	114	156	6,25	2	SOGX 120408	681.62	38096
KUB-P.3D.385.R.12-ABS63	U43 63850	38.5	63	198	117	160	6,25	2	SOGX 120408	681.62	38596
KUB-P.3D.390.R.12-ABS63	U43 63900	39	63	198	117	160	6,25	2	SOGX 120408	681.62	39096
KUB-P.3D.395.R.12-ABS63	U43 63950	39.5	63	201	120	163	6,25	2	SOGX 120408	681.62	39596
KUB-P.3D.400.R.12-ABS63	U43 64000	40	63	201	120	163	6,25	2	SOGX 120408	681.62	40096
KUB-P.3D.405.R.12-ABS63	U43 64050	40.5	63	205	123	167	6,25	2	SOGX 120408	681.62	40596
KUB-P.3D.410.R.12-ABS63	U43 64100	41	63	205	123	167	6,25	2	SOGX 120408	681.62	41096

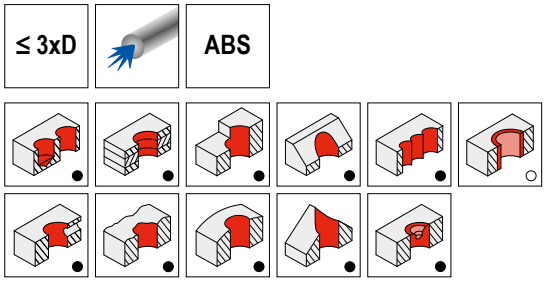
Continued on next page

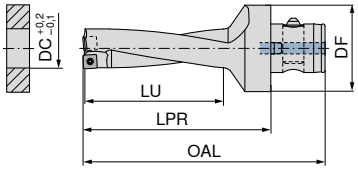
KUB Pentron – Indexable insert drill

▲ ZEFF = Number of Inserts

Scope of supply:

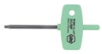
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	ZEFF	Insert	10 873 ... £ 2B/6#	
KUB-P.3D.415.R.12-ABS63	U43 64150	**41.5**	63	208	126	170	6,25	2	SOGX 120408	681.62	**41596**
KUB-P.3D.420.R.12-ABS63	U43 64200	**42**	63	208	126	170	6,25	2	SOGX 120408	681.62	**42096**
KUB-P.3D.425.R.13-ABS63	U43 64250	**42.5**	63	212	129	174	6,25	2	SOGX 130508	681.62	**42596**
KUB-P.3D.430.R.13-ABS63	U43 64300	**43**	63	212	129	174	6,25	2	SOGX 130508	681.62	**43096**
KUB-P.3D.435.R.13-ABS63	U43 64350	**43.5**	63	215	132	177	6,25	2	SOGX 130508	681.62	**43596**
KUB-P.3D.440.R.13-ABS63	U43 64400	**44**	63	215	132	177	6,25	2	SOGX 130508	681.62	**44096**
KUB-P.3D.445.R.13-ABS63	U43 64450	**44.5**	63	219	135	181	6,25	2	SOGX 130508	681.62	**44596**
KUB-P.3D.450.R.13-ABS63	U43 64500	**45**	63	219	135	181	6,25	2	SOGX 130508	681.62	**45096**
KUB-P.3D.455.R.13-ABS63	U43 64550	**45.5**	63	219	138	181	6,25	2	SOGX 130508	681.62	**45596**
KUB-P.3D.460.R.13-ABS63	U43 64600	**46**	63	219	138	181	6,25	2	SOGX 130508	681.62	**46096**
KUB-P.3D.470.R.08-ABS63	U43 64700	**47**	63	234	141	196	1,28	4	SOGX 080308	767.55	**47096**
KUB-P.3D.480.R.08-ABS63	U43 64800	**48**	63	237	144	199	1,28	4	SOGX 080308	767.55	**48096**
KUB-P.3D.490.R.08-ABS63	U43 64900	**49**	63	240	147	202	1,28	4	SOGX 080308	767.55	**49096**
KUB-P.3D.500.R.08-ABS63	U43 65000	**50**	63	243	150	205	1,28	4	SOGX 080308	767.55	**50096**
KUB-P.3D.510.R.08-ABS63	U43 65100	**51**	63	246	153	208	1,28	4	SOGX 080308	767.55	**51096**
KUB-P.3D.520.R.08-ABS63	U43 65200	**52**	63	249	156	211	1,28	4	SOGX 080308	767.55	**52096**
KUB-P.3D.530.R.10-ABS63	U43 65300	**53**	63	252	159	214	2,8	4	SOGX 100408	767.55	**53096**
KUB-P.3D.540.R.10-ABS63	U43 65400	**54**	63	255	162	217	2,8	4	SOGX 100408	767.55	**54096**
KUB-P.3D.550.R.10-ABS80	U43 75500	**55**	80	263	165	220	2,8	4	SOGX 100408	923.77	**55098**
KUB-P.3D.560.R.10-ABS80	U43 75600	**56**	80	266	168	223	2,8	4	SOGX 100408	923.77	**56098**
KUB-P.3D.570.R.10-ABS80	U43 75700	**57**	80	269	171	226	2,8	4	SOGX 100408	923.77	**57098**
KUB-P.3D.580.R.10-ABS80	U43 75800	**58**	80	272	174	229	2,8	4	SOGX 100408	923.77	**58098**
KUB-P.3D.590.R.10-ABS80	U43 75900	**59**	80	275	177	232	2,8	4	SOGX 100408	923.77	**59098**
KUB-P.3D.600.R.10-ABS80	U43 76000	**60**	80	278	180	235	2,8	4	SOGX 100408	923.77	**60098**
KUB-P.3D.610.R.10-ABS80	U43 76100	**61**	80	281	183	238	2,8	4	SOGX 100408	923.77	**61098**
KUB-P.3D.620.R.10-ABS80	U43 76200	**62**	80	284	186	241	2,8	4	SOGX 100408	923.77	**62098**
KUB-P.3D.630.R.10-ABS80	U43 76300	**63**	80	287	189	244	2,8	4	SOGX 100408	923.77	**63098**
KUB-P.3D.640.R.10-ABS80	U43 76400	**64**	80	290	192	247	2,8	4	SOGX 100408	923.77	**64098**
KUB-P.3D.650.R.10-ABS80	U43 76500	**65**	80	293	195	250	2,8	4	SOGX 100408	923.77	**65098**


Screwdriver


Key D

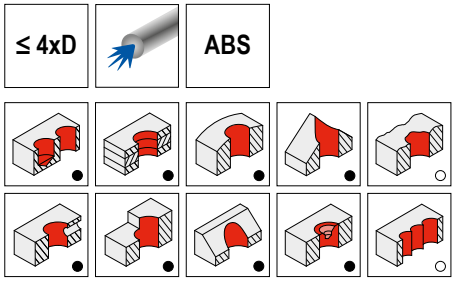

Clamping screw

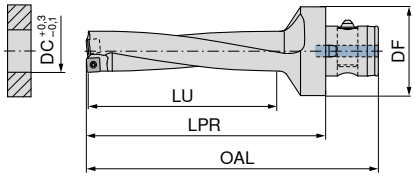
Spare parts DC		80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W7/6B	
14 - 16	T05 - IP	10.21	**057**				M1,8x3,8 - 05IP	2.86	**10100**
16,5 - 18				T06 - IP	18.22	**123**	M2,0x4,3 - 06IP	2.86	**10000**
18,5 - 23				T06 - IP	18.22	**123**	M2,2x5,5 - 06IP	2.86	**10700**
23,5 - 26				T08 - IP	17.97	**125**	M2,5x6,3 - 08IP	2.86	**10800**
26,5 - 30				T08 - IP	17.97	**125**	M3,0x7,6 - 08IP	2.86	**10200**
30,5 - 37				T15 - IP	21.01	**128**	M3,5x7,5 - 15IP	2.86	**10300**
37,5 - 46				T20 - IP	22.06	**129**	M4,5x10 - 20IP	2.86	**10400**
47 - 52				T08 - IP	17.97	**125**	M2,5x6,3 - 08IP	2.86	**10800**
53 - 65				T08 - IP	17.97	**125**	M3,5x7,5 - 15IP	2.86	**10300**

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 874 ... £ 2B/6#	
KUB-P.4D.140.R.04-ABS50	U44 51400	14	50	114	56	83	0,38	SOGX 040204	557.61	14095
KUB-P.4D.145.R.04-ABS50	U44 51450	14.5	50	119	60	88	0,38	SOGX 040204	557.61	14595
KUB-P.4D.150.R.04-ABS50	U44 51500	15	50	119	60	88	0,38	SOGX 040204	557.61	15095
KUB-P.4D.155.R.04-ABS50	U44 51550	15.5	50	125	64	94	0,38	SOGX 040204	557.61	15595
KUB-P.4D.160.R.04-ABS50	U44 51600	16	50	125	64	94	0,38	SOGX 040204	557.61	16095
KUB-P.4D.165.R.05-ABS50	U44 51650	16.5	50	130	68	99	0,62	SOGX 050204	573.24	16595
KUB-P.4D.170.R.05-ABS50	U44 51700	17	50	130	68	99	0,62	SOGX 050204	573.24	17095
KUB-P.4D.175.R.05-ABS50	U44 51750	17.5	50	134	72	103	0,62	SOGX 050204	573.24	17595
KUB-P.4D.180.R.05-ABS50	U44 51800	18	50	134	72	103	0,62	SOGX 050204	573.24	18095
KUB-P.4D.185.R.06-ABS50	U44 51850	18.5	50	139	76	108	1,01	SOGX 060206	584.03	18595
KUB-P.4D.190.R.06-ABS50	U44 51900	19	50	139	76	108	1,01	SOGX 060206	584.13	19095
KUB-P.4D.195.R.06-ABS50	U44 51950	19.5	50	143	80	112	1,01	SOGX 060206	584.13	19595
KUB-P.4D.200.R.06-ABS50	U44 52000	20	50	143	80	112	1,01	SOGX 060206	584.13	20095
KUB-P.4D.205.R.07-ABS50	U44 52050	20.5	50	147	84	116	1,01	SOGX 07T208	607.06	20595
KUB-P.4D.210.R.07-ABS50	U44 52100	21	50	147	84	116	1,01	SOGX 07T208	607.06	21095
KUB-P.4D.215.R.07-ABS50	U44 52150	21.5	50	151	88	120	1,01	SOGX 07T208	607.06	21595
KUB-P.4D.220.R.07-ABS50	U44 52200	22	50	151	88	120	1,01	SOGX 07T208	607.06	22095
KUB-P.4D.225.R.07-ABS50	U44 52250	22.5	50	155	92	124	1,01	SOGX 07T208	607.06	22595
KUB-P.4D.230.R.07-ABS50	U44 52300	23	50	155	92	124	1,01	SOGX 07T208	607.06	23095
KUB-P.4D.235.R.08-ABS50	U44 52350	23.5	50	159	96	128	1,28	SOGX 080308	625.12	23595
KUB-P.4D.240.R.08-ABS50	U44 52400	24	50	159	96	128	1,28	SOGX 080308	625.12	24095
KUB-P.4D.245.R.08-ABS50	U44 52450	24.5	50	164	100	133	1,28	SOGX 080308	625.12	24595
KUB-P.4D.250.R.08-ABS50	U44 52500	25	50	164	100	133	1,28	SOGX 080308	625.12	25095
KUB-P.4D.255.R.08-ABS50	U44 52550	25.5	50	168	104	137	1,28	SOGX 080308	625.12	25595
KUB-P.4D.260.R.08-ABS50	U44 52600	26	50	168	104	137	1,28	SOGX 080308	625.12	26095
KUB-P.4D.265.R.09-ABS50	U44 52650	26.5	50	173	108	142	2,25	SOGX 09T308	700.96	26595
KUB-P.4D.270.R.09-ABS50	U44 52700	27	50	173	108	142	2,25	SOGX 09T308	700.96	27095
KUB-P.4D.275.R.09-ABS50	U44 52750	27.5	50	177	112	146	2,25	SOGX 09T308	700.96	27595
KUB-P.4D.280.R.09-ABS50	U44 52800	28	50	177	112	146	2,25	SOGX 09T308	700.96	28095
KUB-P.4D.285.R.09-ABS50	U44 52850	28.5	50	182	116	151	2,25	SOGX 09T308	700.96	28595
KUB-P.4D.290.R.09-ABS50	U44 52900	29	50	182	116	151	2,25	SOGX 09T308	700.96	29095
KUB-P.4D.295.R.09-ABS50	U44 52950	29.5	50	186	120	155	2,25	SOGX 09T308	700.96	29595
KUB-P.4D.300.R.09-ABS50	U44 53000	30	50	186	120	155	2,25	SOGX 09T308	700.96	30095
KUB-P.4D.305.R.10-ABS63	U44 63050	30.5	63	201	124	163	2,8	SOGX 100408	735.83	30596
KUB-P.4D.310.R.10-ABS63	U44 63100	31	63	201	124	163	2,8	SOGX 100408	735.83	31096
KUB-P.4D.315.R.10-ABS63	U44 63150	31.5	63	205	128	167	2,8	SOGX 100408	735.83	31596
KUB-P.4D.320.R.10-ABS63	U44 63200	32	63	205	128	167	2,8	SOGX 100408	735.83	32096
KUB-P.4D.325.R.10-ABS63	U44 63250	32.5	63	210	132	172	2,8	SOGX 100408	735.83	32596
KUB-P.4D.330.R.10-ABS63	U44 63300	33	63	210	132	172	2,8	SOGX 100408	735.83	33096
KUB-P.4D.335.R.11-ABS63	U44 63350	33.5	63	214	136	176	2,8	SOGX 110408	752.73	33596
KUB-P.4D.340.R.11-ABS63	U44 63400	34	63	214	136	176	2,8	SOGX 110408	752.73	34096
KUB-P.4D.345.R.11-ABS63	U44 63450	34.5	63	219	140	181	2,8	SOGX 110408	752.73	34596
KUB-P.4D.350.R.11-ABS63	U44 63500	35	63	219	140	181	2,8	SOGX 110408	752.73	35096
KUB-P.4D.355.R.11-ABS63	U44 63550	35.5	63	223	144	185	2,8	SOGX 110408	752.73	35596
KUB-P.4D.360.R.11-ABS63	U44 63600	36	63	223	144	185	2,8	SOGX 110408	752.73	36096
KUB-P.4D.365.R.11-ABS63	U44 63650	36.5	63	228	148	190	2,8	SOGX 110408	752.73	36596
KUB-P.4D.370.R.11-ABS63	U44 63700	37	63	228	148	190	2,8	SOGX 110408	752.73	37096
KUB-P.4D.375.R.12-ABS63	U44 63750	37.5	63	232	152	194	6,25	SOGX 120408	774.39	37596
KUB-P.4D.380.R.12-ABS63	U44 63800	38	63	232	152	194	6,25	SOGX 120408	774.39	38096

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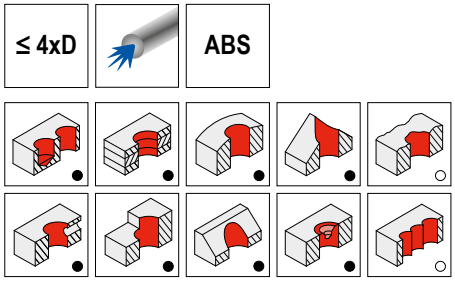
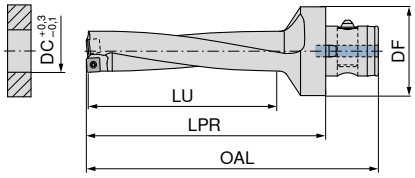
KUB Pentron – Indexable insert drill

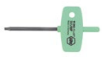
Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 874 ... £ 2B/6#	
KUB-P.4D.385.R.12-ABS63	U44 63850	38.5	63	237	156	199	6,25	SOGX 120408	774.39	38596
KUB-P.4D.390.R.12-ABS63	U44 63900	39	63	237	156	199	6,25	SOGX 120408	774.39	39096
KUB-P.4D.395.R.12-ABS63	U44 63950	39.5	63	241	160	203	6,25	SOGX 120408	774.39	39596
KUB-P.4D.400.R.12-ABS63	U44 64000	40	63	241	160	203	6,25	SOGX 120408	774.39	40096
KUB-P.4D.405.R.12-ABS63	U44 64050	40.5	63	246	164	208	6,25	SOGX 120408	774.39	40596
KUB-P.4D.410.R.12-ABS63	U44 64100	41	63	246	164	208	6,25	SOGX 120408	774.39	41096
KUB-P.4D.415.R.12-ABS63	U44 64150	41.5	63	250	168	212	6,25	SOGX 120408	774.39	41596
KUB-P.4D.420.R.12-ABS63	U44 64200	42	63	250	168	212	6,25	SOGX 120408	774.39	42096
KUB-P.4D.425.R.13-ABS63	U44 64250	42.5	63	255	172	217	6,25	SOGX 130508	829.84	42596
KUB-P.4D.430.R.13-ABS63	U44 64300	43	63	255	172	217	6,25	SOGX 130508	829.84	43096
KUB-P.4D.435.R.13-ABS63	U44 64350	43.5	63	259	176	221	6,25	SOGX 130508	829.84	43596
KUB-P.4D.440.R.13-ABS63	U44 64400	44	63	259	176	221	6,25	SOGX 130508	829.84	44096
KUB-P.4D.445.R.13-ABS63	U44 64450	44.5	63	264	180	226	6,25	SOGX 130508	829.84	44596
KUB-P.4D.450.R.13-ABS63	U44 64500	45	63	264	180	226	6,25	SOGX 130508	829.84	45096
KUB-P.4D.455.R.13-ABS63	U44 64550	45.5	63	268	184	230	6,25	SOGX 130508	829.84	45596
KUB-P.4D.460.R.13-ABS63	U44 64600	46	63	268	184	230	6,25	SOGX 130508	829.84	46096


Screwdriver


Key D

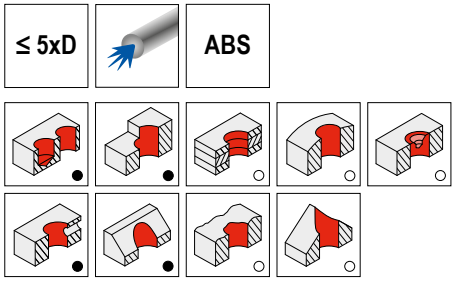

Clamping screw

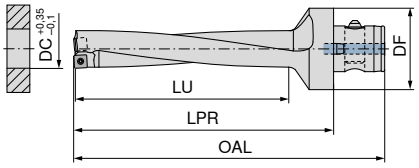
Spare parts DC		80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W7/6B	
14 - 16	T05 - IP	10.21	057				M1,8x3,8 - 05IP	2.86	10100
16,5 - 18				T06 - IP	18.22	123	M2,0x4,3 - 06IP	2.86	10000
18,5 - 23				T06 - IP	18.22	123	M2,2x5,5 - 06IP	2.86	10700
23,5 - 26				T08 - IP	17.97	125	M2,5x6,3 - 08IP	2.86	10800
26,5 - 30				T08 - IP	17.97	125	M3,0x7,6 - 08IP	2.86	10200
30,5 - 37				T15 - IP	21.01	128	M3,5x7,5 - 15IP	2.86	10300
37,5 - 46				T20 - IP	22.06	129	M4,5x10 - 20IP	2.86	10400

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





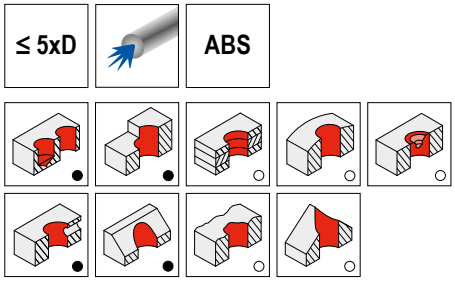


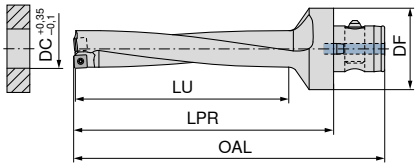
Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 875 ... £ 2B/6#	
KUB-P.5D.140.R.04-ABS50	U45 51400	14	50	128	70	97	0,38	SOGX 040204	597.33	14095
KUB-P.5D.145.R.04-ABS50	U45 51450	14.5	50	134	75	103	0,38	SOGX 040204	597.33	14595
KUB-P.5D.150.R.04-ABS50	U45 51500	15	50	134	75	103	0,38	SOGX 040204	597.33	15095
KUB-P.5D.155.R.04-ABS50	U45 51550	15.5	50	141	80	110	0,38	SOGX 040204	597.33	15595
KUB-P.5D.160.R.04-ABS50	U45 51600	16	50	141	80	110	0,38	SOGX 040204	597.33	16095
KUB-P.5D.165.R.05-ABS50	U45 51650	16.5	50	147	85	116	0,62	SOGX 050204	613.07	16595
KUB-P.5D.170.R.05-ABS50	U45 51700	17	50	147	85	116	0,62	SOGX 050204	613.07	17095
KUB-P.5D.175.R.05-ABS50	U45 51750	17.5	50	152	90	121	0,62	SOGX 050204	613.07	17595
KUB-P.5D.180.R.05-ABS50	U45 51800	18	50	152	90	121	0,62	SOGX 050204	613.07	18095
KUB-P.5D.185.R.06-ABS50	U45 51850	18.5	50	158	95	127	1,01	SOGX 060206	625.10	18595
KUB-P.5D.190.R.06-ABS50	U45 51900	19	50	158	95	127	1,01	SOGX 060206	625.12	19095
KUB-P.5D.195.R.06-ABS50	U45 51950	19.5	50	163	100	132	1,01	SOGX 060206	625.12	19595
KUB-P.5D.200.R.06-ABS50	U45 52000	20	50	163	100	132	1,01	SOGX 060206	625.12	20095
KUB-P.5D.205.R.07-ABS50	U45 52050	20.5	50	168	105	137	1,01	SOGX 07T208	646.78	20595
KUB-P.5D.210.R.07-ABS50	U45 52100	21	50	168	105	137	1,01	SOGX 07T208	646.78	21095
KUB-P.5D.215.R.07-ABS50	U45 52150	21.5	50	173	110	142	1,01	SOGX 07T208	646.78	21595
KUB-P.5D.220.R.07-ABS50	U45 52200	22	50	173	110	142	1,01	SOGX 07T208	646.78	22095
KUB-P.5D.225.R.07-ABS50	U45 52250	22.5	50	178	115	147	1,01	SOGX 07T208	646.78	22595
KUB-P.5D.230.R.07-ABS50	U45 52300	23	50	178	115	147	1,01	SOGX 07T208	646.78	23095
KUB-P.5D.235.R.08-ABS50	U45 52350	23.5	50	183	120	152	1,28	SOGX 080308	667.27	23595
KUB-P.5D.240.R.08-ABS50	U45 52400	24	50	183	120	152	1,28	SOGX 080308	667.27	24095
KUB-P.5D.245.R.08-ABS50	U45 52450	24.5	50	189	125	158	1,28	SOGX 080308	667.27	24595
KUB-P.5D.250.R.08-ABS50	U45 52500	25	50	189	125	158	1,28	SOGX 080308	667.27	25095
KUB-P.5D.255.R.08-ABS50	U45 52550	25.5	50	194	130	163	1,28	SOGX 080308	667.27	25595
KUB-P.5D.260.R.08-ABS50	U45 52600	26	50	194	130	163	1,28	SOGX 080308	667.27	26095
KUB-P.5D.265.R.09-ABS50	U45 52650	26.5	50	200	135	169	2,25	SOGX 09T308	740.68	26595
KUB-P.5D.270.R.09-ABS50	U45 52700	27	50	200	135	169	2,25	SOGX 09T308	740.68	27095
KUB-P.5D.275.R.09-ABS50	U45 52750	27.5	50	205	140	174	2,25	SOGX 09T308	740.68	27595
KUB-P.5D.280.R.09-ABS50	U45 52800	28	50	205	140	174	2,25	SOGX 09T308	740.68	28095
KUB-P.5D.285.R.09-ABS50	U45 52850	28.5	50	211	145	180	2,25	SOGX 09T308	740.68	28595
KUB-P.5D.290.R.09-ABS50	U45 52900	29	50	211	145	180	2,25	SOGX 09T308	740.68	29095
KUB-P.5D.295.R.09-ABS50	U45 52950	29.5	50	216	150	185	2,25	SOGX 09T308	740.68	29595
KUB-P.5D.300.R.09-ABS50	U45 53000	30	50	216	150	185	2,25	SOGX 09T308	740.68	30095
KUB-P.5D.305.R.10-ABS63	U45 63050	30.5	63	232	155	194	2,8	SOGX 100408	788.85	30596
KUB-P.5D.310.R.10-ABS63	U45 63100	31	63	232	155	194	2,8	SOGX 100408	788.85	31096
KUB-P.5D.315.R.10-ABS63	U45 63150	31.5	63	237	160	199	2,8	SOGX 100408	788.85	31596
KUB-P.5D.320.R.10-ABS63	U45 63200	32	63	237	160	199	2,8	SOGX 100408	788.85	32096
KUB-P.5D.325.R.10-ABS63	U45 63250	32.5	63	243	165	205	2,8	SOGX 100408	788.85	32596
KUB-P.5D.330.R.10-ABS63	U45 63300	33	63	243	165	205	2,8	SOGX 100408	788.85	33096
KUB-P.5D.335.R.11-ABS63	U45 63350	33.5	63	248	170	210	2,8	SOGX 110408	808.08	33596
KUB-P.5D.340.R.11-ABS63	U45 63400	34	63	248	170	210	2,8	SOGX 110408	808.08	34096
KUB-P.5D.345.R.11-ABS63	U45 63450	34.5	63	254	175	216	2,8	SOGX 110408	808.08	34596
KUB-P.5D.350.R.11-ABS63	U45 63500	35	63	254	175	216	2,8	SOGX 110408	808.08	35096
KUB-P.5D.355.R.11-ABS63	U45 63550	35.5	63	259	180	221	2,8	SOGX 110408	808.08	35596
KUB-P.5D.360.R.11-ABS63	U45 63600	36	63	259	180	221	2,8	SOGX 110408	808.08	36096
KUB-P.5D.365.R.11-ABS63	U45 63650	36.5	63	265	185	227	2,8	SOGX 110408	808.08	36596
KUB-P.5D.370.R.11-ABS63	U45 63700	37	63	265	185	227	2,8	SOGX 110408	808.08	37096
KUB-P.5D.375.R.12-ABS63	U45 63750	37.5	63	270	190	232	6,25	SOGX 120408	829.84	37596
KUB-P.5D.380.R.12-ABS63	U45 63800	38	63	270	190	232	6,25	SOGX 120408	829.84	38096

Continued on next page

KUB Pentron – Indexable insert drill

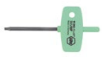
Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 875 ... £ 2B/6#	
KUB-P.5D.385.R.12-ABS63	U45 63850	38.5	63	276	195	238	6,25	SOGX 120408	829.84	38596
KUB-P.5D.390.R.12-ABS63	U45 63900	39	63	276	195	238	6,25	SOGX 120408	829.84	39096
KUB-P.5D.395.R.12-ABS63	U45 63950	39.5	63	281	200	243	6,25	SOGX 120408	829.84	39596
KUB-P.5D.400.R.12-ABS63	U45 64000	40	63	281	200	243	6,25	SOGX 120408	829.84	40096
KUB-P.5D.405.R.12-ABS63	U45 64050	40.5	63	287	205	249	6,25	SOGX 120408	829.84	40596
KUB-P.5D.410.R.12-ABS63	U45 64100	41	63	287	205	249	6,25	SOGX 120408	829.84	41096
KUB-P.5D.415.R.12-ABS63	U45 64150	41.5	63	292	210	254	6,25	SOGX 120408	829.84	41596
KUB-P.5D.420.R.12-ABS63	U45 64200	42	63	292	210	254	6,25	SOGX 120408	829.84	42096
KUB-P.5D.425.R.13-ABS63	U45 64250	42.5	63	298	215	260	6,25	SOGX 130508	897.25	42596
KUB-P.5D.430.R.13-ABS63	U45 64300	43	63	298	215	260	6,25	SOGX 130508	897.25	43096
KUB-P.5D.435.R.13-ABS63	U45 64350	43.5	63	303	220	265	6,25	SOGX 130508	897.25	43596
KUB-P.5D.440.R.13-ABS63	U45 64400	44	63	303	220	265	6,25	SOGX 130508	897.25	44096
KUB-P.5D.445.R.13-ABS63	U45 64450	44.5	63	309	225	271	6,25	SOGX 130508	897.25	44596
KUB-P.5D.450.R.13-ABS63	U45 64500	45	63	309	225	271	6,25	SOGX 130508	897.25	45096
KUB-P.5D.455.R.13-ABS63	U45 64550	45.5	63	314	230	276	6,25	SOGX 130508	897.25	45596
KUB-P.5D.460.R.13-ABS63	U45 64600	46	63	314	230	276	6,25	SOGX 130508	897.25	46096


Screwdriver


Key D


Clamping screw

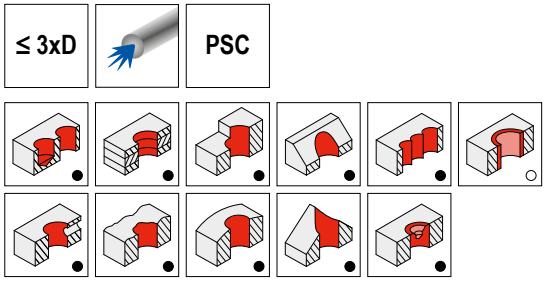
Spare parts DC		80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W7/6B	
14 - 16	T05 - IP	10.21	057				M1,8x3,8 - 05IP	2.86	10100
16,5 - 18				T06 - IP	18.22	123	M2,0x4,3 - 06IP	2.86	10000
18,5 - 23				T06 - IP	18.22	123	M2,2x5,5 - 06IP	2.86	10700
23,5 - 26				T08 - IP	17.97	125	M2,5x6,3 - 08IP	2.86	10800
26,5 - 30				T08 - IP	17.97	125	M3,0x7,6 - 08IP	2.86	10200
30,5 - 37				T15 - IP	21.01	128	M3,5x7,5 - 15IP	2.86	10300
37,5 - 46				T20 - IP	22.06	129	M4,5x10 - 20IP	2.86	10400

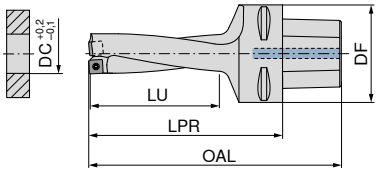
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws





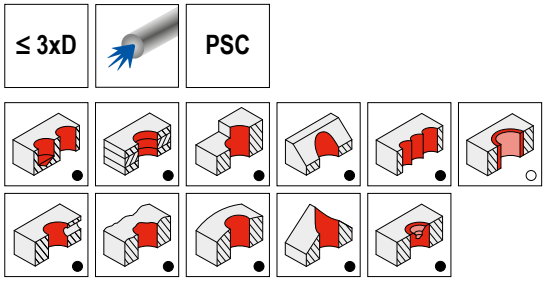


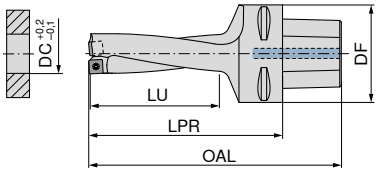
Designation	KOMET no.	DC	DF	OAL	LU	LPR	torque moment	Insert	10 873 ... £ 2B/6#	
		mm	mm	mm	mm	mm	Nm			
KUB-P.3D.140.R.04-PSC50	U40 61400	**14**	50	103	42	73	0,38	SOGX 040204	509.44	**14055**
KUB-P.3D.145.R.04-PSC50	U40 61450	**14.5**	50	107	45	77	0,38	SOGX 040204	509.44	**14555**
KUB-P.3D.150.R.04-PSC50	U40 61500	**15**	50	107	45	77	0,38	SOGX 040204	509.44	**15055**
KUB-P.3D.155.R.04-PSC50	U40 61550	**15.5**	50	112	48	82	0,38	SOGX 040204	509.44	**15555**
KUB-P.3D.160.R.04-PSC50	U40 61600	**16**	50	112	48	82	0,38	SOGX 040204	509.44	**16055**
KUB-P.3D.160.R.04-PSC63	U40 71600	**16**	63	124	48	86	0,38	SOGX 040204	509.44	**16056**
KUB-P.3D.165.R.05-PSC50	U40 61650	**16.5**	50	116	51	86	0,62	SOGX 050204	521.46	**16555**
KUB-P.3D.170.R.05-PSC50	U40 61700	**17**	50	116	51	86	0,62	SOGX 050204	521.46	**17055**
KUB-P.3D.175.R.05-PSC50	U40 61750	**17.5**	50	119	54	89	0,62	SOGX 050204	521.46	**17555**
KUB-P.3D.180.R.05-PSC50	U40 61800	**18**	50	119	54	89	0,62	SOGX 050204	521.46	**18055**
KUB-P.3D.165.R.05-PSC63	U40 71650	**16.5**	63	128	51	90	0,62	SOGX 050204	521.46	**16556**
KUB-P.3D.170.R.05-PSC63	U40 71700	**17**	63	128	51	90	0,62	SOGX 050204	521.46	**17056**
KUB-P.3D.175.R.05-PSC63	U40 71750	**17.5**	63	131	54	93	0,62	SOGX 050204	521.46	**17556**
KUB-P.3D.180.R.05-PSC63	U40 71800	**18**	63	131	54	93	0,62	SOGX 050204	521.46	**18056**
KUB-P.3D.185.R.06-PSC50	U40 61850	**18.5**	50	123	57	93	1,01	SOGX 060206	534.79	**18555**
KUB-P.3D.190.R.06-PSC50	U40 61900	**19**	50	123	57	93	1,01	SOGX 060206	534.79	**19055**
KUB-P.3D.195.R.06-PSC50	U40 61950	**19.5**	50	126	60	96	1,01	SOGX 060206	534.79	**19555**
KUB-P.3D.200.R.06-PSC50	U40 62000	**20**	50	126	60	96	1,01	SOGX 060206	534.79	**20055**
KUB-P.3D.185.R.06-PSC63	U40 71850	**18.5**	63	135	57	97	1,01	SOGX 060206	534.79	**18556**
KUB-P.3D.190.R.06-PSC63	U40 71900	**19**	63	135	57	97	1,01	SOGX 060206	534.79	**19056**
KUB-P.3D.195.R.06-PSC63	U40 71950	**19.5**	63	138	60	100	1,01	SOGX 060206	534.79	**19556**
KUB-P.3D.200.R.06-PSC63	U40 72000	**20**	63	138	60	100	1,01	SOGX 060206	534.79	**20056**
KUB-P.3D.205.R.07-PSC50	U40 62050	**20.5**	50	130	63	100	1,01	SOGX 07T208	550.41	**20555**
KUB-P.3D.210.R.07-PSC50	U40 62100	**21**	50	130	63	100	1,01	SOGX 07T208	550.41	**21055**
KUB-P.3D.215.R.07-PSC50	U40 62150	**21.5**	50	133	66	103	1,01	SOGX 07T208	550.41	**21555**
KUB-P.3D.220.R.07-PSC50	U40 62200	**22**	50	133	66	103	1,01	SOGX 07T208	550.41	**22055**
KUB-P.3D.225.R.07-PSC50	U40 62250	**22.5**	50	137	69	107	1,01	SOGX 07T208	550.41	**22555**
KUB-P.3D.230.R.07-PSC50	U40 62300	**23**	50	137	69	107	1,01	SOGX 07T208	550.41	**23055**
KUB-P.3D.205.R.07-PSC63	U40 72050	**20.5**	63	142	63	104	1,01	SOGX 07T208	550.41	**20556**
KUB-P.3D.210.R.07-PSC63	U40 72100	**21**	63	142	63	104	1,01	SOGX 07T208	550.41	**21056**
KUB-P.3D.215.R.07-PSC63	U40 72150	**21.5**	63	145	66	107	1,01	SOGX 07T208	550.41	**21556**
KUB-P.3D.220.R.07-PSC63	U40 72200	**22**	63	145	66	107	1,01	SOGX 07T208	550.41	**22056**
KUB-P.3D.225.R.07-PSC63	U40 72250	**22.5**	63	149	69	111	1,01	SOGX 07T208	550.41	**22556**
KUB-P.3D.230.R.07-PSC63	U40 72300	**23**	63	149	69	111	1,01	SOGX 07T208	550.41	**23056**
KUB-P.3D.235.R.08-PSC50	U40 62350	**23.5**	50	140	72	110	1,28	SOGX 080308	567.20	**23555**
KUB-P.3D.240.R.08-PSC50	U40 62400	**24**	50	140	72	110	1,28	SOGX 080308	567.20	**24055**
KUB-P.3D.245.R.08-PSC50	U40 62450	**24.5**	50	144	75	114	1,28	SOGX 080308	567.20	**24555**
KUB-P.3D.250.R.08-PSC50	U40 62500	**25**	50	144	75	114	1,28	SOGX 080308	567.20	**25055**
KUB-P.3D.255.R.08-PSC50	U40 62550	**25.5**	50	147	78	117	1,28	SOGX 080308	567.20	**25555**
KUB-P.3D.260.R.08-PSC50	U40 62600	**26**	50	147	78	117	1,28	SOGX 080308	567.20	**26055**
KUB-P.3D.235.R.08-PSC63	U40 72350	**23.5**	63	152	72	114	1,28	SOGX 080308	567.20	**23556**
KUB-P.3D.240.R.08-PSC63	U40 72400	**24**	63	152	72	114	1,28	SOGX 080308	567.20	**24056**
KUB-P.3D.245.R.08-PSC63	U40 72450	**24.5**	63	156	75	118	1,28	SOGX 080308	567.20	**24556**
KUB-P.3D.250.R.08-PSC63	U40 72500	**25**	63	156	75	118	1,28	SOGX 080308	567.20	**25056**
KUB-P.3D.255.R.08-PSC63	U40 72550	**25.5**	63	159	78	121	1,28	SOGX 080308	567.20	**25556**
KUB-P.3D.260.R.08-PSC63	U40 72600	**26**	63	159	78	121	1,28	SOGX 080308	567.20	**26056**
KUB-P.3D.265.R.09-PSC50	U40 62650	**26.5**	50	151	81	121	2,25	SOGX 09T308	634.72	**26555**
KUB-P.3D.270.R.09-PSC50	U40 62700	**27**	50	151	81	121	2,25	SOGX 09T308	634.72	**27055**
KUB-P.3D.275.R.09-PSC50	U40 62750	**27.5**	50	154	84	124	2,25	SOGX 09T308	634.72	**27555**
KUB-P.3D.280.R.09-PSC50	U40 62800	**28**	50	154	84	124	2,25	SOGX 09T308	634.72	**28055**
KUB-P.3D.285.R.09-PSC50	U40 62850	**28.5**	50	158	87	128	2,25	SOGX 09T308	634.72	**28555**
KUB-P.3D.290.R.09-PSC50	U40 62900	**29**	50	158	87	128	2,25	SOGX 09T308	634.72	**29055**
KUB-P.3D.295.R.09-PSC50	U40 62950	**29.5**	50	161	90	131	2,25	SOGX 09T308	634.72	**29555**
KUB-P.3D.300.R.09-PSC50	U40 63000	**30**	50	161	90	131	2,25	SOGX 09T308	634.72	**30055**
KUB-P.3D.265.R.09-PSC63	U40 72650	**26.5**	63	163	81	125	2,25	SOGX 09T308	634.72	**26556**
KUB-P.3D.270.R.09-PSC63	U40 72700	**27**	63	163	81	125	2,25	SOGX 09T308	634.72	**27056**
KUB-P.3D.275.R.09-PSC63	U40 72750	**27.5**	63	166	84	128	2,25	SOGX 09T308	634.72	**27556**
KUB-P.3D.280.R.09-PSC63	U40 72800	**28**	63	166	84	128	2,25	SOGX 09T308	634.72	**28056**
KUB-P.3D.285.R.09-PSC63	U40 72850	**28.5**	63	170	87	132	2,25	SOGX 09T308	634.72	**28556**

Continued on next page

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... £ 2B/6#	
KUB-P.3D.290.R.09-PSC63	U40 72900	29	63	170	87	132	2,25	SOGX 09T308	634.72	29056
KUB-P.3D.295.R.09-PSC63	U40 72950	29.5	63	173	90	135	2,25	SOGX 09T308	634.72	29556
KUB-P.3D.300.R.09-PSC63	U40 73000	30	63	173	90	135	2,25	SOGX 09T308	634.72	30056
KUB-P.3D.305.R.10-PSC50	U40 63050	30.5	50	165	98	135	2,8	SOGX 100408	679.63	30555
KUB-P.3D.310.R.10-PSC50	U40 63100	31	50	165	98	135	2,8	SOGX 100408	679.63	31055
KUB-P.3D.315.R.10-PSC50	U40 63150	31.5	50	168	101	138	2,8	SOGX 100408	679.63	31555
KUB-P.3D.320.R.10-PSC50	U40 63200	32	50	168	101	138	2,8	SOGX 100408	679.63	32055
KUB-P.3D.325.R.10-PSC50	U40 63250	32.5	50	172	104	142	2,8	SOGX 100408	679.63	32555
KUB-P.3D.330.R.10-PSC50	U40 63300	33	50	172	104	142	2,8	SOGX 100408	679.63	33055
KUB-P.3D.305.R.10-PSC63	U40 73050	30.5	63	177	98	139	2,8	SOGX 100408	679.63	30556
KUB-P.3D.310.R.10-PSC63	U40 73100	31	63	177	98	139	2,8	SOGX 100408	679.63	31056
KUB-P.3D.315.R.10-PSC63	U40 73150	31.5	63	180	101	142	2,8	SOGX 100408	679.63	31556
KUB-P.3D.320.R.10-PSC63	U40 73200	32	63	180	101	142	2,8	SOGX 100408	679.63	32056
KUB-P.3D.325.R.10-PSC63	U40 73250	32.5	63	184	104	146	2,8	SOGX 100408	684.48	32556
KUB-P.3D.330.R.10-PSC63	U40 73300	33	63	184	104	146	2,8	SOGX 100408	684.48	33056
KUB-P.3D.335.R.11-PSC50	U40 63350	33.5	50	175	107	145	2,8	SOGX 110408	685.57	33555
KUB-P.3D.340.R.11-PSC50	U40 63400	34	50	175	107	145	2,8	SOGX 110408	685.57	34055
KUB-P.3D.345.R.11-PSC50	U40 63450	34.5	50	179	110	149	2,8	SOGX 110408	685.57	34555
KUB-P.3D.350.R.11-PSC50	U40 63500	35	50	179	110	149	2,8	SOGX 110408	685.57	35055
KUB-P.3D.355.R.11-PSC50	U40 63550	35.5	50	182	113	152	2,8	SOGX 110408	693.34	35555
KUB-P.3D.360.R.11-PSC50	U40 63600	36	50	182	113	152	2,8	SOGX 110408	693.34	36055
KUB-P.3D.365.R.11-PSC50	U40 63650	36.5	50	186	116	156	2,8	SOGX 110408	693.34	36555
KUB-P.3D.370.R.11-PSC50	U40 63700	37	50	186	116	156	2,8	SOGX 110408	693.34	37055
KUB-P.3D.335.R.11-PSC63	U40 73350	33.5	63	187	107	149	2,8	SOGX 110408	693.34	33556
KUB-P.3D.340.R.11-PSC63	U40 73400	34	63	187	107	149	2,8	SOGX 110408	693.34	34056
KUB-P.3D.345.R.11-PSC63	U40 73450	34.5	63	191	110	153	2,8	SOGX 110408	693.34	34556
KUB-P.3D.350.R.11-PSC63	U40 73500	35	63	191	110	153	2,8	SOGX 110408	693.34	35056
KUB-P.3D.355.R.11-PSC63	U40 73550	35.5	63	194	113	156	2,8	SOGX 110408	693.34	35556
KUB-P.3D.360.R.11-PSC63	U40 73600	36	63	194	113	156	2,8	SOGX 110408	693.34	36056
KUB-P.3D.365.R.11-PSC63	U40 73650	36.5	63	198	116	160	2,8	SOGX 110408	693.34	36556
KUB-P.3D.370.R.11-PSC63	U40 73700	37	63	198	116	160	2,8	SOGX 110408	693.34	37056


Screwdriver


Key D


Clamping screw

Spare parts DC		80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W7/6B	
14 - 16	T05 - IP	10.21	057				M1,8x3,8 - 05IP	2.86	10100
16,5 - 18				T06 - IP	18.22	123	M2,0x4,3 - 06IP	2.86	10000
18,5 - 23				T06 - IP	18.22	123	M2,2x5,5 - 06IP	2.86	10700
23,5 - 26				T08 - IP	17.97	125	M2,5x6,3 - 08IP	2.86	10800
26,5 - 30				T08 - IP	17.97	125	M3,0x7,6 - 08IP	2.86	10200
30,5 - 37				T15 - IP	21.01	128	M3,5x7,5 - 15IP	2.86	10300

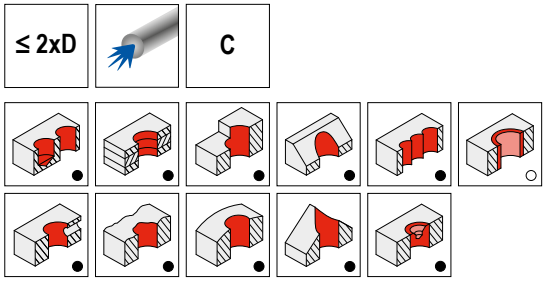
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

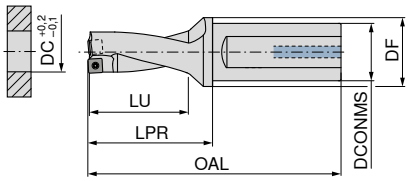
KUB Pentron – Size PSC 40 available on request.

KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws







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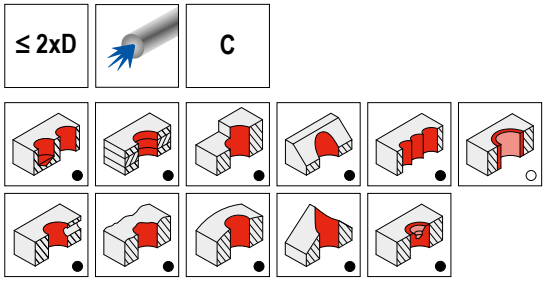
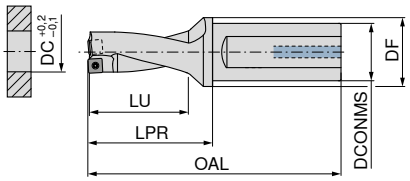
Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	£ 2B/6#	
KUB-P.2D.140.R.04-C20	U42 01400	14	20	30	91	28	41	0,38	SOGX 040204	369.76	14001
KUB-P.2D.145.R.04-C20	U42 01450	14.5	20	30	94	30	44	0,38	SOGX 040204	369.76	14501
KUB-P.2D.150.R.04-C20	U42 01500	15	20	30	94	30	44	0,38	SOGX 040204	369.76	15001
KUB-P.2D.155.R.04-C20	U42 01550	15.5	20	30	98	32	48	0,38	SOGX 040204	369.76	15501
KUB-P.2D.160.R.04-C20	U42 01600	16	20	30	98	32	48	0,38	SOGX 040204	369.76	16001
KUB-P.2D.165.R.05-C20	U42 01650	16.5	20	30	101	34	51	0,62	SOGX 050204	369.76	16501
KUB-P.2D.170.R.05-C20	U42 01700	17	20	30	101	34	51	0,62	SOGX 050204	376.96	17001
KUB-P.2D.175.R.05-C25	U42 11750	17.5	25	30	109	36	53	0,62	SOGX 050204	376.96	17502
KUB-P.2D.180.R.05-C25	U42 11800	18	25	30	109	36	53	0,62	SOGX 050204	376.96	18002
KUB-P.2D.185.R.06-C25	U42 11850	18.5	25	30	112	38	56	1,01	SOGX 060206	376.96	18502
KUB-P.2D.190.R.06-C25	U42 11900	19	25	30	112	38	56	1,01	SOGX 060206	385.40	19002
KUB-P.2D.195.R.06-C25	U42 11950	19.5	25	30	114	40	58	1,01	SOGX 060206	385.40	19502
KUB-P.2D.200.R.06-C25	U42 12000	20	25	30	114	40	58	1,01	SOGX 060206	385.40	20002
KUB-P.2D.205.R.07-C25	U42 12050	20.5	25	30	117	42	61	1,01	SOGX 07T208	410.63	20502
KUB-P.2D.210.R.07-C25	U42 12100	21	25	30	117	42	61	1,01	SOGX 07T208	410.63	21002
KUB-P.2D.215.R.07-C25	U42 12150	21.5	25	30	119	44	63	1,01	SOGX 07T208	410.63	21502
KUB-P.2D.220.R.07-C25	U42 12200	22	25	30	119	44	63	1,01	SOGX 07T208	410.63	22002
KUB-P.2D.225.R.07-C25	U42 12250	22.5	25	30	122	46	66	1,01	SOGX 07T208	410.63	22502
KUB-P.2D.230.R.07-C25	U42 12300	23	25	30	122	46	66	1,01	SOGX 07T208	410.63	23002
KUB-P.2D.235.R.08-C32	U42 22350	23.5	32	39	128	48	68	1,28	SOGX 080308	445.63	23503
KUB-P.2D.240.R.08-C32	U42 22400	24	32	39	128	48	68	1,28	SOGX 080308	445.63	24003
KUB-P.2D.245.R.08-C32	U42 22450	24.5	32	39	131	50	71	1,28	SOGX 080308	445.63	24503
KUB-P.2D.250.R.08-C32	U42 22500	25	32	39	131	50	71	1,28	SOGX 080308	445.63	25003
KUB-P.2D.255.R.08-C32	U42 22550	25.5	32	39	133	52	73	1,28	SOGX 080308	445.63	25503
KUB-P.2D.260.R.08-C32	U42 22600	26	32	39	133	52	73	1,28	SOGX 080308	445.63	26003
KUB-P.2D.265.R.09-C32	U42 22650	26.5	32	39	136	54	76	2,25	SOGX 09T308	470.88	26503
KUB-P.2D.270.R.09-C32	U42 22700	27	32	39	136	54	76	2,25	SOGX 09T308	470.88	27003
KUB-P.2D.275.R.09-C32	U42 22750	27.5	32	39	138	56	78	2,25	SOGX 09T308	470.88	27503
KUB-P.2D.280.R.09-C32	U42 22800	28	32	39	138	56	78	2,25	SOGX 09T308	470.88	28003
KUB-P.2D.285.R.09-C32	U42 22850	28.5	32	39	141	58	81	2,25	SOGX 09T308	470.88	28503
KUB-P.2D.290.R.09-C32	U42 22900	29	32	39	141	58	81	2,25	SOGX 09T308	470.88	29003
KUB-P.2D.295.R.09-C32	U42 22950	29.5	32	39	143	60	83	2,25	SOGX 09T308	470.88	29503
KUB-P.2D.300.R.09-C32	U42 23000	30	32	39	143	60	83	2,25	SOGX 09T308	470.88	30003
KUB-P.2D.305.R.10-C40	U42 33050	30.5	40	50	154	62	86	2,8	SOGX 100408	511.87	30504
KUB-P.2D.310.R.10-C40	U42 33100	31	40	50	154	62	86	2,8	SOGX 100408	511.87	31004
KUB-P.2D.315.R.10-C40	U42 33150	31.5	40	50	156	64	88	2,8	SOGX 100408	511.87	31504
KUB-P.2D.320.R.10-C40	U42 33200	32	40	50	156	64	88	2,8	SOGX 100408	511.87	32004
KUB-P.2D.325.R.10-C40	U42 33250	32.5	40	50	159	66	91	2,8	SOGX 100408	511.87	32504
KUB-P.2D.330.R.10-C40	U42 33300	33	40	50	159	66	91	2,8	SOGX 100408	511.87	33004
KUB-P.2D.335.R.11-C40	U42 33350	33.5	40	50	161	68	93	2,8	SOGX 110408	535.96	33504
KUB-P.2D.340.R.11-C40	U42 33400	34	40	50	161	68	93	2,8	SOGX 110408	535.96	34004
KUB-P.2D.345.R.11-C40	U42 33450	34.5	40	50	164	70	96	2,8	SOGX 110408	535.96	34504
KUB-P.2D.350.R.11-C40	U42 33500	35	40	50	164	70	96	2,8	SOGX 110408	535.96	35004
KUB-P.2D.355.R.11-C40	U42 33550	35.5	40	50	166	72	98	2,8	SOGX 110408	535.96	35504
KUB-P.2D.360.R.11-C40	U42 33600	36	40	50	166	72	98	2,8	SOGX 110408	535.96	36004
KUB-P.2D.365.R.11-C40	U42 33650	36.5	40	50	169	74	101	2,8	SOGX 110408	535.96	36504
KUB-P.2D.370.R.11-C40	U42 33700	37	40	50	169	74	101	2,8	SOGX 110408	535.96	37004
KUB-P.2D.375.R.12-C40	U42 33750	37.5	40	50	171	76	103	6,25	SOGX 120408	551.57	37504
KUB-P.2D.380.R.12-C40	U42 33800	38	40	50	171	76	103	6,25	SOGX 120408	551.57	38004
KUB-P.2D.385.R.12-C40	U42 33850	38.5	40	50	174	78	106	6,25	SOGX 120408	551.57	38504

Continued on next page

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







										10 872 ...
Designation	KOMET no.	**DC** mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	£ 2B/6#
KUB-P.2D.390.R.12-C40	U42 33900	**39**	40	50	174	78	106	6,25	SOGX 120408	551.57 **39004**
KUB-P.2D.395.R.12-C40	U42 33950	**39.5**	40	50	176	80	108	6,25	SOGX 120408	551.57 **39504**
KUB-P.2D.400.R.12-C40	U42 34000	**40**	40	50	176	80	108	6,25	SOGX 120408	551.57 **40004**
KUB-P.2D.405.R.12-C40	U42 34050	**40.5**	40	50	179	82	111	6,25	SOGX 120408	551.57 **40504**
KUB-P.2D.410.R.12-C40	U42 34100	**41**	40	50	179	82	111	6,25	SOGX 120408	551.57 **41004**
KUB-P.2D.415.R.12-C40	U42 34150	**41.5**	40	50	181	84	113	6,25	SOGX 120408	551.57 **41504**
KUB-P.2D.420.R.12-C40	U42 34200	**42**	40	50	181	84	113	6,25	SOGX 120408	551.57 **42004**
KUB-P.2D.425.R.13-C40	U42 34250	**42.5**	40	50	184	86	116	6,25	SOGX 130508	551.57 **42504**
KUB-P.2D.430.R.13-C40	U42 34300	**43**	40	50	184	86	116	6,25	SOGX 130508	551.57 **43004**
KUB-P.2D.435.R.13-C40	U42 34350	**43.5**	40	50	186	88	118	6,25	SOGX 130508	551.57 **43504**
KUB-P.2D.440.R.13-C40	U42 34400	**44**	40	50	186	88	118	6,25	SOGX 130508	551.57 **44004**
KUB-P.2D.445.R.13-C40	U42 34450	**44.5**	40	50	189	90	121	6,25	SOGX 130508	551.57 **44504**
KUB-P.2D.450.R.13-C40	U42 34500	**45**	40	50	189	90	121	6,25	SOGX 130508	551.57 **45004**
KUB-P.2D.455.R.13-C40	U42 34550	**45.5**	40	50	191	92	123	6,25	SOGX 130508	551.57 **45504**
KUB-P.2D.460.R.13-C40	U42 34600	**46**	40	50	191	92	123	6,25	SOGX 130508	551.57 **46004**


Screwdriver


Key D

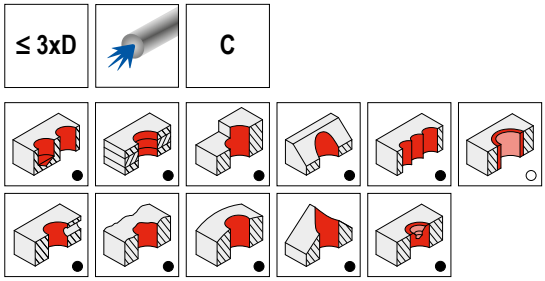

Clamping screw

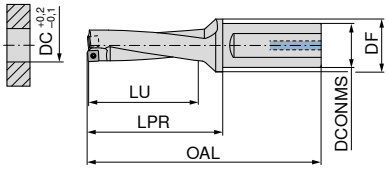
Spare parts									
DC			80 950 ... £ Y7			80 950 ... £ Y7			10 950 ... £ W7/6B
14 - 16	T05 - IP	10.21	**057**				M1,8x3,8 - 05IP	2.86	**10100**
16,5 - 18				T06 - IP	18.22	**123**	M2,0x4,3 - 06IP	2.86	**10000**
18,5 - 23				T06 - IP	18.22	**123**	M2,2x5,5 - 06IP	2.86	**10700**
23,5 - 26				T08 - IP	17.97	**125**	M2,5x6,3 - 08IP	2.86	**10800**
26,5 - 30				T08 - IP	17.97	**125**	M3,0x7,6 - 08IP	2.86	**10200**
30,5 - 37				T15 - IP	21.01	**128**	M3,5x7,5 - 15IP	2.86	**10300**
37,5 - 46				T20 - IP	22.06	**129**	M4,5x10 - 20IP	2.86	**10400**

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws





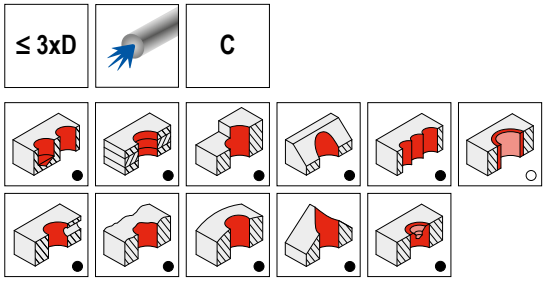


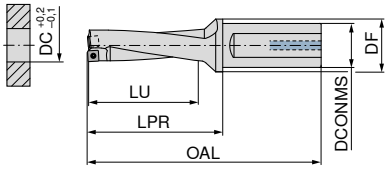
Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... £ 2B/6#	
KUB-P.3D.140.R.04-C20	U43 01400	14	20	30	105	42	55	0,38	SOGX 040204	384.25	14001
KUB-P.3D.145.R.04-C20	U43 01450	14.5	20	30	109	45	59	0,38	SOGX 040204	384.25	14501
KUB-P.3D.150.R.04-C20	U43 01500	15	20	30	109	45	59	0,38	SOGX 040204	384.25	15001
KUB-P.3D.155.R.04-C20	U43 01550	15.5	20	30	114	48	64	0,38	SOGX 040204	384.25	15501
KUB-P.3D.160.R.04-C20	U43 01600	16	20	30	114	48	64	0,38	SOGX 040204	384.25	16001
KUB-P.3D.165.R.05-C20	U43 01650	16.5	20	30	118	51	68	0,62	SOGX 050204	384.25	16501
KUB-P.3D.170.R.05-C20	U43 01700	17	20	30	118	51	68	0,62	SOGX 050204	393.85	17001
KUB-P.3D.175.R.05-C25	U43 11750	17.5	25	30	127	54	71	0,62	SOGX 050204	393.85	17501
KUB-P.3D.180.R.05-C25	U43 11800	18	25	30	127	54	71	0,62	SOGX 050204	393.85	18001
KUB-P.3D.185.R.06-C25	U43 11850	18.5	25	30	131	57	75	1,01	SOGX 060206	393.85	18501
KUB-P.3D.190.R.06-C25	U43 11900	19	25	30	131	57	75	1,01	SOGX 060206	405.90	19001
KUB-P.3D.195.R.06-C25	U43 11950	19.5	25	30	134	60	78	1,01	SOGX 060206	405.90	19501
KUB-P.3D.200.R.06-C25	U43 12000	20	25	30	134	60	78	1,01	SOGX 060206	405.90	20001
KUB-P.3D.205.R.07-C25	U43 12050	20.5	25	30	138	63	82	1,01	SOGX 07T208	432.41	20501
KUB-P.3D.210.R.07-C25	U43 12100	21	25	30	138	63	82	1,01	SOGX 07T208	432.41	21001
KUB-P.3D.215.R.07-C25	U43 12150	21.5	25	30	141	66	85	1,01	SOGX 07T208	432.41	21501
KUB-P.3D.220.R.07-C25	U43 12200	22	25	30	141	66	85	1,01	SOGX 07T208	432.41	22002
KUB-P.3D.225.R.07-C25	U43 12250	22.5	25	30	145	69	89	1,01	SOGX 07T208	432.41	22502
KUB-P.3D.230.R.07-C25	U43 12300	23	25	30	145	69	89	1,01	SOGX 07T208	432.41	23002
KUB-P.3D.235.R.08-C32	U43 22350	23.5	32	39	152	72	92	1,28	SOGX 080308	468.55	23503
KUB-P.3D.240.R.08-C32	U43 22400	24	32	39	152	72	92	1,28	SOGX 080308	468.55	24003
KUB-P.3D.245.R.08-C32	U43 22450	24.5	32	39	156	75	96	1,28	SOGX 080308	468.55	24503
KUB-P.3D.250.R.08-C32	U43 22500	25	32	39	156	75	96	1,28	SOGX 080308	468.55	25003
KUB-P.3D.255.R.08-C32	U43 22550	25.5	32	39	159	78	99	1,28	SOGX 080308	468.55	25503
KUB-P.3D.260.R.08-C32	U43 22600	26	32	39	159	78	99	1,28	SOGX 080308	468.55	26003
KUB-P.3D.265.R.09-C32	U43 22650	26.5	32	39	163	81	103	2,25	SOGX 09T308	492.63	26503
KUB-P.3D.270.R.09-C32	U43 22700	27	32	39	163	81	103	2,25	SOGX 09T308	492.63	27003
KUB-P.3D.275.R.09-C32	U43 22750	27.5	32	39	166	84	106	2,25	SOGX 09T308	492.63	27503
KUB-P.3D.280.R.09-C32	U43 22800	28	32	39	166	84	106	2,25	SOGX 09T308	492.63	28003
KUB-P.3D.285.R.09-C32	U43 22850	28.5	32	39	170	87	110	2,25	SOGX 09T308	492.63	28503
KUB-P.3D.290.R.09-C32	U43 22900	29	32	39	170	87	110	2,25	SOGX 09T308	492.63	29003
KUB-P.3D.295.R.09-C32	U43 22950	29.5	32	39	173	90	113	2,25	SOGX 09T308	492.63	29503
KUB-P.3D.300.R.09-C32	U43 23000	30	32	39	173	90	113	2,25	SOGX 09T308	492.63	30003
KUB-P.3D.305.R.10-C40	U43 33050	30.5	40	50	185	93	117	2,8	SOGX 100408	537.11	30504
KUB-P.3D.310.R.10-C40	U43 33100	31	40	50	185	93	117	2,8	SOGX 100408	537.11	31004
KUB-P.3D.315.R.10-C40	U43 33150	31.5	40	50	188	96	120	2,8	SOGX 100408	537.11	31504
KUB-P.3D.320.R.10-C40	U43 33200	32	40	50	188	96	120	2,8	SOGX 100408	537.11	32004
KUB-P.3D.325.R.10-C40	U43 33250	32.5	40	50	192	99	124	2,8	SOGX 100408	537.11	32504
KUB-P.3D.330.R.10-C40	U43 33300	33	40	50	192	99	124	2,8	SOGX 100408	537.11	33004
KUB-P.3D.335.R.11-C40	U43 33350	33.5	40	50	195	102	127	2,8	SOGX 110408	562.46	33504
KUB-P.3D.340.R.11-C40	U43 33400	34	40	50	195	102	127	2,8	SOGX 110408	562.46	34004
KUB-P.3D.345.R.11-C40	U43 33450	34.5	40	50	199	105	131	2,8	SOGX 110408	562.46	34504
KUB-P.3D.350.R.11-C40	U43 33500	35	40	50	199	105	131	2,8	SOGX 110408	562.46	35004
KUB-P.3D.355.R.11-C40	U43 33550	35.5	40	50	202	108	134	2,8	SOGX 110408	562.46	35504
KUB-P.3D.360.R.11-C40	U43 33600	36	40	50	202	108	134	2,8	SOGX 110408	562.46	36004
KUB-P.3D.365.R.11-C40	U43 33650	36.5	40	50	206	111	138	2,8	SOGX 110408	562.46	36504
KUB-P.3D.370.R.11-C40	U43 33700	37	40	50	206	111	138	2,8	SOGX 110408	562.46	37004
KUB-P.3D.375.R.12-C40	U43 33750	37.5	40	50	209	114	141	6,25	SOGX 120408	579.27	37504
KUB-P.3D.380.R.12-C40	U43 33800	38	40	50	209	114	141	6,25	SOGX 120408	579.27	38004
KUB-P.3D.385.R.12-C40	U43 33850	38.5	40	50	213	117	145	6,25	SOGX 120408	579.27	38504

Continued on next page

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... £ 2B/6#	
KUB-P.3D.390.R.12-C40	U43 33900	**39**	40	50	213	117	145	6,25	SOGX 120408	579.27	**39004**
KUB-P.3D.395.R.12-C40	U43 33950	**39.5**	40	50	216	120	148	6,25	SOGX 120408	579.27	**39504**
KUB-P.3D.400.R.12-C40	U43 34000	**40**	40	50	216	120	148	6,25	SOGX 120408	579.27	**40004**
KUB-P.3D.405.R.12-C40	U43 34050	**40.5**	40	50	220	123	152	6,25	SOGX 120408	579.27	**40504**
KUB-P.3D.410.R.12-C40	U43 34100	**41**	40	50	220	123	152	6,25	SOGX 120408	579.27	**41004**
KUB-P.3D.415.R.12-C40	U43 34150	**41.5**	40	50	223	126	155	6,25	SOGX 120408	579.27	**41504**
KUB-P.3D.420.R.12-C40	U43 34200	**42**	40	50	223	126	155	6,25	SOGX 120408	579.27	**42004**
KUB-P.3D.425.R.13-C40	U43 34250	**42.5**	40	50	227	129	159	6,25	SOGX 130508	579.27	**42504**
KUB-P.3D.430.R.13-C40	U43 34300	**43**	40	50	227	129	159	6,25	SOGX 130508	579.27	**43004**
KUB-P.3D.435.R.13-C40	U43 34350	**43.5**	40	50	230	132	162	6,25	SOGX 130508	579.27	**43504**
KUB-P.3D.440.R.13-C40	U43 34400	**44**	40	50	230	132	162	6,25	SOGX 130508	579.27	**44004**
KUB-P.3D.445.R.13-C40	U43 34450	**44.5**	40	50	234	135	166	6,25	SOGX 130508	579.27	**44504**
KUB-P.3D.450.R.13-C40	U43 34500	**45**	40	50	234	135	166	6,25	SOGX 130508	579.27	**45004**
KUB-P.3D.455.R.13-C40	U43 34550	**45.5**	40	50	237	138	169	6,25	SOGX 130508	579.27	**45504**
KUB-P.3D.460.R.13-C40	U43 34600	**46**	40	50	237	138	169	6,25	SOGX 130508	579.27	**46004**


Screwdriver


Key D

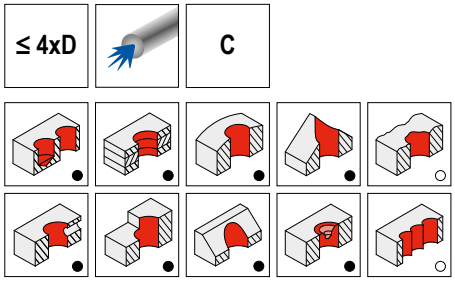

Clamping screw

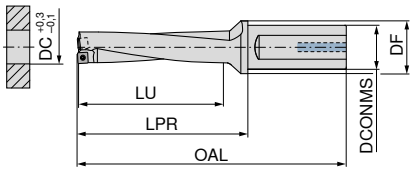
Spare parts DC		80 950 ... £ Y7			80 950 ... £ Y7		10 950 ... £ W7/6B	
14 - 16	T05 - IP	10.21	**057**				M1,8x3,8 - 05IP	2.86	**10100**
16,5 - 18				T06 - IP	18.22	**123**	M2,0x4,3 - 06IP	2.86	**10000**
18,5 - 23				T06 - IP	18.22	**123**	M2,2x5,5 - 06IP	2.86	**10700**
23,5 - 26				T08 - IP	17.97	**125**	M2,5x6,3 - 08IP	2.86	**10800**
26,5 - 30				T08 - IP	17.97	**125**	M3,0x7,6 - 08IP	2.86	**10200**
30,5 - 37				T15 - IP	21.01	**128**	M3,5x7,5 - 15IP	2.86	**10300**
37,5 - 46				T20 - IP	22.06	**129**	M4,5x10 - 20IP	2.86	**10400**

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 874 ... £ 2B/6#	
KUB-P.4D.140.R.04-C20	U44 01400	14	20	30	119	56	69	0,38	SOGX 040204	490.20	14001
KUB-P.4D.145.R.04-C20	U44 01450	14.5	20	30	124	60	74	0,38	SOGX 040204	490.20	14501
KUB-P.4D.150.R.04-C20	U44 01500	15	20	30	124	60	74	0,38	SOGX 040204	490.20	15001
KUB-P.4D.155.R.04-C20	U44 01550	15.5	20	30	130	64	80	0,38	SOGX 040204	490.20	15501
KUB-P.4D.160.R.04-C20	U44 01600	16	20	30	130	64	80	0,38	SOGX 040204	490.20	16001
KUB-P.4D.165.R.05-C20	U44 01650	16.5	20	30	135	68	85	0,62	SOGX 050204	490.20	16501
KUB-P.4D.170.R.05-C20	U44 01700	17	20	30	135	68	85	0,62	SOGX 050204	503.40	17001
KUB-P.4D.175.R.05-C25	U44 11750	17.5	25	30	145	72	89	0,62	SOGX 050204	503.40	17502
KUB-P.4D.180.R.05-C25	U44 11800	18	25	30	145	72	89	0,62	SOGX 050204	503.40	18002
KUB-P.4D.185.R.06-C25	U44 11850	18.5	25	30	150	76	94	1,01	SOGX 060206	503.40	18502
KUB-P.4D.190.R.06-C25	U44 11900	19	25	30	150	76	94	1,01	SOGX 060206	517.88	19002
KUB-P.4D.195.R.06-C25	U44 11950	19.5	25	30	154	80	98	1,01	SOGX 060206	517.88	19502
KUB-P.4D.200.R.06-C25	U44 12000	20	25	30	154	80	98	1,01	SOGX 060206	517.88	20002
KUB-P.4D.205.R.07-C25	U44 12050	20.5	25	30	159	84	103	1,01	SOGX 07T208	537.11	20502
KUB-P.4D.210.R.07-C25	U44 12100	21	25	30	159	84	103	1,01	SOGX 07T208	537.11	21002
KUB-P.4D.215.R.07-C25	U44 12150	21.5	25	30	163	88	107	1,01	SOGX 07T208	537.11	21502
KUB-P.4D.220.R.07-C25	U44 12200	22	25	30	163	88	107	1,01	SOGX 07T208	537.11	22002
KUB-P.4D.225.R.07-C25	U44 12250	22.5	25	30	168	92	112	1,01	SOGX 07T208	537.11	22502
KUB-P.4D.230.R.07-C25	U44 12300	23	25	30	168	92	112	1,01	SOGX 07T208	537.11	23002
KUB-P.4D.235.R.08-C32	U44 22350	23.5	32	39	176	96	116	1,28	SOGX 080308	557.61	23503
KUB-P.4D.240.R.08-C32	U44 22400	24	32	39	176	96	116	1,28	SOGX 080308	557.61	24003
KUB-P.4D.245.R.08-C32	U44 22450	24.5	32	39	181	100	121	1,28	SOGX 080308	557.61	24503
KUB-P.4D.250.R.08-C32	U44 22500	25	32	39	181	100	121	1,28	SOGX 080308	557.61	25003
KUB-P.4D.255.R.08-C32	U44 22550	25.5	32	39	185	104	125	1,28	SOGX 080308	557.61	25503
KUB-P.4D.260.R.08-C32	U44 22600	26	32	39	185	104	125	1,28	SOGX 080308	557.61	26003
KUB-P.4D.265.R.09-C32	U44 22650	26.5	32	39	190	108	130	2,25	SOGX 09T308	629.85	26503
KUB-P.4D.270.R.09-C32	U44 22700	27	32	39	190	108	130	2,25	SOGX 09T308	629.85	27003
KUB-P.4D.275.R.09-C32	U44 22750	27.5	32	39	194	112	134	2,25	SOGX 09T308	629.85	27503
KUB-P.4D.280.R.09-C32	U44 22800	28	32	39	194	112	134	2,25	SOGX 09T308	629.85	28003
KUB-P.4D.285.R.09-C32	U44 22850	28.5	32	39	199	116	139	2,25	SOGX 09T308	629.85	28503
KUB-P.4D.290.R.09-C32	U44 22900	29	32	39	199	116	139	2,25	SOGX 09T308	629.85	29003
KUB-P.4D.295.R.09-C32	U44 22950	29.5	32	39	203	120	143	2,25	SOGX 09T308	629.85	29503
KUB-P.4D.300.R.09-C32	U44 23000	30	32	39	203	120	143	2,25	SOGX 09T308	629.85	30003
KUB-P.4D.305.R.10-C40	U44 33050	30.5	40	50	216	124	148	2,8	SOGX 100408	667.27	30504
KUB-P.4D.310.R.10-C40	U44 33100	31	40	50	216	124	148	2,8	SOGX 100408	667.27	31004
KUB-P.4D.315.R.10-C40	U44 33150	31.5	40	50	220	128	152	2,8	SOGX 100408	667.27	31504
KUB-P.4D.320.R.10-C40	U44 33200	32	40	50	220	128	152	2,8	SOGX 100408	667.27	32004
KUB-P.4D.325.R.10-C40	U44 33250	32.5	40	50	225	132	157	2,8	SOGX 100408	667.27	32504
KUB-P.4D.330.R.10-C40	U44 33300	33	40	50	225	132	157	2,8	SOGX 100408	667.27	33004
KUB-P.4D.335.R.11-C40	U44 33350	33.5	40	50	229	136	161	2,8	SOGX 110408	686.49	33504
KUB-P.4D.340.R.11-C40	U44 33400	34	40	50	229	136	161	2,8	SOGX 110408	686.49	34004
KUB-P.4D.345.R.11-C40	U44 33450	34.5	40	50	234	140	166	2,8	SOGX 110408	686.49	34504
KUB-P.4D.350.R.11-C40	U44 33500	35	40	50	234	140	166	2,8	SOGX 110408	686.49	35004
KUB-P.4D.355.R.11-C40	U44 33550	35.5	40	50	238	144	170	2,8	SOGX 110408	686.49	35504
KUB-P.4D.360.R.11-C40	U44 33600	36	40	50	238	144	170	2,8	SOGX 110408	686.49	36004
KUB-P.4D.365.R.11-C40	U44 33650	36.5	40	50	243	148	175	2,8	SOGX 110408	686.49	36504
KUB-P.4D.370.R.11-C40	U44 33700	37	40	50	243	148	175	2,8	SOGX 110408	686.49	37004
KUB-P.4D.375.R.12-C40	U44 33750	37.5	40	50	247	152	179	6,25	SOGX 120408	708.16	37504
KUB-P.4D.380.R.12-C40	U44 33800	38	40	50	247	152	179	6,25	SOGX 120408	708.16	38004
KUB-P.4D.385.R.12-C40	U44 33850	38.5	40	50	252	156	184	6,25	SOGX 120408	708.16	38504

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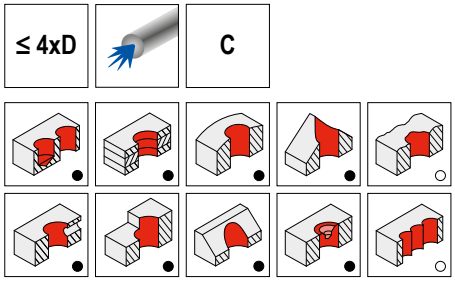
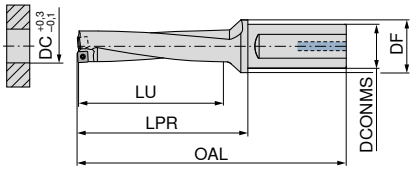
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 874 ... £ 2B/6#	
KUB-P.4D.390.R.12-C40	U44 33900	**39**	40	50	252	156	184	6,25	SOGX 120408	708.16	**39004**
KUB-P.4D.395.R.12-C40	U44 33950	**39.5**	40	50	256	160	188	6,25	SOGX 120408	708.16	**39504**
KUB-P.4D.400.R.12-C40	U44 34000	**40**	40	50	256	160	188	6,25	SOGX 120408	708.16	**40004**
KUB-P.4D.405.R.12-C40	U44 34050	**40.5**	40	50	261	164	193	6,25	SOGX 120408	708.16	**40504**
KUB-P.4D.410.R.12-C40	U44 34100	**41**	40	50	261	164	193	6,25	SOGX 120408	708.16	**41004**
KUB-P.4D.415.R.12-C40	U44 34150	**41.5**	40	50	265	166	197	6,25	SOGX 120408	708.16	**41504**
KUB-P.4D.420.R.12-C40	U44 34200	**42**	40	50	265	168	197	6,25	SOGX 120408	708.16	**42004**
KUB-P.4D.425.R.13-C40	U44 34250	**42.5**	40	50	270	172	202	6,25	SOGX 130508	761.19	**42504**
KUB-P.4D.430.R.13-C40	U44 34300	**43**	40	50	270	172	202	6,25	SOGX 130508	761.19	**43004**
KUB-P.4D.435.R.13-C40	U44 34350	**43.5**	40	50	274	176	206	6,25	SOGX 130508	761.19	**43504**
KUB-P.4D.440.R.13-C40	U44 34400	**44**	40	50	274	176	206	6,25	SOGX 130508	761.19	**44004**
KUB-P.4D.445.R.13-C40	U44 34450	**44.5**	40	50	279	180	211	6,25	SOGX 130508	761.19	**44504**
KUB-P.4D.450.R.13-C40	U44 34500	**45**	40	50	279	180	211	6,25	SOGX 130508	761.19	**45004**
KUB-P.4D.455.R.13-C40	U44 34550	**45.5**	40	50	283	184	215	6,25	SOGX 130508	761.19	**45504**
KUB-P.4D.460.R.13-C40	U44 34600	**46**	40	50	283	184	215	6,25	SOGX 130508	761.19	**46004**


Screwdriver


Key D

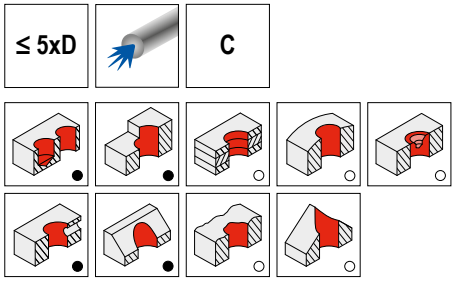

Clamping screw

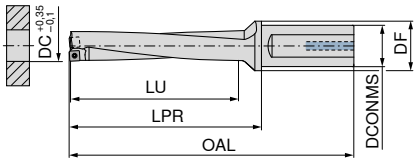
Spare parts DC		80 950 ... £ Y7			80 950 ... £ Y7		10 950 ... £ W7/6B	
14 - 16	T05 - IP	10.21	**057**				M1,8x3,8 - 05IP	2.86 **10100**
16,5 - 18				T06 - IP	18.22	**123**	M2,0x4,3 - 06IP	2.86 **10000**
18,5 - 23				T06 - IP	18.22	**123**	M2,2x5,5 - 06IP	2.86 **10700**
23,5 - 26				T08 - IP	17.97	**125**	M2,5x6,3 - 08IP	2.86 **10800**
26,5 - 30				T08 - IP	17.97	**125**	M3,0x7,6 - 08IP	2.86 **10200**
30,5 - 37				T15 - IP	21.01	**128**	M3,5x7,5 - 15IP	2.86 **10300**
37,5 - 46				T20 - IP	22.06	**129**	M4,5x10 - 20IP	2.86 **10400**

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







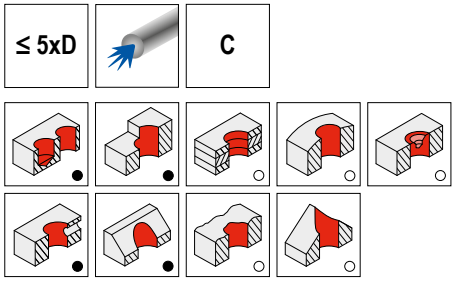
10 875 ...

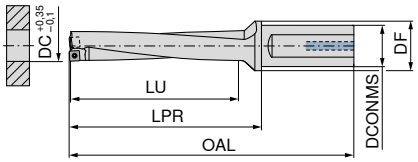
Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	£ 2B/6#	
KUB-P.5D.140.R.04-C20	U45 01400	**14**	20	30	133	70	83	0,38	SOGX 040204	529.92	**14001**
KUB-P.5D.145.R.04-C20	U45 01450	**14.5**	20	30	139	75	89	0,38	SOGX 040204	529.92	**14501**
KUB-P.5D.150.R.04-C20	U45 01500	**15**	20	30	139	75	89	0,38	SOGX 040204	529.92	**15001**
KUB-P.5D.155.R.04-C20	U45 01550	**15.5**	20	30	146	80	96	0,38	SOGX 040204	529.92	**15501**
KUB-P.5D.160.R.04-C20	U45 01600	**16**	20	30	146	80	96	0,38	SOGX 040204	529.92	**16001**
KUB-P.5D.165.R.05-C20	U45 01650	**16.5**	20	30	152	85	102	0,62	SOGX 050204	529.92	**16501**
KUB-P.5D.170.R.05-C20	U45 01700	**17**	20	30	152	85	102	0,62	SOGX 050204	545.55	**17001**
KUB-P.5D.175.R.05-C25	U45 11750	**17.5**	25	30	163	90	107	0,62	SOGX 050204	545.55	**17502**
KUB-P.5D.180.R.05-C25	U45 11800	**18**	25	30	163	90	107	0,62	SOGX 050204	545.55	**18002**
KUB-P.5D.185.R.06-C25	U45 11850	**18.5**	25	30	169	95	113	1,01	SOGX 060206	545.55	**18502**
KUB-P.5D.190.R.06-C25	U45 11900	**19**	25	30	169	95	113	1,01	SOGX 060206	557.61	**19002**
KUB-P.5D.195.R.06-C25	U45 11950	**19.5**	25	30	174	100	118	1,01	SOGX 060206	557.61	**19502**
KUB-P.5D.200.R.06-C25	U45 12000	**20**	25	30	174	100	118	1,01	SOGX 060206	557.61	**20002**
KUB-P.5D.205.R.07-C25	U45 12050	**20.5**	25	30	180	105	124	1,01	SOGX 07T208	578.10	**20502**
KUB-P.5D.210.R.07-C25	U45 12100	**21**	25	30	180	105	124	1,01	SOGX 07T208	578.10	**21002**
KUB-P.5D.215.R.07-C25	U45 12150	**21.5**	25	30	185	110	129	1,01	SOGX 07T208	578.10	**21502**
KUB-P.5D.220.R.07-C25	U45 12200	**22**	25	30	185	110	129	1,01	SOGX 07T208	578.10	**22002**
KUB-P.5D.225.R.07-C25	U45 12250	**22.5**	25	30	191	115	135	1,01	SOGX 07T208	578.10	**22502**
KUB-P.5D.230.R.07-C25	U45 12300	**23**	25	30	191	115	135	1,01	SOGX 07T208	578.10	**23002**
KUB-P.5D.235.R.08-C32	U45 22350	**23.5**	32	39	200	120	140	1,28	SOGX 080308	597.33	**23503**
KUB-P.5D.240.R.08-C32	U45 22400	**24**	32	39	200	120	140	1,28	SOGX 080308	597.33	**24003**
KUB-P.5D.245.R.08-C32	U45 22450	**24.5**	32	39	206	125	146	1,28	SOGX 080308	597.33	**24503**
KUB-P.5D.250.R.08-C32	U45 22500	**25**	32	39	206	125	146	1,28	SOGX 080308	597.33	**25003**
KUB-P.5D.255.R.08-C32	U45 22550	**25.5**	32	39	211	130	151	1,28	SOGX 080308	597.33	**25503**
KUB-P.5D.260.R.08-C32	U45 22600	**26**	32	39	211	130	151	1,28	SOGX 080308	597.33	**26003**
KUB-P.5D.265.R.09-C32	U45 22650	**26.5**	32	39	217	135	157	2,25	SOGX 09T308	673.29	**26503**
KUB-P.5D.270.R.09-C32	U45 22700	**27**	32	39	217	135	157	2,25	SOGX 09T308	673.29	**27003**
KUB-P.5D.275.R.09-C32	U45 22750	**27.5**	32	39	222	140	162	2,25	SOGX 09T308	673.29	**27503**
KUB-P.5D.280.R.09-C32	U45 22800	**28**	32	39	222	140	162	2,25	SOGX 09T308	673.29	**28003**
KUB-P.5D.285.R.09-C32	U45 22850	**28.5**	32	39	228	145	168	2,25	SOGX 09T308	673.29	**28503**
KUB-P.5D.290.R.09-C32	U45 22900	**29**	32	39	228	145	168	2,25	SOGX 09T308	673.29	**29003**
KUB-P.5D.295.R.09-C32	U45 22950	**29.5**	32	39	233	150	173	2,25	SOGX 09T308	673.29	**29503**
KUB-P.5D.300.R.09-C32	U45 23000	**30**	32	39	233	150	173	2,25	SOGX 09T308	673.29	**30003**
KUB-P.5D.305.R.10-C40	U45 33050	**30.5**	40	50	247	155	179	2,8	SOGX 100408	720.18	**30504**
KUB-P.5D.310.R.10-C40	U45 33100	**31**	40	50	247	155	179	2,8	SOGX 100408	720.18	**31004**
KUB-P.5D.315.R.10-C40	U45 33150	**31.5**	40	50	252	160	184	2,8	SOGX 100408	720.18	**31504**
KUB-P.5D.320.R.10-C40	U45 33200	**32**	40	50	252	160	184	2,8	SOGX 100408	720.18	**32004**
KUB-P.5D.325.R.10-C40	U45 33250	**32.5**	40	50	258	165	190	2,8	SOGX 100408	720.18	**32504**
KUB-P.5D.330.R.10-C40	U45 33300	**33**	40	50	258	165	190	2,8	SOGX 100408	720.18	**33004**
KUB-P.5D.335.R.11-C40	U45 33350	**33.5**	40	50	263	170	195	2,8	SOGX 110408	740.68	**33504**
KUB-P.5D.340.R.11-C40	U45 33400	**34**	40	50	263	170	195	2,8	SOGX 110408	740.68	**34004**
KUB-P.5D.345.R.11-C40	U45 33450	**34.5**	40	50	269	175	201	2,8	SOGX 110408	740.68	**34504**
KUB-P.5D.350.R.11-C40	U45 33500	**35**	40	50	269	175	201	2,8	SOGX 110408	740.68	**35004**
KUB-P.5D.355.R.11-C40	U45 33550	**35.5**	40	50	274	180	206	2,8	SOGX 110408	740.68	**35504**
KUB-P.5D.360.R.11-C40	U45 33600	**36**	40	50	274	180	206	2,8	SOGX 110408	740.68	**36004**
KUB-P.5D.365.R.11-C40	U45 33650	**36.5**	40	50	280	185	212	2,8	SOGX 110408	740.68	**36504**
KUB-P.5D.370.R.11-C40	U45 33700	**37**	40	50	280	185	212	2,8	SOGX 110408	740.68	**37004**
KUB-P.5D.375.R.12-C40	U45 33750	**37.5**	40	50	285	190	217	6,25	SOGX 120408	761.19	**37504**
KUB-P.5D.380.R.12-C40	U45 33800	**38**	40	50	285	190	217	6,25	SOGX 120408	761.19	**38004**
KUB-P.5D.385.R.12-C40	U45 33850	**38.5**	40	50	291	195	223	6,25	SOGX 120408	761.19	**38504**

Continued on next page

KUB Pentron – Indexable insert drill

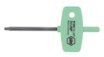
Scope of supply:
Indexable Insert Drill incl. clamping screws







										10 875 ...	
Designation	KOMET no.	**DC** mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	£ 2B/6#	
KUB-P.5D.390.R.12-C40	U45 33900	**39**	40	50	291	195	223	6,25	SOGX 120408	761.19	**39004**
KUB-P.5D.395.R.12-C40	U45 33950	**39.5**	40	50	296	200	228	6,25	SOGX 120408	761.19	**39504**
KUB-P.5D.400.R.12-C40	U45 34000	**40**	40	50	296	200	228	6,25	SOGX 120408	761.19	**40004**
KUB-P.5D.405.R.12-C40	U45 34050	**40.5**	40	50	302	205	234	6,25	SOGX 120408	761.19	**40504**
KUB-P.5D.410.R.12-C40	U45 34100	**41**	40	50	302	205	234	6,25	SOGX 120408	761.19	**41004**
KUB-P.5D.415.R.12-C40	U45 34150	**41.5**	40	50	307	210	239	6,25	SOGX 120408	761.19	**41504**
KUB-P.5D.420.R.12-C40	U45 34200	**42**	40	50	307	210	239	6,25	SOGX 120408	761.19	**42004**
KUB-P.5D.425.R.13-C40	U45 34250	**42.5**	40	50	313	215	245	6,25	SOGX 130508	829.84	**42504**
KUB-P.5D.430.R.13-C40	U45 34300	**43**	40	50	313	215	245	6,25	SOGX 130508	829.84	**43004**
KUB-P.5D.435.R.13-C40	U45 34350	**43.5**	40	50	318	220	250	6,25	SOGX 130508	829.84	**43504**
KUB-P.5D.440.R.13-C40	U45 34400	**44**	40	50	318	220	250	6,25	SOGX 130508	829.84	**44004**
KUB-P.5D.445.R.13-C40	U45 34450	**44.5**	40	50	324	225	256	6,25	SOGX 130508	829.84	**44504**
KUB-P.5D.450.R.13-C40	U45 34500	**45**	40	50	324	225	256	6,25	SOGX 130508	829.84	**45004**
KUB-P.5D.455.R.13-C40	U45 34550	**45.5**	40	50	329	230	261	6,25	SOGX 130508	829.84	**45504**
KUB-P.5D.460.R.13-C40	U45 34600	**46**	40	50	329	230	261	6,25	SOGX 130508	829.84	**46004**



Screwdriver



Key D



Clamping screw

					80 950 ...				80 950 ...		10 950 ...
Spare parts DC				£ Y7				£ Y7		£ W7/6B	
14 - 16		T05 - IP		10.21	**057**					M1,8x3,8 - 05IP	2.86 **10100**
16,5 - 18						T06 - IP	18.22	**123**		M2,0x4,3 - 06IP	2.86 **10000**
18,5 - 23						T06 - IP	18.22	**123**		M2,2x5,5 - 06IP	2.86 **10700**
23,5 - 26						T08 - IP	17.97	**125**		M2,5x6,3 - 08IP	2.86 **10800**
26,5 - 30						T08 - IP	17.97	**125**		M3,0x7,6 - 08IP	2.86 **10200**
30,5 - 37						T15 - IP	21.01	**128**		M3,5x7,5 - 15IP	2.86 **10300**
37,5 - 46						T20 - IP	22.06	**129**		M4,5x10 - 20IP	2.86 **10400**

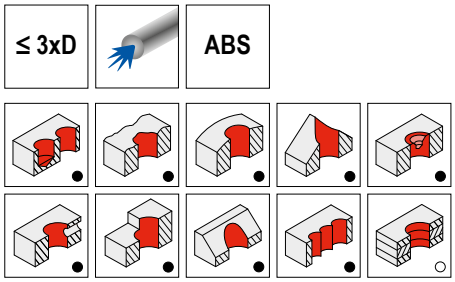
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

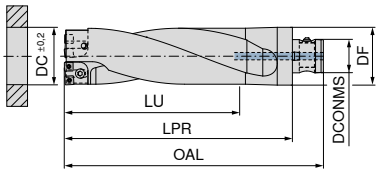
KUB Pentron CS – basic element

▲ SZID = nominal size
▲ Tightening torque refers to the fixing screws of the cartridge

Scope of supply:

Cartridge drill incl. fixing screws
Please order cartridges and indexable inserts separately







Designation	KOMET no.	DC mm	DF mm	OAL mm	DCONMS mm	LU mm	LPR mm	SZID	torque moment Nm	10 876 ... £ 2B/6#	
KUB-P.GH-CS.1.3D.64-66.ABS80	U60 46400	64 - 66	80	314	46	198	271	1	17,3	1,189.20	64092
KUB-P.GH-CS.1.3D.67-69.ABS80	U60 46700	67 - 69	80	323	46	207	280	1	17,3	1,201.30	67092
KUB-P.GH-CS.2.3D.70-72.ABS80	U60 47000	70 - 72	80	332	46	216	289	2	17,3	1,213.41	70092
KUB-P.GH-CS.2.3D.73-75.ABS80	U60 47300	73 - 75	80	341	46	225	298	2	17,3	1,225.52	73092
KUB-P.GH-CS.3.3D.76-78.ABS80	U60 47600	76 - 78	80	350	46	234	307	3	42	1,237.62	76092
KUB-P.GH-CS.3.3D.79-81.ABS80	U60 47900	79 - 81	80	359	46	243	316	3	42	1,249.73	79092
KUB-P.GH-CS.3.3D.82-84.ABS80	U60 48200	82 - 84	80	368	46	252	325	3	42	1,261.83	82092
KUB-P.GH-CS.4.3D.85-87.ABS100	U60 58500	85 - 87	100	397	56	261	342	4	42	1,287.28	85091
KUB-P.GH-CS.4.3D.88-90.ABS100	U60 58800	88 - 90	100	406	56	270	351	4	42	1,312.71	88091
KUB-P.GH-CS.4.3D.91-93.ABS100	U60 59100	91 - 93	100	415	56	279	360	4	42	1,336.93	91091
KUB-P.GH-CS.5.3D.94-96.ABS100	U60 59400	94 - 96	100	424	56	288	369	5	42	1,361.15	94091


Clamping key – T

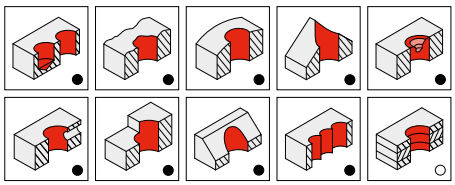

Fixing screw

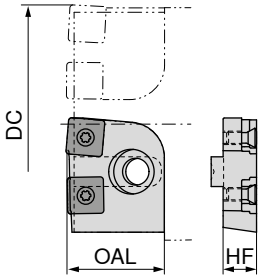
Spare parts DC		80 397 ... £ Y7			10 950 ... £ W7/6B	
64 - 66	SW5	8.11	050	M6x16 - SW5	1.02	16700
67 - 69	SW5	8.11	050	M6x16 - SW5	1.02	16700
70 - 72	SW5	8.11	050	M6x16 - SW5	1.02	16700
73 - 75	SW5	8.11	050	M6x16 - SW5	1.02	16700
76 - 78	SW6	7.96	060	M8x18 - SW6	1.07	16800
79 - 81	SW6	7.96	060	M8x18 - SW6	1.07	16800
82 - 84	SW6	7.96	060	M8x18 - SW6	1.07	16800
85 - 87	SW6	7.96	060	M8x20 - SW6	1.07	16900
88 - 90	SW6	7.96	060	M8x20 - SW6	1.07	16900
91 - 93	SW6	7.96	060	M8x20 - SW6	1.07	16900
94 - 96	SW6	7.96	060	M8x20 - SW6	1.07	16900

KUB Pentron CS – internal cartridge

▲ SZID = nominal size
▲ Tightening torque refers to the clamping screws of the indexable inserts

Scope of supply:
Internal cartridge incl. clamping screws of indexable inserts







DC mm	KOMET no.	OAL mm	SZID	HF mm	torque moment Nm	Insert	10 877 ... £ 2B/6#	
64 - 69	D60 06400	28.00	**1**	9	2,8	SOGX 100408	222.82	**16400**
70 - 75	D60 07000	30.00	**2**	10	2,8	SOGX 110408	222.82	**27000**
76 - 84	D60 07600	33.00	**3**	11	6,25	SOGX 120408	222.82	**37600**
85 - 93	D60 08501	35.34	**4**	12	6,25	SOGX 130508	232.23	**48501**
94 - 96	D60 09400	35.34	**5**	12	6,25	SOGX 130508	232.23	**59400**

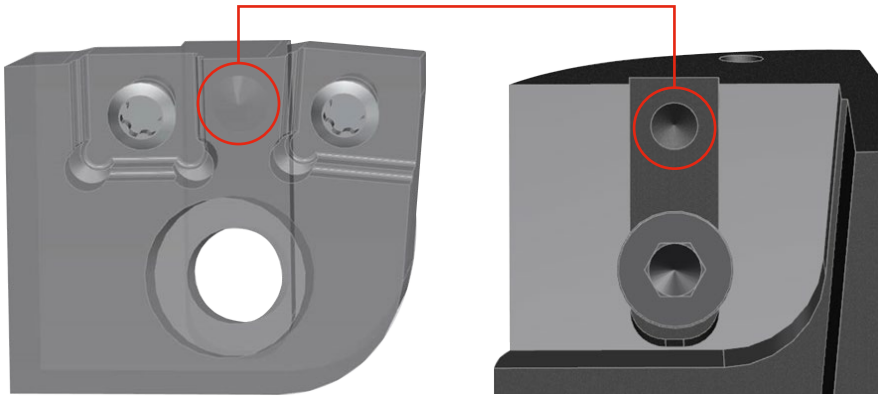

Key D


Clamping screw

Spare parts DC		80 950 ... £ Y7		10 950 ... £ W7/6B	
64 - 69	T15 - IP	21.01	**128**	M3,5x7,5 - 15IP	2.86 **10300**
70 - 75	T15 - IP	21.01	**128**	M3,5x7,5 - 15IP	2.86 **10300**
76 - 84	T20 - IP	22.06	**129**	M4,5x10 - 20IP	2.86 **10400**
85 - 93	T20 - IP	22.06	**129**	M4,5x10 - 20IP	2.86 **10400**
94 - 96	T20 - IP	22.06	**129**	M4,5x10 - 20IP	2.86 **10400**

The internal cartridge and the place where the internal cartridge sits on the base body are designed to prevent the internal and external cartridges from being incorrectly installed.

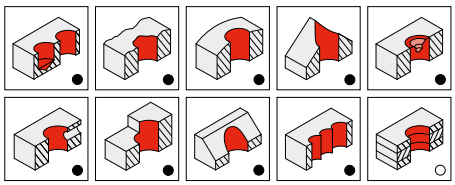
Installation aid

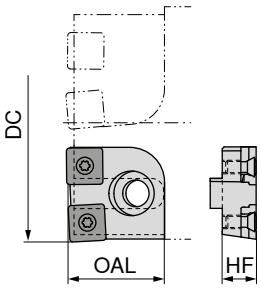


KUB Pentron CS – external cartridge

▲ SZID = nominal size
▲ Tightening torque refers to the clamping screws of the indexable inserts

Scope of supply:
External cartridge incl. clamping screws for indexable inserts







DC mm	KOMET no.	OAL mm	SZID	HF mm	torque moment Nm	Insert	10 878 ... £ 2B/6#	
64	D60 16400	27.8	1	9	2,8	SOGX 100408	300.81	16400
65	D60 16500	27.8	1	9	2,8	SOGX 100408	300.81	16500
66	D60 16600	27.8	1	9	2,8	SOGX 100408	300.81	16600
67	D60 16700	27.8	1	9	2,8	SOGX 100408	300.81	16700
68	D60 16800	27.8	1	9	2,8	SOGX 100408	300.81	16800
69	D60 16900	27.8	1	9	2,8	SOGX 100408	300.81	16900
70	D60 17000	29.8	2	10	2,8	SOGX 110408	300.81	27000
71	D60 17100	29.8	2	10	2,8	SOGX 110408	300.81	27100
72	D60 17200	29.8	2	10	2,8	SOGX 110408	300.81	27200
73	D60 17300	29.8	2	10	2,8	SOGX 110408	300.81	27300
74	D60 17400	29.8	2	10	2,8	SOGX 110408	300.81	27400
75	D60 17500	29.8	2	10	2,8	SOGX 110408	300.81	27500
76	D60 17600	32.8	3	11	6,25	SOGX 120408	300.81	37600
77	D60 17700	32.8	3	11	6,25	SOGX 120408	300.81	37700
78	D60 17800	32.8	3	11	6,25	SOGX 120408	300.81	37800
79	D60 17900	32.8	3	11	6,25	SOGX 120408	300.81	37900
80	D60 18000	32.8	3	11	6,25	SOGX 120408	300.81	38000
81	D60 18100	32.8	3	11	6,25	SOGX 120408	300.81	38100
82	D60 18200	32.8	3	11	6,25	SOGX 120408	300.81	38200
83	D60 18300	32.8	3	11	6,25	SOGX 120408	300.81	38300
84	D60 18400	32.8	3	11	6,25	SOGX 120408	300.81	38400
85	D60 18500	35.8	4	12	6,25	SOGX 130508	300.81	48500
86	D60 18600	35.8	4	12	6,25	SOGX 130508	300.81	48600
87	D60 18700	35.8	4	12	6,25	SOGX 130508	300.81	48700
88	D60 18800	35.8	4	12	6,25	SOGX 130508	300.81	48800
89	D60 18900	35.8	4	12	6,25	SOGX 130508	300.81	48900
90	D60 19000	35.8	4	12	6,25	SOGX 130508	300.81	49000
91	D60 19100	35.8	4	12	6,25	SOGX 130508	300.81	49100
92	D60 19200	35.8	4	12	6,25	SOGX 130508	300.81	49200
93	D60 19300	35.8	4	12	6,25	SOGX 130508	300.81	49300
94	D60 19401	35.8	5	12	6,25	SOGX 130508	313.62	59400
95	D60 19501	35.8	5	12	6,25	SOGX 130508	313.62	59500
96	D60 19601	35.8	5	12	6,25	SOGX 130508	313.62	59600


Key D


Clamping screw

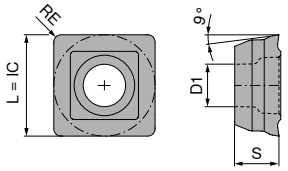
Spare parts

DC		80 950 ... £ Y7			10 950 ... £ W7/6B	
64 - 75	T15 - IP	21.01	128	M3,5x7,5 - 15IP	2.86	10300
76 - 96	T20 - IP	22.06	129	M4,5x10 - 20IP	2.86	10400

Intermediate dimensions available on request.

SOGX

Designation	L	IC	D1	S
	mm	mm	mm	mm
SOGX 0402..	4.8	4.8	2.05	2.20
SOGX 0502..	5.5	5.5	2.30	2.40
SOGX 0602..	6.2	6.2	2.60	2.75
SOGX 07T2..	7.1	7.1	2.60	2.97
SOGX 0803..	8.0	8.0	2.85	3.40
SOGX 09T3..	8.9	8.9	3.40	3.90
SOGX 1004..	9.8	9.8	4.10	4.20
SOGX 1104..	10.9	10.9	4.10	4.50
SOGX 1204..	12.0	12.0	5.20	4.80
SOGX 1305..	13.2	13.2	5.20	5.20



3

SOGX

	-01 BK8425	-01 BK7935	-01 BK6115	-01 BK7710	-03 BK8430
					
	SOGX	SOGX	SOGX	SOGX	SOGX
	10 820 ...	10 820 ...	10 820 ...	10 820 ...	10 820 ...
ISO	KOMET no.	RE mm	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#
040204	W80 10010.046115	0.4			18.66 40401		
040204	W80 10010.047710	0.4				18.67 90401	
040204	W80 10010.047935	0.4		18.67 50401			
040204	W80 10010.048425	0.4	18.66 30401				
040204	W80 10030.048430	0.4					18.66 00403
050204	W80 12010.046115	0.4			18.79 40501		
050204	W80 12010.047710	0.4				18.81 90501	
050204	W80 12010.047935	0.4		18.81 50501			
050204	W80 12010.048425	0.4	18.79 30501				
050204	W80 12030.048430	0.4					18.79 00503
060206	W80 18010.066115	0.6			18.91 40601		
060206	W80 18010.067710	0.6				18.93 90601	
060206	W80 18010.067935	0.6		18.93 50601			
060206	W80 18010.068425	0.6	18.91 30601				
060206	W80 18030.068430	0.6					18.91 00603
07T208	W80 20010.086115	0.8			19.03 40701		
07T208	W80 20010.087710	0.8				19.08 90701	
07T208	W80 20010.087935	0.8		19.08 50701			
07T208	W80 20010.088425	0.8	19.03 30701				
07T208	W80 20030.088430	0.8					19.03 00703
080308	W80 24010.086115	0.8			19.15 40801		
080308	W80 24010.087710	0.8				19.14 90801	
080308	W80 24010.087935	0.8		19.14 50801			
080308	W80 24010.088425	0.8	19.15 30801				
080308	W80 24030.088430	0.8					19.15 00803
09T308	W80 28010.086115	0.8			19.87 40901		
09T308	W80 28010.087710	0.8				19.86 90901	
09T308	W80 28010.087935	0.8		19.86 50901			
09T308	W80 28010.088425	0.8	19.87 30901				
09T308	W80 28030.088430	0.8					19.87 00903
100408	W80 32010.086115	0.8			20.47 41001		
100408	W80 32010.087710	0.8				20.52 91001	
100408	W80 32010.087935	0.8		20.52 51001			
100408	W80 32010.088425	0.8	20.47 31001				
100408	W80 32030.088430	0.8					20.47 01003
110408	W80 38010.086115	0.8			21.08 41101		
110408	W80 38010.087710	0.8				21.08 91101	
110408	W80 38010.087935	0.8		21.08 51101			
110408	W80 38010.088425	0.8	21.08 31101				
110408	W80 38030.088430	0.8					21.08 01103
120408	W80 42010.086115	0.8			22.17 41201		
120408	W80 42010.087710	0.8				22.14 91201	
120408	W80 42010.087935	0.8		22.14 51201			
120408	W80 42010.088425	0.8	22.17 31201				
120408	W80 42030.088430	0.8					22.17 01203
130508	W80 46010.086115	0.8			25.77 41301		
130508	W80 46010.087710	0.8				25.85 91301	
130508	W80 46010.087935	0.8		25.85 51301			
130508	W80 46010.088425	0.8	25.77 31301				
130508	W80 46030.088430	0.8					25.77 01303
P			●	●	●		●
M			●	●	●		●
K			●	●	●		●
N			○	○		●	○
S			●	●		○	●
H			○		○		○
O				○		○	

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BK6115 -01 is exclusively recommended for use on the peripheral cutting edge!

SOGX

				NEW	NEW		
			-13 BK8425	-21 BK8430	-21 BK7935	-32 BK8425	-34 BK8425
							
			SOGX	SOGX	SOGX	SOGX	SOGX
			10 820 ...	10 820 ...	10 820 ...	10 820 ...	10 820 ...
ISO	KOMET no.	RE mm	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#
040204	W80 10130.048425	0.4	18.66 30413				
040204	W80 10210.047935	0.4			19.84 50421		
040204	W80 10210.048430	0.4		19.84 00421			
040204	W80 10320.048425	0.4				20.73 30432	
040204	W80 10340.048425	0.4					20.73 30434
050204	W80 12130.048425	0.4	18.79 30513				
050204	W80 12210.047935	0.4			19.95 50521		
050204	W80 12210.048430	0.4		19.95 00521			
050204	W80 12320.048425	0.4				20.86 30532	
050204	W80 12340.048425	0.4					20.86 30534
060206	W80 18130.068425	0.6	18.91 30613				
060206	W80 18210.067935	0.6			20.10 50621		
060206	W80 18210.068430	0.6		20.10 00621			
060206	W80 18320.068425	0.6				21.00 30632	
060206	W80 18340.068425	0.6					21.00 30634
07T208	W80 20130.088425	0.8	19.03 30713				
07T208	W80 20210.087935	0.8			20.21 50721		
07T208	W80 20210.088430	0.8		20.21 00721			
07T208	W80 20320.088425	0.8				21.15 30732	
07T208	W80 20340.088425	0.8					21.15 30734
080308	W80 24130.088425	0.8	19.15 30813				
080308	W80 24210.087935	0.8			20.35 50821		
080308	W80 24210.088430	0.8		20.35 00821			
080308	W80 24320.088425	0.8				21.29 30832	
080308	W80 24340.088425	0.8					21.29 30834
09T308	W80 28130.088425	0.8	19.87 30913				
09T308	W80 28210.087935	0.8			21.12 50921		
09T308	W80 28210.088430	0.8		21.12 00921			
09T308	W80 28320.088425	0.8				22.09 30932	
09T308	W80 28340.088425	0.8					22.09 30934
100408	W80 32130.088425	0.8	20.47 31013				
100408	W80 32210.087935	0.8			21.76 51021		
100408	W80 32210.088430	0.8		21.76 01021			
100408	W80 32320.088425	0.8				22.73 31032	
100408	W80 32340.088425	0.8					22.73 31034
110408	W80 38130.088425	0.8	21.08 31113				
110408	W80 38210.087935	0.8			22.40 51121		
110408	W80 38210.088430	0.8		22.40 01121			
110408	W80 38320.088425	0.8				23.41 31132	
110408	W80 38340.088425	0.8					23.41 31134
120408	W80 42130.088425	0.8	22.17 31213				
120408	W80 42210.087935	0.8			23.55 51221		
120408	W80 42210.088430	0.8		23.55 01221			
120408	W80 42320.088425	0.8				24.65 31232	
120408	W80 42340.088425	0.8					24.65 31234
130508	W80 46130.088425	0.8	25.77 31313				
130508	W80 46210.087935	0.8			27.40 51321		
130508	W80 46210.088430	0.8		27.40 01321			
130508	W80 46320.088425	0.8				28.63 31332	
130508	W80 46340.088425	0.8					28.63 31334
P			●	●	●	●	●
M			●	●	●	●	
K			●	●	●	●	●
N			○	○	○	○	
S			●	●	●	●	
H			○	○		○	
O					○		

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BK7935 -21 is exclusively recommended for use on the peripheral cutting edge!

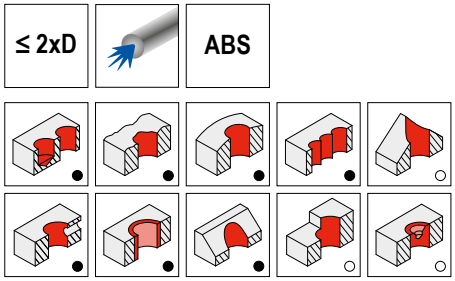
BK8425 -34 is recommended only for KUB Pentron 2xD and 3xD (10 872 ... / 10 873 ...)

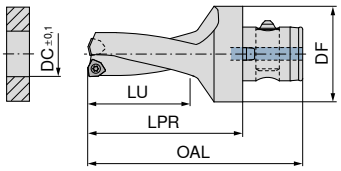
Further information on grades and chip breakers can be found on **page 85 + 86**

Further indexable inserts can be found in our online shop
cuttingtools.ceratizit.com

KUB Trigon – Indexable insert drill

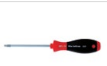
Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 892 ... £ 2B/6#	
KUB-T.2D.140.R.03-ABS50	V30 31403	14	50	94	28	63	0,62	WOEX 030204	431.95	14095
KUB-T.2D.150.R.03-ABS50	V30 31503	15	50	96	30	65	0,62	WOEX 030204	431.95	15095
KUB-T.2D.160.R.03-ABS50	V30 31601	16	50	98	32	67	0,62	WOEX 030204	431.95	16095
KUB-T.2D.170.R.03-ABS50	V30 31701	17	50	100	34	69	0,62	WOEX 030204	431.95	17095
KUB-T.2D.180.R.03-ABS50	V30 31801	18	50	102	36	71	0,62	WOEX 030204	431.95	18095
KUB-T.2D.190.R.03-ABS50	V30 31901	19	50	104	38	73	0,62	WOEX 030204	431.95	19095
KUB-T.2D.200.R.04-ABS50	V30 32001	20	50	106	40	75	1,01	WOEX 040304	434.50	20095
KUB-T.2D.210.R.04-ABS50	V30 32101	21	50	108	42	77	1,01	WOEX 040304	434.50	21095
KUB-T.2D.220.R.04-ABS50	V30 32201	22	50	110	44	79	1,01	WOEX 040304	434.50	22095
KUB-T.2D.230.R.04-ABS50	V30 32301	23	50	112	46	81	1,01	WOEX 040304	434.50	23095
KUB-T.2D.240.R.04-ABS50	V30 32401	24	50	114	48	83	1,01	WOEX 040304	434.50	24095
KUB-T.2D.250.R.05-ABS50	V30 32501	25	50	116	50	85	1,28	WOEX 05T304	440.81	25095
KUB-T.2D.260.R.05-ABS50	V30 32601	26	50	118	52	87	1,28	WOEX 05T304	440.81	26095
KUB-T.2D.270.R.05-ABS50	V30 32701	27	50	120	54	89	1,28	WOEX 05T304	440.81	27095
KUB-T.2D.280.R.05-ABS50	V30 32801	28	50	122	56	91	1,28	WOEX 05T304	440.81	28095
KUB-T.2D.290.R.05-ABS50	V30 32901	29	50	124	58	93	1,28	WOEX 05T304	440.81	29095
KUB-T.2D.300.R.05-ABS50	V30 33001	30	50	131	60	100	1,28	WOEX 05T304	440.81	30095
KUB-T.2D.310.R.05-ABS50	V30 33101	31	50	133	62	102	1,28	WOEX 05T304	440.81	31095
KUB-T.2D.320.R.05-ABS50	V30 33201	32	50	135	64	104	1,28	WOEX 05T304	440.81	32095
KUB-T.2D.330.R.05-ABS50	V30 33301	33	50	137	66	106	1,28	WOEX 05T304	440.81	33095
KUB-T.2D.340.R.05-ABS50	V30 33401	34	50	139	68	108	1,28	WOEX 05T304	440.81	34095
KUB-T.2D.350.R.05-ABS50	V30 33501	35	50	141	70	110	1,28	WOEX 05T304	440.81	35095
KUB-T.2D.360.R.05-ABS50	V30 33601	36	50	143	72	112	1,28	WOEX 05T304	440.81	36095
KUB-T.2D.370.R.06-ABS50	V30 33701	37	50	155	74	124	2,8	WOEX 06T304	463.46	37095
KUB-T.2D.380.R.06-ABS50	V30 33801	38	50	157	76	126	2,8	WOEX 06T304	463.46	38095
KUB-T.2D.390.R.06-ABS50	V30 33901	39	50	159	78	128	2,8	WOEX 06T304	463.46	39095
KUB-T.2D.400.R.06-ABS50	V30 34001	40	50	161	80	130	2,8	WOEX 06T304	463.46	40095
KUB-T.2D.410.R.06-ABS50	V30 34101	41	50	163	82	132	2,8	WOEX 06T304	463.46	41095
KUB-T.2D.420.R.06-ABS50	V30 34201	42	50	165	84	134	2,8	WOEX 06T304	463.46	42095
KUB-T.2D.430.R.06-ABS50	V30 34301	43	50	167	86	136	2,8	WOEX 06T304	463.46	43095
KUB-T.2D.440.R.06-ABS50	V30 34401	44	50	169	88	138	2,8	WOEX 06T304	463.46	44095


Key D


Clamping screw

Spare parts DC		80 950 ... £ Y7			10 950 ... £ W7/6B	
14 - 19	T06 - IP	18.22	123	M2,0x4,3 - 06IP	2.86	10000
20 - 24	T06 - IP	18.22	123	M2,2x5,5 - 06IP	2.86	10700
25 - 36	T08 - IP	17.97	125	M2,5x7,2 - 08IP	2.86	10500
37 - 44	T10 - IP	20.40	127	M3,5x7,3 - 10IP	2.86	10600

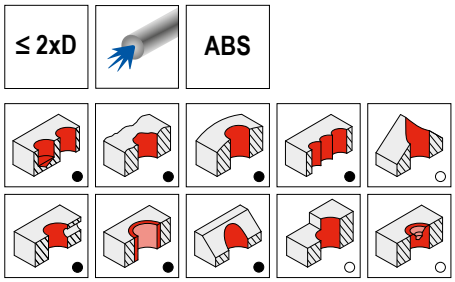
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

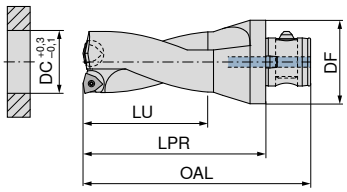
KUB Trigon – Indexable insert drill

▲ Tightening torque refers to the clamping screws of the indexable inserts

Scope of supply:

with indexable insert (10 897 ...) incl. fixing screw, cylindrical pin and clamping screw
with indexable insert (10 898 ...) incl. fixing screw, cylindrical pin and clamping screw







									10 892 ...
Designation	KOMET no.	**DC**	DF	OAL	LU	LPR	torque moment	Insert	£
		mm	mm	mm	mm	mm	Nm		2B/6#
KUB-T.2D.450.R.08-ABS63	V13 34500	**45**	63	183	90	145	4,3	WOEX 080404	808.58 **45096**
KUB-T.2D.460.R.08-ABS63	V13 34600	**46**	63	185	92	147	4,3	WOEX 080404	808.58 **46096**
KUB-T.2D.470.R.08-ABS63	V13 34700	**47**	63	187	94	149	4,3	WOEX 080404	808.58 **47096**
KUB-T.2D.480.R.08-ABS63	V13 34800	**48**	63	189	96	151	4,3	WOEX 080404	808.58 **48096**
KUB-T.2D.490.R.08-ABS63	V13 34900	**49**	63	191	98	153	4,3	WOEX 080404	808.58 **49096**
KUB-T.2D.500.R.08-ABS63	V13 35000	**50**	63	193	100	155	4,3	WOEX 080404	808.58 **50096**
KUB-T.2D.510.R.08-ABS63	V13 35100	**51**	63	195	102	157	4,3	WOEX 080404	808.58 **51096**
KUB-T.2D.520.R.08-ABS63	V13 35200	**52**	63	197	104	159	4,3	WOEX 080404	808.58 **52096**
KUB-T.2D.530.R.08-ABS63	V13 35300	**53**	63	199	106	161	4,3	WOEX 080404	808.58 **53096**
KUB-T.2D.540.R.08-ABS63	V13 35400	**54**	63	201	108	163	4,3	WOEX 080404	808.58 **54096**
KUB-T.2D.550.R.10-ABS80	V14 35500	**55**	80	208	110	165	4,3	WOEX 100504	977.27 **55098**
KUB-T.2D.560.R.10-ABS80	V14 35600	**56**	80	210	112	167	4,3	WOEX 100504	977.27 **56098**
KUB-T.2D.570.R.10-ABS80	V14 35700	**57**	80	212	114	169	4,3	WOEX 100504	977.27 **57098**
KUB-T.2D.580.R.10-ABS80	V14 35800	**58**	80	214	116	171	4,3	WOEX 100504	977.27 **58098**
KUB-T.2D.590.R.10-ABS80	V14 35900	**59**	80	216	118	173	4,3	WOEX 100504	977.27 **59098**
KUB-T.2D.600.R.10-ABS80	V14 36000	**60**	80	218	120	175	4,3	WOEX 100504	977.27 **60098**
KUB-T.2D.610.R.10-ABS80	V14 36100	**61**	80	220	122	177	4,3	WOEX 100504	977.27 **61098**
KUB-T.2D.620.R.10-ABS80	V14 36200	**62**	80	222	124	179	4,3	WOEX 100504	977.27 **62098**
KUB-T.2D.630.R.10-ABS80	V14 36300	**63**	80	224	126	181	4,3	WOEX 100504	977.27 **63098**
KUB-T.2D.640.R.10-ABS80	V14 36400	**64**	80	226	128	183	4,3	WOEX 100504	977.27 **64098**
KUB-T.2D.650.R.10-ABS80	V14 36500	**65**	80	228	130	185	4,3	WOEX 100504	977.27 **65098**
KUB-T.2D.660.R.10-ABS80	V14 36600	**66**	80	230	132	187	4,3	WOEX 100504	977.27 **66098**
KUB-T.2D.670.R.10-ABS80	V14 36700	**67**	80	232	134	189	4,3	WOEX 100504	977.27 **67098**
KUB-T.2D.680.R.10-ABS80	V14 36800	**68**	80	234	136	191	4,3	WOEX 100504	977.27 **68098**
KUB-T.2D.690.R.12-ABS80	V14 36900	**69**	80	246	138	203	6,25	WOEX 120608	1,033.94 **69098**
KUB-T.2D.700.R.12-ABS80	V14 37000	**70**	80	248	140	205	6,25	WOEX 120608	1,033.94 **70098**
KUB-T.2D.710.R.12-ABS80	V14 37100	**71**	80	250	142	207	6,25	WOEX 120608	1,033.94 **71098**
KUB-T.2D.720.R.12-ABS80	V14 37200	**72**	80	252	144	209	6,25	WOEX 120608	1,033.94 **72098**
KUB-T.2D.730.R.12-ABS80	V14 37300	**73**	80	254	146	211	6,25	WOEX 120608	1,033.94 **73098**
KUB-T.2D.740.R.12-ABS80	V14 37400	**74**	80	256	148	213	6,25	WOEX 120608	1,033.94 **74098**
KUB-T.2D.750.R.12-ABS80	V14 37500	**75**	80	258	150	215	6,25	WOEX 120608	1,033.94 **75098**
KUB-T.2D.760.R.12-ABS80	V14 37600	**76**	80	260	152	217	6,25	WOEX 120608	1,033.94 **76098**
KUB-T.2D.770.R.12-ABS80	V14 37700	**77**	80	262	154	219	6,25	WOEX 120608	1,033.94 **77098**
KUB-T.2D.780.R.12-ABS80	V14 37800	**78**	80	264	156	221	6,25	WOEX 120608	1,033.94 **78098**
KUB-T.2D.790.R.12-ABS80	V14 37900	**79**	80	266	158	223	6,25	WOEX 120608	1,033.94 **79098**
KUB-T.2D.800.R.12-ABS80	V14 38000	**80**	80	268	160	225	6,25	WOEX 120608	1,033.94 **80098**
KUB-T.2D.810.R.12-ABS80	V14 38100	**81**	80	270	162	227	6,25	WOEX 120608	1,033.94 **81098**
KUB-T.2D.820.R.12-ABS80	V14 38200	**82**	80	272	164	229	6,25	WOEX 120608	1,033.94 **82098**



Key D

80 950 ...

Spare parts DC		£ Y7	
45 - 54	T15 - IP	16.05	**120**
55 - 68	T15 - IP	16.05	**120**
69 - 82	T20 - IP	17.19	**121**



Clamping screw

10 950 ...

		£ W7/6B	
M4,5x9 - 15IP		3.07	**12700**
M4,5x9 - 15IP		3.07	**12700**
M5,5x11 - 20IP		3.07	**17400**



Fixing screw

10 950 ...

	£ W7/6B	
M4,5x9 - 10IP	3.46	**17000**
M4,5x9 - 10IP	3.46	**17000**
M5,5x13,5 - 20IP	3.46	**17100**



Cylindrical pin

10 950 ...

		£ W7/6B	
Ø3		1.28	**17200**
Ø3		1.28	**17200**
Ø4		1.42	**17300**



Indexable insert, internal

10 897 ...

	£ 2B/6#	
	93.83	**14800**
	101.76	**25300**
	108.32	**36000**



Indexable insert, external

10 898 ...

£ 2B/6#	
93.83	**14800**
101.76	**25300**
108.32	**36000**

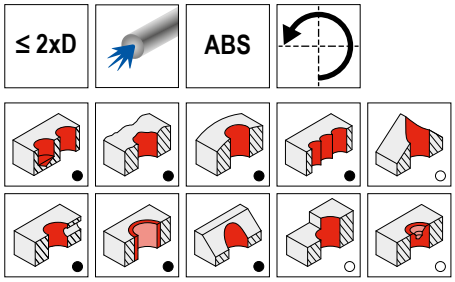
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

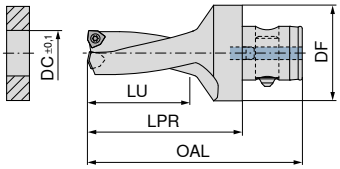
KUB Trigon – Indexable insert drill

▲ left-hand cutting

Scope of supply:

Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	11 892 ... £ 2B/6#	
KUB-T.2D.140.L.03-ABS50	V30 21402	14	50	94	28	63	0,62	WOEX 030204	431.95	14095
KUB-T.2D.150.L.03-ABS50	V30 21502	15	50	96	30	65	0,62	WOEX 030204	431.95	15095
KUB-T.2D.160.L.03-ABS50	V30 21600	16	50	98	32	67	0,62	WOEX 030204	431.95	16095
KUB-T.2D.170.L.03-ABS50	V30 21700	17	50	100	34	69	0,62	WOEX 030204	431.95	17095
KUB-T.2D.180.L.03-ABS50	V30 21800	18	50	102	36	71	0,62	WOEX 030204	431.95	18095
KUB-T.2D.190.L.03-ABS50	V30 21900	19	50	104	38	73	0,62	WOEX 030204	431.95	19095
KUB-T.2D.200.L.04-ABS50	V30 22000	20	50	106	40	75	1,01	WOEX 040304	434.50	20095
KUB-T.2D.210.L.04-ABS50	V30 22100	21	50	108	42	77	1,01	WOEX 040304	434.50	21095
KUB-T.2D.220.L.04-ABS50	V30 22200	22	50	110	44	79	1,01	WOEX 040304	434.50	22095
KUB-T.2D.230.L.04-ABS50	V30 22300	23	50	112	46	81	1,01	WOEX 040304	434.50	23095
KUB-T.2D.240.L.04-ABS50	V30 22400	24	50	114	48	83	1,01	WOEX 040304	434.50	24095
KUB-T.2D.250.L.05-ABS50	V30 22500	25	50	116	50	85	1,28	WOEX 05T304	440.81	25095
KUB-T.2D.260.L.05-ABS50	V30 22600	26	50	118	52	87	1,28	WOEX 05T304	440.81	26095
KUB-T.2D.270.L.05-ABS50	V30 22700	27	50	120	54	89	1,28	WOEX 05T304	440.81	27095
KUB-T.2D.280.L.05-ABS50	V30 22800	28	50	122	56	91	1,28	WOEX 05T304	440.81	28095
KUB-T.2D.290.L.05-ABS50	V30 22900	29	50	124	58	93	1,28	WOEX 05T304	440.81	29095
KUB-T.2D.300.L.05-ABS50	V30 23000	30	50	131	60	100	1,28	WOEX 05T304	440.81	30095
KUB-T.2D.310.L.05-ABS50	V30 23100	31	50	133	62	102	1,28	WOEX 05T304	440.81	31095
KUB-T.2D.320.L.05-ABS50	V30 23200	32	50	135	64	104	1,28	WOEX 05T304	440.81	32095
KUB-T.2D.330.L.05-ABS50	V30 23300	33	50	137	66	106	1,28	WOEX 05T304	440.81	33095
KUB-T.2D.340.L.05-ABS50	V30 23400	34	50	139	68	108	1,28	WOEX 05T304	440.81	34095
KUB-T.2D.350.L.05-ABS50	V30 23500	35	50	141	70	110	1,28	WOEX 05T304	440.81	35095
KUB-T.2D.360.L.05-ABS50	V30 23600	36	50	143	72	112	1,28	WOEX 05T304	440.81	36095
KUB-T.2D.370.L.06-ABS50	V30 23700	37	50	155	74	124	2,8	WOEX 06T304	463.46	37095
KUB-T.2D.380.L.06-ABS50	V30 23800	38	50	157	76	126	2,8	WOEX 06T304	463.46	38095
KUB-T.2D.390.L.06-ABS50	V30 23900	39	50	159	78	128	2,8	WOEX 06T304	463.46	39095
KUB-T.2D.400.L.06-ABS50	V30 24000	40	50	161	80	130	2,8	WOEX 06T304	463.46	40095
KUB-T.2D.410.L.06-ABS50	V30 24100	41	50	163	82	132	2,8	WOEX 06T304	463.46	41095
KUB-T.2D.420.L.06-ABS50	V30 24200	42	50	165	84	134	2,8	WOEX 06T304	463.46	42095
KUB-T.2D.430.L.06-ABS50	V30 24300	43	50	167	86	136	2,8	WOEX 06T304	463.46	43095
KUB-T.2D.440.L.06-ABS50	V30 24400	44	50	169	88	138	2,8	WOEX 06T304	463.46	44095



Key D



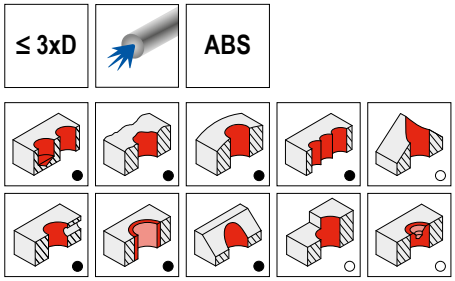
Clamping screw

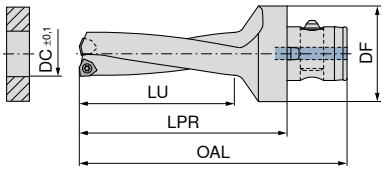
Spare parts DC		80 950 ... £ Y7			10 950 ... £ W7/6B	
14 - 19	T06 - IP	18.22	123	M2,0x4,3 - 06IP	2.86	10000
20 - 24	T06 - IP	18.22	123	M2,2x5,5 - 06IP	2.86	10700
25 - 36	T08 - IP	17.97	125	M2,5x7,2 - 08IP	2.86	10500
37 - 44	T10 - IP	20.40	127	M3,5x7,3 - 10IP	2.86	10600

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 893 ... £ 2B/6#	
KUB-T.3D.140.R.03-ABS50	V30 71403	14	50	108	42	77	0,62	WOEX 030204	474.82	14095
KUB-T.3D.150.R.03-ABS50	V30 71503	15	50	111	45	80	0,62	WOEX 030204	474.82	15095
KUB-T.3D.160.R.03-ABS50	V30 71601	16	50	114	48	83	0,62	WOEX 030204	474.82	16095
KUB-T.3D.170.R.03-ABS50	V30 71701	17	50	117	51	86	0,62	WOEX 030204	474.82	17095
KUB-T.3D.180.R.03-ABS50	V30 71801	18	50	120	54	89	0,62	WOEX 030204	474.82	18095
KUB-T.3D.190.R.03-ABS50	V30 71901	19	50	123	57	92	0,62	WOEX 030204	474.82	19095
KUB-T.3D.200.R.04-ABS50	V30 72001	20	50	126	60	95	1,01	WOEX 040304	483.65	20095
KUB-T.3D.210.R.04-ABS50	V30 72101	21	50	129	63	98	1,01	WOEX 040304	483.65	21095
KUB-T.3D.220.R.04-ABS50	V30 72201	22	50	132	66	101	1,01	WOEX 040304	483.65	22095
KUB-T.3D.230.R.04-ABS50	V30 72301	23	50	135	69	104	1,01	WOEX 040304	483.65	23095
KUB-T.3D.240.R.04-ABS50	V30 72401	24	50	138	72	107	1,01	WOEX 040304	483.65	24095
KUB-T.3D.250.R.05-ABS50	V30 72501	25	50	141	75	110	1,28	WOEX 05T304	494.94	25095
KUB-T.3D.260.R.05-ABS50	V30 72601	26	50	144	78	113	1,28	WOEX 05T304	494.94	26095
KUB-T.3D.270.R.05-ABS50	V30 72701	27	50	147	81	116	1,28	WOEX 05T304	494.94	27095
KUB-T.3D.280.R.05-ABS50	V30 72801	28	50	150	84	119	1,28	WOEX 05T304	494.94	28095
KUB-T.3D.290.R.05-ABS50	V30 72901	29	50	153	87	122	1,28	WOEX 05T304	494.94	29095
KUB-T.3D.300.R.05-ABS50	V30 73001	30	50	161	90	130	1,28	WOEX 05T304	494.94	30095
KUB-T.3D.310.R.05-ABS50	V30 73101	31	50	164	93	133	1,28	WOEX 05T304	494.94	31095
KUB-T.3D.320.R.05-ABS50	V30 73201	32	50	167	96	136	1,28	WOEX 05T304	494.94	32095
KUB-T.3D.330.R.05-ABS50	V30 73301	33	50	170	99	139	1,28	WOEX 05T304	494.94	33095
KUB-T.3D.340.R.05-ABS50	V30 73401	34	50	173	102	142	1,28	WOEX 05T304	494.94	34095
KUB-T.3D.350.R.05-ABS50	V30 73501	35	50	176	105	145	1,28	WOEX 05T304	494.94	35095
KUB-T.3D.360.R.05-ABS50	V30 73601	36	50	179	108	148	1,28	WOEX 05T304	494.94	36095
KUB-T.3D.370.R.06-ABS50	V30 73701	37	50	192	111	161	2,8	WOEX 06T304	537.81	37095
KUB-T.3D.380.R.06-ABS50	V30 73801	38	50	195	114	164	2,8	WOEX 06T304	537.81	38095
KUB-T.3D.390.R.06-ABS50	V30 73901	39	50	198	117	167	2,8	WOEX 06T304	537.81	39095
KUB-T.3D.400.R.06-ABS50	V30 74001	40	50	201	120	170	2,8	WOEX 06T304	537.81	40095
KUB-T.3D.410.R.06-ABS50	V30 74101	41	50	204	123	173	2,8	WOEX 06T304	537.81	41095
KUB-T.3D.420.R.06-ABS50	V30 74201	42	50	207	126	176	2,8	WOEX 06T304	537.81	42095
KUB-T.3D.430.R.06-ABS50	V30 74301	43	50	210	129	179	2,8	WOEX 06T304	537.81	43095
KUB-T.3D.440.R.06-ABS50	V30 74401	44	50	213	132	182	2,8	WOEX 06T304	537.81	44095


Key D


Clamping screw

Spare parts DC		80 950 ... £ Y7			10 950 ... £ W7/6B	
14 - 19	T06 - IP	18.22	123	M2,0x4,3 - 06IP	2.86	10000
20 - 24	T06 - IP	18.22	123	M2,2x5,5 - 06IP	2.86	10700
25 - 36	T08 - IP	17.97	125	M2,5x7,2 - 08IP	2.86	10500
37 - 44	T10 - IP	20.40	127	M3,5x7,3 - 10IP	2.86	10600

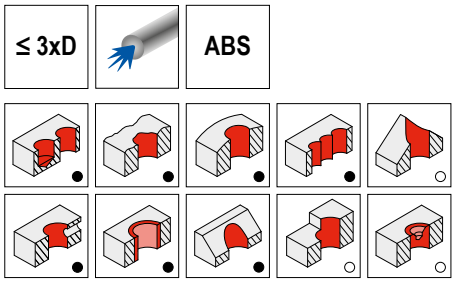
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

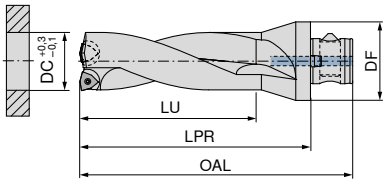
KUB Trigon – Indexable insert drill

▲ Tightening torque refers to the clamping screws of the indexable inserts

Scope of supply:

with indexable insert (10 897 ...) incl. fixing screw, cylindrical pin and clamping screw
with indexable insert (10 898 ...) incl. fixing screw, cylindrical pin and clamping screw







Designation	KOMET no.	DC	DF	OAL	LU	LPR	torque moment	Insert	10 893 ... £ 2B/6#	
		mm	mm	mm	mm	mm	Nm			
KUB-T.3D.450.R.08-ABS63	V13 74500	**45**	63	228	135	190	4,3	WOEX 080404	905.58	**45096**
KUB-T.3D.460.R.08-ABS63	V13 74600	**46**	63	231	138	193	4,3	WOEX 080404	905.58	**46096**
KUB-T.3D.470.R.08-ABS63	V13 74700	**47**	63	234	141	196	4,3	WOEX 080404	905.58	**47096**
KUB-T.3D.480.R.08-ABS63	V13 74800	**48**	63	237	144	199	4,3	WOEX 080404	905.58	**48096**
KUB-T.3D.490.R.08-ABS63	V13 74900	**49**	63	240	147	202	4,3	WOEX 080404	905.58	**49096**
KUB-T.3D.500.R.08-ABS63	V13 75000	**50**	63	243	150	205	4,3	WOEX 080404	905.58	**50096**
KUB-T.3D.510.R.08-ABS63	V13 75100	**51**	63	246	153	208	4,3	WOEX 080404	905.58	**51096**
KUB-T.3D.520.R.08-ABS63	V13 75200	**52**	63	249	156	211	4,3	WOEX 080404	905.58	**52096**
KUB-T.3D.530.R.08-ABS63	V13 75300	**53**	63	252	159	214	4,3	WOEX 080404	905.58	**53096**
KUB-T.3D.540.R.08-ABS63	V13 75400	**54**	63	255	162	217	4,3	WOEX 080404	905.58	**54096**
KUB-T.3D.550.R.10-ABS80	V14 75500	**55**	80	263	165	220	4,3	WOEX 100504	1,089.41	**55098**
KUB-T.3D.560.R.10-ABS80	V14 75600	**56**	80	266	168	223	4,3	WOEX 100504	1,089.41	**56098**
KUB-T.3D.570.R.10-ABS80	V14 75700	**57**	80	269	171	226	4,3	WOEX 100504	1,089.41	**57098**
KUB-T.3D.580.R.10-ABS80	V14 75800	**58**	80	272	174	229	4,3	WOEX 100504	1,089.41	**58098**
KUB-T.3D.590.R.10-ABS80	V14 75900	**59**	80	275	177	232	4,3	WOEX 100504	1,089.41	**59098**
KUB-T.3D.600.R.10-ABS80	V14 76000	**60**	80	278	180	235	4,3	WOEX 100504	1,089.41	**60098**
KUB-T.3D.610.R.10-ABS80	V14 76100	**61**	80	281	183	238	4,3	WOEX 100504	1,089.41	**61098**
KUB-T.3D.620.R.10-ABS80	V14 76200	**62**	80	284	186	241	4,3	WOEX 100504	1,089.41	**62098**
KUB-T.3D.630.R.10-ABS80	V14 76300	**63**	80	287	189	244	4,3	WOEX 100504	1,089.41	**63098**
KUB-T.3D.640.R.10-ABS80	V14 76400	**64**	80	290	192	247	4,3	WOEX 100504	1,089.41	**64098**
KUB-T.3D.650.R.10-ABS80	V14 76500	**65**	80	293	195	250	4,3	WOEX 100504	1,089.41	**65098**
KUB-T.3D.660.R.10-ABS80	V14 76600	**66**	80	296	198	253	4,3	WOEX 100504	1,089.41	**66098**
KUB-T.3D.670.R.10-ABS80	V14 76700	**67**	80	299	201	256	4,3	WOEX 100504	1,089.41	**67098**
KUB-T.3D.680.R.10-ABS80	V14 76800	**68**	80	302	204	259	4,3	WOEX 100504	1,089.41	**68098**
KUB-T.3D.690.R.12-ABS80	V14 76900	**69**	80	315	207	272	6,25	WOEX 120608	1,152.37	**69098**
KUB-T.3D.700.R.12-ABS80	V14 77000	**70**	80	318	210	275	6,25	WOEX 120608	1,152.37	**70098**
KUB-T.3D.710.R.12-ABS80	V14 77100	**71**	80	321	213	278	6,25	WOEX 120608	1,152.37	**71098**
KUB-T.3D.720.R.12-ABS80	V14 77200	**72**	80	324	216	281	6,25	WOEX 120608	1,152.37	**72098**
KUB-T.3D.730.R.12-ABS80	V14 77300	**73**	80	327	219	284	6,25	WOEX 120608	1,152.37	**73098**
KUB-T.3D.740.R.12-ABS80	V14 77400	**74**	80	330	222	287	6,25	WOEX 120608	1,152.37	**74098**
KUB-T.3D.750.R.12-ABS80	V14 77500	**75**	80	333	225	290	6,25	WOEX 120608	1,152.37	**75098**
KUB-T.3D.760.R.12-ABS80	V14 77600	**76**	80	336	228	293	6,25	WOEX 120608	1,152.37	**76098**
KUB-T.3D.770.R.12-ABS80	V14 77700	**77**	80	339	231	296	6,25	WOEX 120608	1,152.37	**77098**
KUB-T.3D.780.R.12-ABS80	V14 77800	**78**	80	342	234	299	6,25	WOEX 120608	1,152.37	**78098**
KUB-T.3D.790.R.12-ABS80	V14 77900	**79**	80	345	237	302	6,25	WOEX 120608	1,152.37	**79098**
KUB-T.3D.800.R.12-ABS80	V14 78000	**80**	80	348	240	305	6,25	WOEX 120608	1,152.37	**80098**
KUB-T.3D.810.R.12-ABS80	V14 78100	**81**	80	351	243	308	6,25	WOEX 120608	1,152.37	**81098**
KUB-T.3D.820.R.12-ABS80	V14 78200	**82**	80	354	246	311	6,25	WOEX 120608	1,152.37	**82098**

		 Key D			 Clamping screw			 Fixing screw		
		80 950 ...			**10 950 ...**			**10 950 ...**		
Spare parts		£			£			£		
DC		Y7			W7/6B			W7/6B		
45 - 54	T15 - IP	16.05	**120**	M4,5x9 - 15IP	3.07	**12700**	M4,5x9 - 10IP	3.46	**17000**
55 - 68	T15 - IP	16.05	**120**	M4,5x9 - 15IP	3.07	**12700**	M4,5x9 - 10IP	3.46	**17000**
69 - 82	T20 - IP	17.19	**121**	M5,5x11 - 20IP	3.07	**17400**	M5,5x13,5 - 20IP	3.46	**17100**

					 Cylindrical pin			 Indexable insert, internal		 Indexable insert, external
					10 950 ...			**10 897 ...**		**10 898 ...**
Spare parts					£			£		£
DC					W7/6B			2B/6#		2B/6#
45 - 54				Ø3	1.28	**17200**		93.83	**14800**	93.83 **14800**
55 - 68				Ø3	1.28	**17200**		101.76	**25300**	101.76 **25300**
69 - 82				Ø4	1.42	**17300**		108.32	**36000**	108.32 **36000**

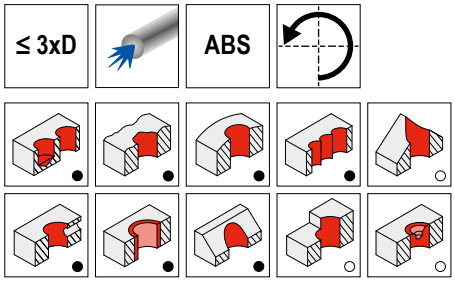
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

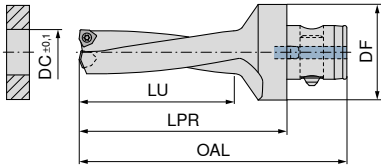
KUB Trigon – Indexable insert drill

▲ left-hand cutting

Scope of supply:

Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	11 893 ... £ 2B/6#	
KUB-T.3D.140.L.03-ABS50	V30 61402	14	50	108	42	77	0,62	WOEX 030204	474.82	14095
KUB-T.3D.150.L.03-ABS50	V30 61502	15	50	111	45	80	0,62	WOEX 030204	474.82	15095
KUB-T.3D.160.L.03-ABS50	V30 61600	16	50	114	48	83	0,62	WOEX 030204	474.82	16095
KUB-T.3D.170.L.03-ABS50	V30 61700	17	50	117	51	86	0,62	WOEX 030204	474.82	17095
KUB-T.3D.180.L.03-ABS50	V30 61800	18	50	120	54	89	0,62	WOEX 030204	474.82	18095
KUB-T.3D.190.L.03-ABS50	V30 61900	19	50	123	57	92	0,62	WOEX 030204	474.82	19095
KUB-T.3D.200.L.04-ABS50	V30 62000	20	50	126	60	95	1,01	WOEX 040304	483.65	20095
KUB-T.3D.210.L.04-ABS50	V30 62100	21	50	129	63	98	1,01	WOEX 040304	483.65	21095
KUB-T.3D.220.L.04-ABS50	V30 62200	22	50	132	66	101	1,01	WOEX 040304	483.65	22095
KUB-T.3D.230.L.04-ABS50	V30 62300	23	50	135	69	104	1,01	WOEX 040304	483.65	23095
KUB-T.3D.240.L.04-ABS50	V30 62400	24	50	138	72	107	1,01	WOEX 040304	483.65	24095
KUB-T.3D.250.L.05-ABS50	V30 62500	25	50	141	75	110	1,28	WOEX 05T304	494.94	25095
KUB-T.3D.260.L.05-ABS50	V30 62600	26	50	144	78	113	1,28	WOEX 05T304	494.94	26095
KUB-T.3D.270.L.05-ABS50	V30 62700	27	50	147	81	116	1,28	WOEX 05T304	494.94	27095
KUB-T.3D.280.L.05-ABS50	V30 62800	28	50	150	84	119	1,28	WOEX 05T304	494.94	28095
KUB-T.3D.290.L.05-ABS50	V30 62900	29	50	153	87	122	1,28	WOEX 05T304	494.94	29095
KUB-T.3D.300.L.05-ABS50	V30 63000	30	50	161	90	130	1,28	WOEX 05T304	494.94	30095
KUB-T.3D.310.L.05-ABS50	V30 63100	31	50	164	93	133	1,28	WOEX 05T304	494.94	31095
KUB-T.3D.320.L.05-ABS50	V30 63200	32	50	167	96	136	1,28	WOEX 05T304	494.94	32095
KUB-T.3D.330.L.05-ABS50	V30 63300	33	50	170	99	139	1,28	WOEX 05T304	494.94	33095
KUB-T.3D.340.L.05-ABS50	V30 63400	34	50	173	102	142	1,28	WOEX 05T304	494.94	34095
KUB-T.3D.350.L.05-ABS50	V30 63500	35	50	176	105	145	1,28	WOEX 05T304	494.94	35095
KUB-T.3D.360.L.05-ABS50	V30 63600	36	50	179	108	148	1,28	WOEX 05T304	494.94	36095
KUB-T.3D.370.L.06-ABS50	V30 63700	37	50	192	111	161	2,8	WOEX 06T304	537.81	37095
KUB-T.3D.380.L.06-ABS50	V30 63800	38	50	195	114	164	2,8	WOEX 06T304	537.81	38095
KUB-T.3D.390.L.06-ABS50	V30 63900	39	50	198	117	167	2,8	WOEX 06T304	537.81	39095
KUB-T.3D.400.L.06-ABS50	V30 64000	40	50	201	120	170	2,8	WOEX 06T304	537.81	40095
KUB-T.3D.410.L.06-ABS50	V30 64100	41	50	204	123	173	2,8	WOEX 06T304	537.81	41095
KUB-T.3D.420.L.06-ABS50	V30 64200	42	50	207	126	176	2,8	WOEX 06T304	537.81	42095
KUB-T.3D.430.L.06-ABS50	V30 64300	43	50	210	129	179	2,8	WOEX 06T304	537.81	43095
KUB-T.3D.440.L.06-ABS50	V30 64400	44	50	213	132	182	2,8	WOEX 06T304	537.81	44095



Key D



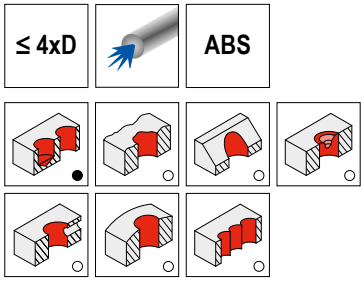
Clamping screw

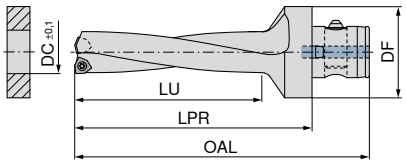
Spare parts DC		80 950 ... £ Y7			10 950 ... £ W7/6B	
14 - 19	T06 - IP	18.22	123	M2,0x4,3 - 06IP	2.86	10000
20 - 24	T06 - IP	18.22	123	M2,2x5,5 - 06IP	2.86	10700
25 - 36	T08 - IP	17.97	125	M2,5x7,2 - 08IP	2.86	10500
37 - 44	T10 - IP	20.40	127	M3,5x7,3 - 10IP	2.86	10600

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 894 ... £ 2B/6#	
KUB-T.4D.140.R.03-ABS50	V30 91403	14	50	122	56	91	0,62	WOEX 030204	522.66	14095
KUB-T.4D.150.R.03-ABS50	V30 91503	15	50	126	60	95	0,62	WOEX 030204	522.66	15095
KUB-T.4D.160.R.03-ABS50	V30 91601	16	50	130	64	99	0,62	WOEX 030204	522.66	16095
KUB-T.4D.170.R.03-ABS50	V30 91701	17	50	134	68	103	0,62	WOEX 030204	522.66	17095
KUB-T.4D.180.R.03-ABS50	V30 91801	18	50	138	72	107	0,62	WOEX 030204	522.66	18095
KUB-T.4D.190.R.03-ABS50	V30 91901	19	50	142	76	111	0,62	WOEX 030204	522.66	19095
KUB-T.4D.200.R.04-ABS50	V30 92001	20	50	146	80	115	1,01	WOEX 040304	532.72	20095
KUB-T.4D.210.R.04-ABS50	V30 92101	21	50	150	84	119	1,01	WOEX 040304	532.72	21095
KUB-T.4D.220.R.04-ABS50	V30 92201	22	50	154	88	123	1,01	WOEX 040304	532.72	22095
KUB-T.4D.230.R.04-ABS50	V30 92301	23	50	158	92	127	1,01	WOEX 040304	532.72	23095
KUB-T.4D.240.R.04-ABS50	V30 92401	24	50	162	96	131	1,01	WOEX 040304	532.72	24095
KUB-T.4D.250.R.05-ABS50	V30 92501	25	50	166	100	135	1,28	WOEX 05T304	544.08	25095
KUB-T.4D.260.R.05-ABS50	V30 92601	26	50	170	104	139	1,28	WOEX 05T304	544.08	26095
KUB-T.4D.270.R.05-ABS50	V30 92701	27	50	174	108	143	1,28	WOEX 05T304	544.08	27095
KUB-T.4D.280.R.05-ABS50	V30 92801	28	50	178	112	147	1,28	WOEX 05T304	544.08	28095
KUB-T.4D.290.R.05-ABS50	V30 92901	29	50	182	116	151	1,28	WOEX 05T304	544.08	29095
KUB-T.4D.300.R.05-ABS50	V30 93001	30	50	191	120	160	1,28	WOEX 05T304	544.08	30095
KUB-T.4D.310.R.05-ABS50	V30 93101	31	50	195	124	164	1,28	WOEX 05T304	544.08	31095
KUB-T.4D.320.R.05-ABS50	V30 93201	32	50	199	128	168	1,28	WOEX 05T304	544.08	32095
KUB-T.4D.330.R.05-ABS50	V30 93301	33	50	203	132	172	1,28	WOEX 05T304	544.08	33095
KUB-T.4D.340.R.05-ABS50	V30 93401	34	50	207	136	176	1,28	WOEX 05T304	544.08	34095
KUB-T.4D.350.R.05-ABS50	V30 93501	35	50	211	140	180	1,28	WOEX 05T304	544.08	35095
KUB-T.4D.360.R.05-ABS50	V30 93601	36	50	215	144	184	1,28	WOEX 05T304	544.08	36095
KUB-T.4D.370.R.06-ABS50	V30 93701	37	50	229	148	198	2,8	WOEX 06T304	590.71	37095
KUB-T.4D.380.R.06-ABS50	V30 93801	38	50	233	152	202	2,8	WOEX 06T304	590.71	38095
KUB-T.4D.390.R.06-ABS50	V30 93901	39	50	237	156	206	2,8	WOEX 06T304	590.71	39095
KUB-T.4D.400.R.06-ABS50	V30 94001	40	50	241	160	210	2,8	WOEX 06T304	590.71	40095
KUB-T.4D.410.R.06-ABS50	V30 94101	41	50	245	164	214	2,8	WOEX 06T304	590.71	41095
KUB-T.4D.420.R.06-ABS50	V30 94201	42	50	249	168	218	2,8	WOEX 06T304	590.71	42095
KUB-T.4D.430.R.06-ABS50	V30 94301	43	50	253	172	222	2,8	WOEX 06T304	590.71	43095
KUB-T.4D.440.R.06-ABS50	V30 94401	44	50	257	176	226	2,8	WOEX 06T304	590.71	44095


Key D

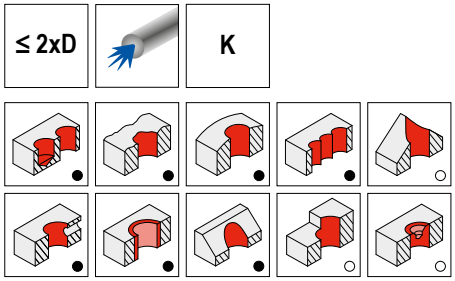

Clamping screw

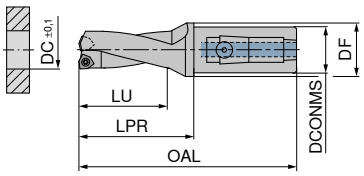
Spare parts DC		80 950 ... £ Y7			10 950 ... £ W7/6B	
14 - 19	T06 - IP	18.22	123	M2,0x4,3 - 06IP	2.86	10000
20 - 24	T06 - IP	18.22	123	M2,2x5,5 - 06IP	2.86	10700
25 - 36	T08 - IP	17.97	125	M2,5x7,2 - 08IP	2.86	10500
37 - 44	T10 - IP	20.40	127	M3,5x7,3 - 10IP	2.86	10600

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







										10 892 ...
Designation	KOMET no.	**DC**	DCONMS	DF	OAL	LU	LPR	torque moment	Insert	£
		mm	mm	mm	mm	mm	mm	Nm		2B/6#
KUB-T.2D.140.R.03-K20	V43 31404	**14**	20	30	102	28	52	0,62	WOEX 030204	366.44 **14011**
KUB-T.2D.150.R.03-K20	V43 31504	**15**	20	30	104	30	54	0,62	WOEX 030204	366.44 **15011**
KUB-T.2D.160.R.03-K20	V43 31602	**16**	20	30	106	32	56	0,62	WOEX 030204	366.44 **16011**
KUB-T.2D.170.R.03-K20	V43 31702	**17**	20	30	108	34	58	0,62	WOEX 030204	366.44 **17011**
KUB-T.2D.180.R.03-K20	V43 31802	**18**	20	30	110	36	60	0,62	WOEX 030204	366.44 **18011**
KUB-T.2D.190.R.03-K20	V43 31902	**19**	20	30	112	38	62	0,62	WOEX 030204	366.44 **19011**
KUB-T.2D.200.R.04-K25	V44 32002	**20**	25	30	120	40	64	1,01	WOEX 040304	370.33 **20012**
KUB-T.2D.210.R.04-K25	V44 32102	**21**	25	30	122	42	66	1,01	WOEX 040304	370.33 **21012**
KUB-T.2D.220.R.04-K25	V44 32202	**22**	25	30	124	44	68	1,01	WOEX 040304	370.33 **22012**
KUB-T.2D.230.R.04-K25	V44 32302	**23**	25	30	126	46	70	1,01	WOEX 040304	370.33 **23012**
KUB-T.2D.240.R.04-K25	V44 32402	**24**	25	30	128	48	72	1,01	WOEX 040304	370.33 **24012**
KUB-T.2D.250.R.05-K32	V45 32502	**25**	32	39	134	50	74	1,28	WOEX 05T304	401.82 **25013**
KUB-T.2D.260.R.05-K32	V45 32602	**26**	32	39	136	52	76	1,28	WOEX 05T304	401.82 **26013**
KUB-T.2D.270.R.05-K32	V45 32702	**27**	32	39	138	54	78	1,28	WOEX 05T304	401.82 **27013**
KUB-T.2D.280.R.05-K32	V45 32802	**28**	32	39	140	56	80	1,28	WOEX 05T304	401.82 **28013**
KUB-T.2D.290.R.05-K32	V45 32902	**29**	32	39	142	58	82	1,28	WOEX 05T304	401.82 **29013**
KUB-T.2D.300.R.05-K32	V45 33002	**30**	32	39	149	60	89	1,28	WOEX 05T304	401.82 **30013**
KUB-T.2D.310.R.05-K32	V45 33102	**31**	32	39	151	62	91	1,28	WOEX 05T304	401.82 **31013**
KUB-T.2D.320.R.05-K32	V45 33202	**32**	32	39	153	64	93	1,28	WOEX 05T304	401.82 **32013**
KUB-T.2D.330.R.05-K32	V45 33302	**33**	32	39	155	66	95	1,28	WOEX 05T304	401.82 **33013**
KUB-T.2D.340.R.05-K32	V45 33402	**34**	32	39	157	68	97	1,28	WOEX 05T304	401.82 **34013**
KUB-T.2D.350.R.05-K32	V45 33502	**35**	32	39	159	70	99	1,28	WOEX 05T304	401.82 **35013**
KUB-T.2D.360.R.05-K32	V45 33602	**36**	32	39	161	72	101	1,28	WOEX 05T304	401.82 **36013**
KUB-T.2D.370.R.06-K32	V45 33702	**37**	32	39	173	74	113	2,8	WOEX 06T304	419.37 **37013**
KUB-T.2D.380.R.06-K32	V45 33802	**38**	32	39	175	76	115	2,8	WOEX 06T304	419.37 **38013**
KUB-T.2D.390.R.06-K32	V45 33902	**39**	32	39	177	78	117	2,8	WOEX 06T304	419.37 **39013**
KUB-T.2D.400.R.06-K32	V45 34002	**40**	32	39	179	80	119	2,8	WOEX 06T304	419.37 **40013**
KUB-T.2D.410.R.06-K32	V45 34102	**41**	32	39	181	82	121	2,8	WOEX 06T304	419.37 **41013**
KUB-T.2D.420.R.06-K32	V45 34202	**42**	32	39	183	84	123	2,8	WOEX 06T304	419.37 **42013**
KUB-T.2D.430.R.06-K32	V45 34302	**43**	32	39	185	86	125	2,8	WOEX 06T304	419.37 **43013**
KUB-T.2D.440.R.06-K32	V45 34402	**44**	32	39	187	88	127	2,8	WOEX 06T304	419.37 **44013**


Key D

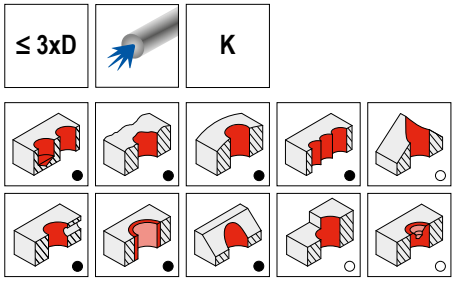

Clamping screw

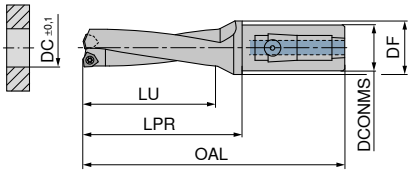
				80 950 ...			10 950 ...
Spare parts				£			£
DC				Y7			W7/6B
14 - 19	T06 - IP	18.22	**123**		M2,0x4,3 - 06IP	2.86	**10000**
20 - 24	T06 - IP	18.22	**123**		M2,2x5,5 - 06IP	2.86	**10700**
25 - 36	T08 - IP	17.97	**125**		M2,5x7,2 - 08IP	2.86	**10500**
37 - 44	T10 - IP	20.40	**127**		M3,5x7,3 - 10IP	2.86	**10600**

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 893 ... £ 2B/6#	
KUB-T.3D.140.R.03-K20	V43 71404	14	20	30	116	42	66	0,62	WOEX 030204	384.12	14011
KUB-T.3D.150.R.03-K20	V43 71504	15	20	30	119	45	69	0,62	WOEX 030204	384.12	15011
KUB-T.3D.160.R.03-K20	V43 71602	16	20	30	122	48	72	0,62	WOEX 030204	384.12	16011
KUB-T.3D.170.R.03-K20	V43 71702	17	20	30	125	51	75	0,62	WOEX 030204	384.12	17011
KUB-T.3D.180.R.03-K20	V43 71802	18	20	30	128	54	78	0,62	WOEX 030204	384.12	18011
KUB-T.3D.190.R.03-K20	V43 71902	19	20	30	131	57	81	0,62	WOEX 030204	384.12	19011
KUB-T.3D.200.R.04-K25	V44 72002	20	25	30	140	60	84	1,01	WOEX 040304	411.85	20012
KUB-T.3D.210.R.04-K25	V44 72102	21	25	30	143	63	87	1,01	WOEX 040304	411.85	21012
KUB-T.3D.220.R.04-K25	V44 72202	22	25	30	146	66	90	1,01	WOEX 040304	411.85	22012
KUB-T.3D.230.R.04-K25	V44 72302	23	25	30	149	69	93	1,01	WOEX 040304	411.85	23012
KUB-T.3D.240.R.04-K25	V44 72402	24	25	30	152	72	96	1,01	WOEX 040304	411.85	24012
KUB-T.3D.250.R.05-K32	V45 72502	25	32	39	159	75	99	1,28	WOEX 05T304	448.31	25013
KUB-T.3D.260.R.05-K32	V45 72602	26	32	39	162	78	102	1,28	WOEX 05T304	448.31	26013
KUB-T.3D.270.R.05-K32	V45 72702	27	32	39	165	81	105	1,28	WOEX 05T304	448.31	27013
KUB-T.3D.280.R.05-K32	V45 72802	28	32	39	168	84	108	1,28	WOEX 05T304	448.31	28013
KUB-T.3D.290.R.05-K32	V45 72902	29	32	39	171	87	111	1,28	WOEX 05T304	448.31	29013
KUB-T.3D.300.R.05-K32	V45 73002	30	32	39	179	90	119	1,28	WOEX 05T304	448.31	30013
KUB-T.3D.310.R.05-K32	V45 73102	31	32	39	182	93	122	1,28	WOEX 05T304	448.31	31013
KUB-T.3D.320.R.05-K32	V45 73202	32	32	39	185	96	125	1,28	WOEX 05T304	448.31	32013
KUB-T.3D.330.R.05-K32	V45 73302	33	32	39	188	99	128	1,28	WOEX 05T304	448.31	33013
KUB-T.3D.340.R.05-K32	V45 73402	34	32	39	191	102	131	1,28	WOEX 05T304	448.31	34013
KUB-T.3D.350.R.05-K32	V45 73502	35	32	39	194	105	134	1,28	WOEX 05T304	448.31	35013
KUB-T.3D.360.R.05-K32	V45 73602	36	32	39	197	108	137	1,28	WOEX 05T304	448.31	36013
KUB-T.3D.370.R.06-K32	V45 73702	37	32	39	210	111	150	2,8	WOEX 06T304	486.10	37013
KUB-T.3D.380.R.06-K32	V45 73802	38	32	39	213	114	153	2,8	WOEX 06T304	486.10	38013
KUB-T.3D.390.R.06-K32	V45 73902	39	32	39	216	117	156	2,8	WOEX 06T304	486.10	39013
KUB-T.3D.400.R.06-K32	V45 74002	40	32	39	219	120	159	2,8	WOEX 06T304	486.10	40013
KUB-T.3D.410.R.06-K32	V45 74102	41	32	39	222	123	162	2,8	WOEX 06T304	486.10	41013
KUB-T.3D.420.R.06-K32	V45 74202	42	32	39	225	126	165	2,8	WOEX 06T304	486.10	42013
KUB-T.3D.430.R.06-K32	V45 74302	43	32	39	228	129	168	2,8	WOEX 06T304	486.10	43013
KUB-T.3D.440.R.06-K32	V45 74402	44	32	39	231	132	171	2,8	WOEX 06T304	486.10	44013


Key D

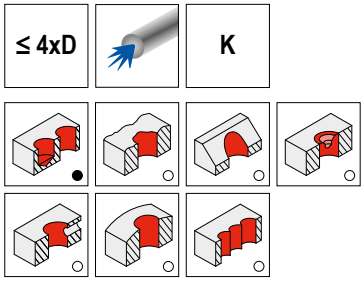

Clamping screw

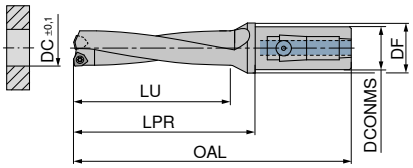
Spare parts DC	80 950 ... £ Y7		10 950 ... £ W7/6B	
14 - 19	T06 - IP	18.22 123	M2,0x4,3 - 06IP	2.86 10000
20 - 24	T06 - IP	18.22 123	M2,2x5,5 - 06IP	2.86 10700
25 - 36	T08 - IP	17.97 125	M2,5x7,2 - 08IP	2.86 10500
37 - 44	T10 - IP	20.40 127	M3,5x7,3 - 10IP	2.86 10600

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws







Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 894 ... £ 2B/6#	
KUB-T.4D.140.R.03-K20	V43 91404	14	20	30	130	56	80	0,62	WOEX 030204	421.92	14011
KUB-T.4D.150.R.03-K20	V43 91504	15	20	30	134	60	84	0,62	WOEX 030204	421.92	15011
KUB-T.4D.160.R.03-K20	V43 91602	16	20	30	138	64	88	0,62	WOEX 030204	421.92	16011
KUB-T.4D.170.R.03-K20	V43 91702	17	20	30	142	68	92	0,62	WOEX 030204	421.92	17011
KUB-T.4D.180.R.03-K20	V43 91802	18	20	30	146	72	96	0,62	WOEX 030204	421.92	18011
KUB-T.4D.190.R.03-K20	V43 91902	19	20	30	150	76	100	0,62	WOEX 030204	421.92	19011
KUB-T.4D.200.R.04-K25	V44 92002	20	25	30	160	80	104	1,01	WOEX 040304	453.40	20012
KUB-T.4D.210.R.04-K25	V44 92102	21	25	30	164	84	108	1,01	WOEX 040304	453.40	21012
KUB-T.4D.220.R.04-K25	V44 92202	22	25	30	168	88	112	1,01	WOEX 040304	453.40	22012
KUB-T.4D.230.R.04-K25	V44 92302	23	25	30	172	92	116	1,01	WOEX 040304	453.40	23012
KUB-T.4D.240.R.04-K25	V44 92402	24	25	30	176	96	120	1,01	WOEX 040304	453.40	24012
KUB-T.4D.250.R.05-K32	V45 92502	25	32	39	184	100	124	1,28	WOEX 05T304	489.95	25013
KUB-T.4D.260.R.05-K32	V45 92602	26	32	39	188	104	128	1,28	WOEX 05T304	489.95	26013
KUB-T.4D.270.R.05-K32	V45 92702	27	32	39	192	108	132	1,28	WOEX 05T304	489.95	27013
KUB-T.4D.280.R.05-K32	V45 92802	28	32	39	196	112	136	1,28	WOEX 05T304	489.95	28013
KUB-T.4D.290.R.05-K32	V45 92902	29	32	39	200	116	140	1,28	WOEX 05T304	489.97	29013
KUB-T.4D.300.R.05-K32	V45 93002	30	32	39	209	120	149	1,28	WOEX 05T304	489.97	30013
KUB-T.4D.310.R.05-K32	V45 93102	31	32	39	213	124	153	1,28	WOEX 05T304	489.97	31013
KUB-T.4D.320.R.05-K32	V45 93202	32	32	39	217	128	157	1,28	WOEX 05T304	489.97	32013
KUB-T.4D.330.R.05-K32	V45 93302	33	32	39	221	132	161	1,28	WOEX 05T304	489.97	33013
KUB-T.4D.340.R.05-K32	V45 93402	34	32	39	225	136	165	1,28	WOEX 05T304	489.97	34013
KUB-T.4D.350.R.05-K32	V45 93502	35	32	39	229	140	169	1,28	WOEX 05T304	489.97	35013


Key D

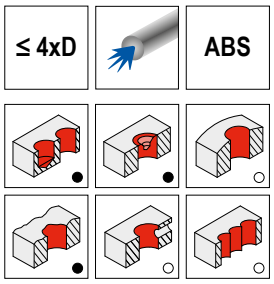

Clamping screw

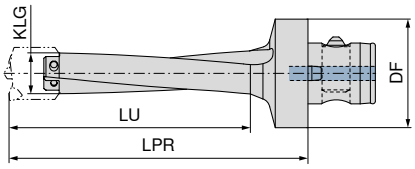
Spare parts DC		80 950 ... £ Y7			10 950 ... £ W7/6B	
14 - 19	T06 - IP	18.22	123	M2,0x4,3 - 06IP	2.86	10000
20 - 24	T06 - IP	18.22	123	M2,2x5,5 - 06IP	2.86	10700
25 - 35	T08 - IP	17.97	125	M2,5x7,2 - 08IP	2.86	10500

Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Centron – basic element

▲ KLG = Coupling Size

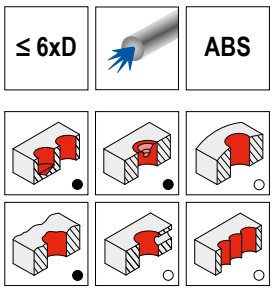


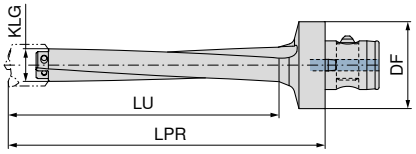




10 864 ...

Designation	KOMET no.	DF mm	LU mm	LPR mm	KLG	£ 2B/6#	
KUB-C.GH.4D.190-ABS50	V47 20201	50	113	145	19	487.43	19095
KUB-C.GH.4D.250-ABS50	V47 20261	50	130	160	25	487.43	25095
KUB-C.GH.4D.320-ABS50	V47 20331	50	160	195	32	487.43	32095
KUB-C.GH.4D.385-ABS63	V47 20401	63	185	235	38,5	729.24	38596
KUB-C.GH.4D.445-ABS80	V47 20461	80	215	280	44,5	729.24	44598
KUB-C.GH.4D.535-ABS80	V47 20551	80	260	325	53,5	905.58	53598
KUB-C.GH.4D.635-ABS80	V47 20651	80	295	375	63,5	1,013.84	63598
KUB-C.GH.4D.705-ABS100	V47 20721	100	325	405	70,5	1,080.56	70591

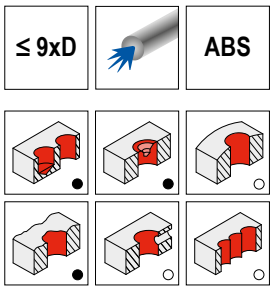


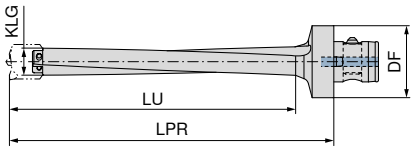




10 866 ...

Designation	KOMET no.	DF mm	LU mm	LPR mm	KLG	£ 2B/6#	
KUB-C.GH.6D.190-ABS50	V47 40201	50	150	185	19	580.54	19095
KUB-C.GH.6D.250-ABS50	V47 40261	50	175	210	25	580.54	25095
KUB-C.GH.6D.320-ABS50	V47 40331	50	215	255	32	580.54	32095
KUB-C.GH.6D.385-ABS63	V47 40401	63	260	310	38,5	797.19	38596
KUB-C.GH.6D.445-ABS80	V47 40461	80	310	375	44,5	797.19	44598
KUB-C.GH.6D.535-ABS80	V47 40551	80	370	435	53,5	1,080.56	53598
KUB-C.GH.6D.635-ABS80	V47 40651	80	420	500	63,5	1,138.56	63598
KUB-C.GH.6D.705-ABS100	V47 40721	100	460	540	70,5	1,210.99	70591







10 869 ...

Designation	KOMET no.	DF mm	LU mm	LPR mm	KLG	£ 2B/6#	
KUB-C.GH.9D.190-ABS50	V47 60201	50	200	235	19	641.10	19095
KUB-C.GH.9D.250-ABS50	V47 60261	50	230	260	25	641.10	25095
KUB-C.GH.9D.320-ABS50	V47 60331	50	290	330	32	641.10	32095
KUB-C.GH.9D.385-ABS63	V47 60401	63	340	390	38,5	867.77	38596
KUB-C.GH.9D.445-ABS80	V47 60461	80	415	480	44,5	867.77	44598
KUB-C.GH.9D.535-ABS80	V47 60551	80	495	560	53,5	1,202.76	53598
KUB-C.GH.9D.635-ABS80	V47 60651	80	560	640	63,5	1,299.39	63598
KUB-C.GH.9D.705-ABS100	V47 60721	100	610	690	70,5	1,363.57	70591

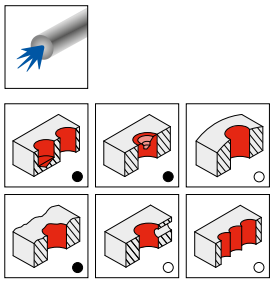
For correct assembly, please observe the operating instructions provided.

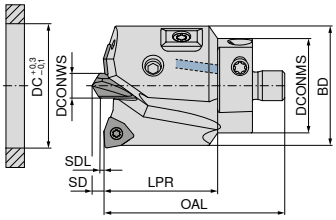
KUB Centron – drill bit Ø 20–64 mm

▲ The pre-assembled drill bit is ready to use
▲ The indexable inserts and centring tip must be professionally assembled
▲ Tightening torque refers to the clamping screws of the indexable inserts
▲ KLG = Coupling size

Scope of supply:

Drill bit incl. screws, guide pads and shim set
Order centring tip and indexable inserts separately







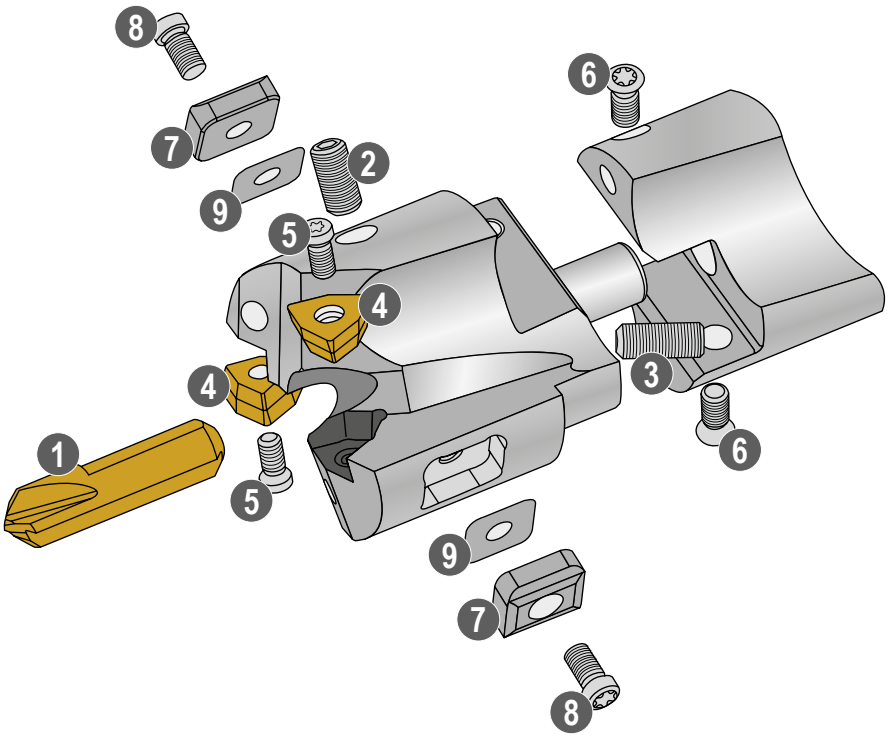
10 860 ...

Designation	KOMET no.	DC mm	OAL mm	LPR mm	SD mm	BD mm	SDL mm	DCONMS mm	DCONWS mm	KLG	torque moment Nm	Insert	£ 2B/6#	
KUB-C.BK.200.R.03-19	V46 50201	**20**	36.5	23	2.25	19.0	1.00	19.0	5	**19**	0,62	WOEX 030204	428.46	**20000**
KUB-C.BK.210.R.03-19	V46 50211	**21**	36.5	23	2.25	20.0	1.00	19.0	5	**19**	0,62	WOEX 030204	428.46	**21000**
KUB-C.BK.220.R.03-19	V46 50221	**22**	36.5	23	2.25	21.0	1.00	19.0	5	**19**	0,62	WOEX 030204	428.46	**22000**
KUB-C.BK.230.R.03-19	V46 50231	**23**	36.5	23	2.25	22.0	1.00	19.0	5	**19**	0,62	WOEX 030204	428.46	**23000**
KUB-C.BK.240.R.03-19	V46 50241	**24**	36.5	23	2.25	23.0	1.00	19.0	5	**19**	0,62	WOEX 030204	428.46	**24000**
KUB-C.BK.250.R.03-19	V46 50251	**25**	36.5	23	2.25	24.0	1.00	19.0	5	**19**	0,62	WOEX 030204	428.46	**25000**
KUB-C.BK.260.R.04-25	V46 50260	**26**	38.0	23	2.65	25.0	1.10	25.0	6	**25**	1,01	WOEX 040304	489.97	**26000**
KUB-C.BK.270.R.04-25	V46 50270	**27**	38.0	23	2.65	26.0	1.10	25.0	6	**25**	1,01	WOEX 040304	489.97	**27000**
KUB-C.BK.280.R.04-25	V46 50280	**28**	38.0	23	2.65	27.0	1.10	25.0	6	**25**	1,01	WOEX 040304	489.97	**28000**
KUB-C.BK.290.R.04-25	V46 50290	**29**	38.0	23	2.65	28.0	1.10	25.0	6	**25**	1,01	WOEX 040304	489.97	**29000**
KUB-C.BK.300.R.04-25	V46 50300	**30**	38.0	23	2.65	29.0	1.10	25.0	6	**25**	1,01	WOEX 040304	489.97	**30000**
KUB-C.BK.310.R.04-25	V46 50310	**31**	38.0	23	2.65	30.0	1.10	25.0	6	**25**	1,01	WOEX 040304	489.97	**31000**
KUB-C.BK.320.R.04-25	V46 50320	**32**	38.0	23	2.65	31.0	1.10	25.0	6	**25**	1,01	WOEX 040304	489.97	**32000**
KUB-C.BK.330.R.05-32	V46 50330	**33**	39.2	23	2.65	32.0	1.10	32.0	6	**32**	1,28	WOEX 05T304	634.80	**33000**
KUB-C.BK.340.R.05-32	V46 50340	**34**	39.2	23	2.65	33.0	1.10	32.0	6	**32**	1,28	WOEX 05T304	634.80	**34000**
KUB-C.BK.350.R.05-32	V46 50350	**35**	39.2	23	2.65	34.0	1.10	32.0	6	**32**	1,28	WOEX 05T304	634.80	**35000**
KUB-C.BK.360.R.05-32	V46 50360	**36**	39.2	23	2.65	35.0	1.10	32.0	6	**32**	1,28	WOEX 05T304	634.80	**36000**
KUB-C.BK.370.R.05-32	V46 50370	**37**	39.2	23	2.65	36.0	1.10	32.0	6	**32**	1,28	WOEX 05T304	634.80	**37000**
KUB-C.BK.380.R.05-32	V46 50380	**38**	39.2	23	2.65	37.0	1.10	32.0	6	**32**	1,28	WOEX 05T304	634.80	**38000**
KUB-C.BK.390.R.05-32	V46 50390	**39**	39.2	23	2.65	38.0	1.10	32.0	6	**32**	1,28	WOEX 05T304	634.80	**39000**
KUB-C.BK.400.R.05-38,5	V46 50400	**40**	43.1	25	3.38	38.5	1.25	38.5	8	**38,5**	1,28	WOEX 05T304	652.37	**40000**
KUB-C.BK.410.R.05-38,5	V46 50410	**41**	43.1	25	3.38	39.5	1.25	38.5	8	**38,5**	1,28	WOEX 05T304	652.37	**41000**
KUB-C.BK.420.R.05-38,5	V46 50420	**42**	43.1	25	3.38	40.5	1.09	38.5	8	**38,5**	1,28	WOEX 05T304	652.37	**42000**
KUB-C.BK.430.R.05-38,5	V46 50430	**43**	43.1	25	3.38	41.5	1.09	38.5	8	**38,5**	1,28	WOEX 05T304	652.37	**43000**
KUB-C.BK.440.R.05-38,5	V46 50440	**44**	43.1	25	3.38	42.5	1.25	38.5	8	**38,5**	1,28	WOEX 05T304	652.37	**44000**
KUB-C.BK.450.R.05-38,5	V46 50450	**45**	43.1	25	3.38	43.5	1.25	38.5	8	**38,5**	1,28	WOEX 05T304	652.37	**45000**
KUB-C.BK.460.R.06-44,5	V46 50460	**46**	47.0	25	3.86	44.5	1.25	44.5	10	**44,5**	2,8	WOEX 06T304	698.99	**46000**
KUB-C.BK.470.R.06-44,5	V46 50470	**47**	47.0	25	3.86	45.5	1.25	44.5	10	**44,5**	2,8	WOEX 06T304	698.99	**47000**
KUB-C.BK.480.R.06-44,5	V46 50480	**48**	47.0	25	3.86	46.5	1.25	44.5	10	**44,5**	2,8	WOEX 06T304	698.99	**48000**
KUB-C.BK.490.R.06-44,5	V46 50490	**49**	47.0	25	3.86	47.5	1.25	44.5	10	**44,5**	2,8	WOEX 06T304	698.99	**49000**
KUB-C.BK.500.R.06-44,5	V46 50500	**50**	47.0	25	3.86	48.5	1.25	44.5	10	**44,5**	2,8	WOEX 06T304	698.99	**50000**
KUB-C.BK.510.R.06-44,5	V46 50510	**51**	47.0	25	3.86	49.5	1.25	44.5	10	**44,5**	2,8	WOEX 06T304	698.99	**51000**
KUB-C.BK.520.R.06-44,5	V46 50520	**52**	47.0	25	3.86	50.5	1.25	44.5	10	**44,5**	2,8	WOEX 06T304	698.99	**52000**
KUB-C.BK.530.R.06-44,5	V46 50530	**53**	47.0	25	3.86	51.5	1.25	44.5	10	**44,5**	2,8	WOEX 06T304	724.18	**53000**
KUB-C.BK.540.R.06-44,5	V46 50540	**54**	47.0	25	3.86	52.5	1.25	44.5	10	**44,5**	2,8	WOEX 06T304	724.18	**54000**
KUB-C.BK.550.R.08-53,5	V46 50550	**55**	52.0	30	3.86	53.5	1.25	53.5	10	**53,5**	6,25	WOEX 080404	749.36	**55000**
KUB-C.BK.560.R.08-53,5	V46 50560	**56**	52.0	30	3.86	54.5	1.25	53.5	10	**53,5**	6,25	WOEX 080404	749.36	**56000**
KUB-C.BK.570.R.08-53,5	V46 50570	**57**	52.0	30	3.86	55.5	1.25	53.5	10	**53,5**	6,25	WOEX 080404	749.36	**57000**
KUB-C.BK.580.R.08-53,5	V46 50580	**58**	52.0	30	3.86	56.5	1.25	53.5	10	**53,5**	6,25	WOEX 080404	749.36	**58000**
KUB-C.BK.590.R.08-53,5	V46 50590	**59**	52.0	30	3.86	57.5	1.25	53.5	10	**53,5**	6,25	WOEX 080404	749.36	**59000**
KUB-C.BK.600.R.08-53,5	V46 50600	**60**	52.0	30	3.86	58.5	1.25	53.5	10	**53,5**	6,25	WOEX 080404	749.36	**60000**
KUB-C.BK.610.R.08-53,5	V46 50610	**61**	52.0	30	3.86	59.5	1.25	53.5	10	**53,5**	6,25	WOEX 080404	749.36	**61000**
KUB-C.BK.620.R.08-53,5	V46 50620	**62**	52.0	30	3.86	60.5	1.25	53.5	10	**53,5**	6,25	WOEX 080404	749.36	**62000**
KUB-C.BK.630.R.08-53,5	V46 50630	**63**	52.0	30	3.86	61.5	1.25	53.5	10	**53,5**	6,25	WOEX 080404	749.36	**63000**
KUB-C.BK.640.R.08-53,5	V46 50640	**64**	52.0	30	3.86	62.5	1.25	53.5	10	**53,5**	6,25	WOEX 080404	749.36	**64000**

		Guide pad clamping screw			Indexable insert clamping screw		Guide pad		Shim set	
		10 950 ...			10 950 ...		10 950 ...		10 950 ...	
Spare parts DC		£ W7/6B			£ W7/6B		£ W7/6B		£ W7/6B	
20	M2,5x4,2 - 8IP - 1,28Nm	3.46	11900	M2,0x4,3 - 06IP	2.86	10000	87.18	14600	26.96	15200
21 - 22	M2,5x4,2 - 8IP - 1,28Nm	3.46	11900	M2,0x4,3 - 06IP	2.86	10000	87.18	14600	26.96	15200
23 - 25	M2,5x4,5 - 8IP - 1,28Nm	3.98	11700	M2,0x4,3 - 06IP	2.86	10000	74.37	14700	26.96	15200
26 - 29	M2,5x4,5 - 8IP - 1,28Nm	3.98	11700	M2,2x5,5 - 06IP	2.86	10700	74.37	14700	26.96	15200
30 - 32	M2,5x4,5 - 8IP - 1,28Nm	3.98	11700	M2,2x5,5 - 06IP	2.86	10700	74.37	14800	26.96	15200
33 - 36	M2,5x4,5 - 8IP - 1,28Nm	3.98	11700	M2,5x7,2 - 08IP	2.86	10500	74.37	14800	26.96	15200
37 - 39	M2,5x4,5 - 8IP - 1,28Nm	3.98	11700	M2,5x7,2 - 08IP	2.86	10500	74.37	14900	26.96	15200
40 - 45	M2,5x4,5 - 8IP - 1,28Nm	3.98	11700	M2,5x7,2 - 08IP	2.86	10500	74.37	14900	26.96	15200
46 - 54	M3,5x5,0 - 8IP - 2,25Nm	3.46	11800	M3,5x7,3 - 10IP	2.86	10600	90.99	15000	26.96	15300
55 - 64	M3,5x5,0 - 8IP - 2,25Nm	3.46	11800	M4,5x9 - 15IP	3.07	12700	90.99	15100	26.96	15300

		Basic element clamping screw			Centring tip clamping screw	
		10 950 ...			10 950 ...	
Spare parts DC		£ W7/6B			£ W7/6B	
20	M2,5x6,4 - 08IP - 1,28Nm	3.46	12400	M4x6 - SW2 - 1,5Nm	3.98	12800
21 - 22	M2,5x6,4 - 08IP - 1,28Nm	3.46	12400	M4x8 - SW2 - 1,5Nm	3.98	12900
23 - 25	M2,5x6,4 - 08IP - 1,28Nm	3.46	12400	M4x8 - SW2 - 1,5Nm	3.98	12900
26 - 29	M3x7,4 - 08IP - 2,25Nm	3.46	12500	M5x10 - SW2,5 - 2,5Nm	3.98	13000
30 - 32	M3x7,4 - 08IP - 2,25Nm	3.46	12500	M5x10 - SW2,5 - 2,5Nm	3.98	13000
33 - 36	M4x8,9 - 15IP - 4,3Nm	3.46	12000	M5x12 - SW2,5 - 2,5Nm	3.98	13100
37 - 39	M4x8,9 - 15IP - 4,3Nm	3.46	12000	M5x12 - SW2,5 - 2,5Nm	3.98	13100
40 - 45	M4,5x10,5 - 20IP - 6,25Nm	3.46	12600	M6x12 - SW3 - 5Nm	3.98	13200
46 - 54	M5x11,5 - 20IP - 6,25Nm	3.46	12100	M8x16 - SW4 - 8Nm	3.98	13300
55 - 64	M5,5x14 - 20IP - 6,25Nm	3.46	12200	M8x16 - SW4 - 8Nm	3.98	13300

Drill bit Ø 20–64 mm exploded view



1. Centring tip
2. Clamping screw for centring tip
3. Adjusting screw for centring tip
4. Indexable Insert
5. Clamping screw for indexable insert
6. Clamping screw for basic element
7. Guide pad
8. Clamping screw for guide pad
9. Shim set for aligning the guide pads

For correct assembly, please observe the operating instructions provided.

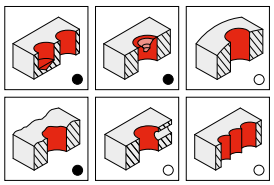
KUB Centron – drill bit Ø 65–81 mm

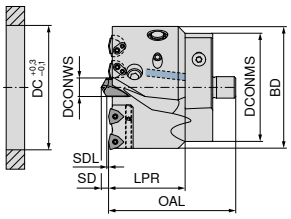
- ▲ The pre-assembled drill bit is ready to use
- ▲ The indexable inserts and centring tip must be professionally assembled
- ▲ Tightening torque refers to the clamping screws of the indexable inserts
- ▲ Adjustable diameter of outer indexable insert seat
- ▲ KLG = Coupling size

Scope of supply:

Drill bit incl. screws, indexable insert, carbide bolt, key, grub screw and copper disc
Order centring tip and indexable inserts separately









10 860 ...

Designation	KOMET no.	DC	OAL	LPR	SD	BD	SDL	DCONMS	DCONWS	KLG	torque moment	Insert	£ 2B/6#	
		mm	mm	mm	mm	mm	mm	mm	mm		Nm			
KUB-C.BK.650.R.05-63,5	V46 50650	**65**	63.0	35	4.67	63.5	1.45	63.5	12	**63,5**	1,28	WOEX 05T304	886.69	**65000**
KUB-C.BK.660.R.05-63,5	V46 50660	**66**	63.0	35	4.67	64.5	1.45	63.5	12	**63,5**	1,28	WOEX 05T304	886.69	**66000**
KUB-C.BK.670.R.05-63,5	V46 50670	**67**	63.0	35	4.67	65.5	1.45	63.5	12	**63,5**	1,28	WOEX 05T304	886.69	**67000**
KUB-C.BK.680.R.05-63,5	V46 50680	**68**	63.0	35	4.67	66.5	1.45	63.5	12	**63,5**	1,28	WOEX 05T304	886.69	**68000**
KUB-C.BK.690.R.05-63,5	V46 50690	**69**	63.0	35	4.67	67.5	1.45	63.5	12	**63,5**	1,28	WOEX 05T304	886.69	**69000**
KUB-C.BK.700.R.05-63,5	V46 50700	**70**	63.0	35	4.67	68.5	1.45	63.5	12	**63,5**	1,28	WOEX 05T304	886.69	**70000**
KUB-C.BK.710.R.05-63,5	V46 50710	**71**	63.0	35	4.67	69.5	1.45	63.5	12	**63,5**	1,28	WOEX 05T304	886.69	**71000**
KUB-C.BK.720.R.05-70,5	V46 50720	**72**	80.5	50	4.67	70.5	1.45	70.5	12	**70,5**	1,28	WOEX 05T304	1,040.25	**72000**
KUB-C.BK.730.R.05-70,5	V46 50730	**73**	80.5	50	4.67	71.5	1.45	70.5	12	**70,5**	1,28	WOEX 05T304	1,040.25	**73000**
KUB-C.BK.740.R.05-70,5	V46 50740	**74**	80.5	50	4.67	72.5	1.45	70.5	12	**70,5**	1,28	WOEX 05T304	1,040.25	**74000**
KUB-C.BK.750.R.05-70,5	V46 50750	**75**	80.5	50	4.67	73.5	1.45	70.5	12	**70,5**	1,28	WOEX 05T304	1,040.25	**75000**
KUB-C.BK.760.R.05-70,5	V46 50760	**76**	80.5	50	4.67	74.5	1.45	70.5	12	**70,5**	1,28	WOEX 05T304	1,040.25	**76000**
KUB-C.BK.770.R.05-70,5	V46 50770	**77**	80.5	50	4.67	75.5	1.45	70.5	12	**70,5**	1,28	WOEX 05T304	1,040.25	**77000**
KUB-C.BK.780.R.05-70,5	V46 50780	**78**	80.5	50	4.67	76.5	1.45	70.5	12	**70,5**	1,28	WOEX 05T304	1,040.25	**78000**
KUB-C.BK.790.R.05-70,5	V46 50790	**79**	80.5	50	4.67	77.5	1.45	70.5	12	**70,5**	1,28	WOEX 05T304	1,040.25	**79000**
KUB-C.BK.800.R.05-70,5	V46 50800	**80**	80.5	50	4.67	78.5	1.45	70.5	12	**70,5**	1,28	WOEX 05T304	1,040.25	**80000**
KUB-C.BK.810.R.05-70,5	V46 50810	**81**	80.5	50	4.67	79.5	1.45	70.5	12	**70,5**	1,28	WOEX 05T304	1,040.25	**81000**


Grub screw


Copper disc


Indexable insert fixing screw


Indexable insert fixing screw

10 950 ...

Spare parts DC		£ W7/6B			£ W7/6B			£ W7/6B			£ W7/6B	
65 - 71	M6x8 - SW3	1.28	**11300**	Ø4,5x1,5	2.57	**11400**	M4,5x11,5 - T15	3.46	**13500**			
72 - 75	M6x8 - SW3	1.28	**11300**	Ø4,5x1,5	2.57	**11400**	M5x12 - SW2,5	1.28	**11000**	M2,5x6 - 08IP - 1,28Nm	3.46	**11600**
76 - 78	M6x8 - SW3	1.28	**11300**	Ø4,5x1,5	2.57	**11400**	M5x12 - SW2,5	1.28	**11000**	M2,5x6 - 08IP - 1,28Nm	3.46	**11600**
79 - 81	M6x8 - SW3	1.28	**11300**	Ø4,5x1,5	2.57	**11400**	M5x12 - SW2,5	1.28	**11000**	M2,5x6 - 08IP - 1,28Nm	3.46	**11600**


Indexable insert seat


Indexable insert seat


Indexable insert seat


Cylindrical pin


Indexable insert adjusting screw


Basic element clamping screw

10 950 ...

Spare parts DC	£ 2B/6#		£ 2B/6#		£ 2B/6#		£ W7/6B			£ W7/6B			£ W7/6B	
65 - 71	198.96	**13800**						M4x8 - SW2	1.28	**11100**	M6x16 - 20IP - 6,25Nm	3.56	**12300**	
72 - 75	317.39	**13900**	88.53	**13700**	88.53	**13600**	1.42	**11500**	M4x10 - SW2	1.28	**11200**	M6x16 - 20IP - 6,25Nm	3.56	**12300**
76 - 78	317.39	**14000**	88.53	**13700**	88.53	**13600**	1.42	**11500**	M4x10 - SW2	1.28	**11200**	M6x16 - 20IP - 6,25Nm	3.56	**12300**
79 - 81	317.39	**14100**	88.53	**13700**	88.53	**13600**	1.42	**11500**	M4x10 - SW2	1.28	**11200**	M6x16 - 20IP - 6,25Nm	3.56	**12300**


Carbide bolt key


Carbide bolt

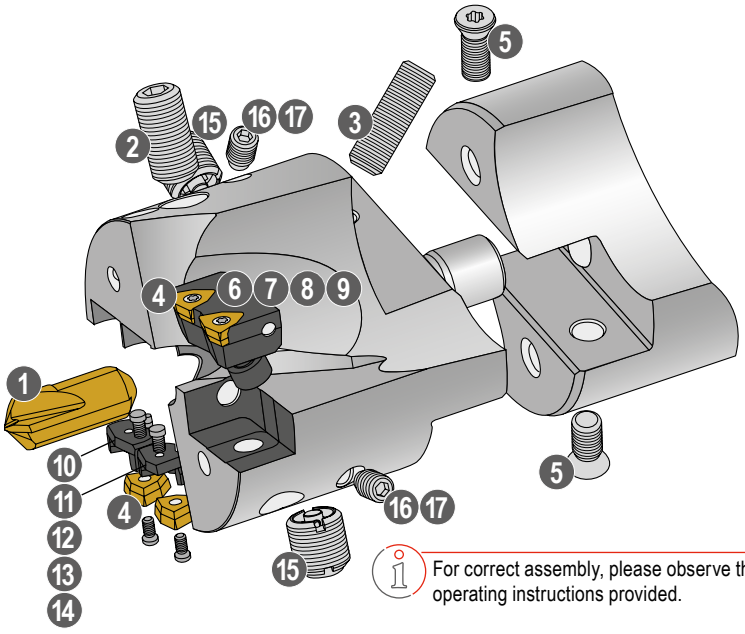

Indexable insert clamping screw


Centring tip clamping screw

10 950 ...

Spare parts DC		£ W7/6B			£ W7/6B			£ W7/6B			£ W7/6B	
65 - 71		37.19	**15500**	M12x1	170.70	**15400**	M2,5x7,2 - 08IP	2.86	**10500**	M10x20 - SW5 - 16Nm	3.98	**13400**
72 - 75		37.19	**15500**	M12x1	170.70	**15400**	M2,5x7,2 - 08IP	2.86	**10500**	M10x20 - SW5 - 16Nm	3.98	**13400**
76 - 78		37.19	**15500**	M12x1	170.70	**15400**	M2,5x7,2 - 08IP	2.86	**10500**	M10x20 - SW5 - 16Nm	3.98	**13400**
79 - 81		37.19	**15500**	M12x1	170.70	**15400**	M2,5x7,2 - 08IP	2.86	**10500**	M10x20 - SW5 - 16Nm	3.98	**13400**

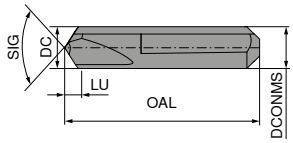
Drill bit Ø 65–81 mm exploded view



1 Centring tip
2 Clamping screw for centring tip
3 Adjusting screw for centring tip
4 Indexable Insert
5 Clamping screw for basic element
6 Indexable insert seat
7 Fixing screw for indexable insert
8 Adjusting screw for indexable insert
9 Clamping screw for indexable insert
10 Indexable insert seat
11 Indexable insert seat
12 Fixing screw for indexable insert
13 Cylindrical pin for indexable insert
14 Clamping screw for indexable insert
15 Carbide bolt
16 Grub screw
17 Copper disc

For correct assembly, please observe the operating instructions provided.

KUB Centron – centring tip



	ZP	ZP	ZP
	TiAlN/TiN	TiN	TiAlN
	SIG 120° Solid carbide	SIG 120° HSS	SIG 120° HSS
	10 863 ...	**10 862 ...**	**10 862 ...**

DC mm	KOMET no.	OAL mm	LU mm	DCONMS mm	£ T2/9D		£ T2/9D		£ T2/9D	
5	V95 10012.0089	23.0	2.25	5			47.15	00500		
5	V95 10012.0090	23.0	2.25	5					47.15	10500
5	V95 10310.8450	23.0	2.25	5	108.85	20500				
6	V95 10022.0089	23.0	2.65	6			47.15	00600		
6	V95 10022.0090	23.0	2.65	6					47.15	10600
6	V95 10320.8450	23.0	2.65	6	108.85	20600				
8	V95 10032.0089	27.0	3.38	8			51.46	00800		
8	V95 10032.0090	27.0	3.38	8					51.46	10800
8	V95 10330.8450	27.0	3.38	8	134.27	20800				
10	V95 10042.0089	28.0	3.86	10			58.01	01000		
10	V95 10042.0090	28.0	3.86	10					58.01	11000
10	V95 10340.8450	28.0	3.86	10	145.88	21000				
12	V95 10050.0089	30.8	4.67	12			73.44	01200		
12	V95 10050.0090	30.8	4.67	12					73.44	11200
P					●		●			
M					●					●
K					●					●
N					●		●			
S					○					●
H										
O					○		○			

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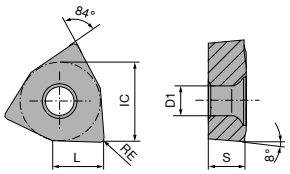
▲ The cutting data of the KUB Centron depends on the centring tip and not on the indexable inserts. Please select the cutting data of the centring tip.
▲ Article No. 10 863 ... is only suitable up to drilling depth 6xD.

WOEX

Designation	L	IC	S	D1
	mm	mm	mm	mm
WOEX 0302..	3.2	5.00	2.30	2.30
WOEX 0403..	4.1	6.35	3.18	2.55
WOEX 05T3..	5.3	8.00	3.80	2.85
WOEX 06T3..	6.6	10.00	3.80	4.05
WOEX 0804..	7.9	12.00	4.80	4.90
WOEX 1005..	9.9	15.00	5.30	4.90
WOEX 1206..	11.6	17.60	6.00	5.95



WOEX

	-01 BK8425	-01 BK7935	-01 BK6115	-01 BK7615	-01 BK62
					
	WOEX	WOEX	WOEX	WOEX	WOEX
	10 821 ...	10 821 ...	10 821 ...	10 821 ...	10 821 ...
ISO	KOMET no.	RE mm	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#
030204	W29 10010.046115	0.4			19.90 40301		
030204	W29 10010.0462	0.4					14.30 20301
030204	W29 10010.047615	0.4				22.92 05301	
030204	W29 10010.047935	0.4		14.50 50301			
030204	W29 10010.048425	0.4	13.74 30301				
040304	W29 18010.046115	0.4			20.03 40401		
040304	W29 18010.0462	0.4					15.02 20401
040304	W29 18010.047615	0.4				23.05 05401	
040304	W29 18010.047935	0.4		15.39 50401			
040304	W29 18010.048425	0.4	14.60 30401				
05T304	W29 24010.046115	0.4			21.65 40501		
05T304	W29 24010.0462	0.4					15.18 20501
05T304	W29 24010.047615	0.4				24.05 05501	
05T304	W29 24010.047935	0.4		15.62 50501			
05T304	W29 24010.048425	0.4	14.98 30501				
06T304	W29 34010.046115	0.4			21.40 40601		
06T304	W29 34010.0462	0.4					17.15 20601
06T304	W29 34010.047615	0.4				25.83 05601	
06T304	W29 34010.047935	0.4		17.74 50601			
06T304	W29 34010.048425	0.4	16.74 30601				
080404	W29 42010.046115	0.4			26.43 40801		
080404	W29 42010.0462	0.4					21.40 20801
080404	W29 42010.047615	0.4				31.49 05801	
080404	W29 42010.047935	0.4		22.35 50801			
080404	W29 42010.048425	0.4	21.15 30801				
100504	W29 50010.046115	0.4			31.24 41001		
100504	W29 50010.0462	0.4					29.85 21001
100504	W29 50010.047615	0.4				35.15 06001	
100504	W29 50010.047935	0.4		30.42 51001			
100504	W29 50010.048425	0.4	28.84 31001				
120608	W29 58010.086115	0.8			39.16 41201		
120608	W29 58010.0862	0.8					38.16 28201
120608	W29 58010.087615	0.8				43.34 08201	
120608	W29 58010.087935	0.8		35.40 53201			
120608	W29 58010.088425	0.8	33.51 31201				
P			●	●	●		
M			●	●	●		
K			●	●	●	●	●
N			○	○			
S			●	●			
H			○		○		○
O							

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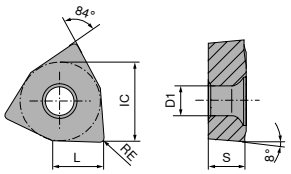
BK6115 -01 / BK8425 -03 are exclusively recommended for use on the peripheral cutting edge!

Further indexable inserts can be found in our online shop
cuttingtools.ceratizit.com

WOEX

Designation	L	IC	S	D1
	mm	mm	mm	mm
WOEX 0302..	3.2	5.00	2.30	2.30
WOEX 0403..	4.1	6.35	3.18	2.55
WOEX 05T3..	5.3	8.00	3.80	2.85
WOEX 06T3..	6.6	10.00	3.80	4.05
WOEX 0804..	7.9	12.00	4.80	4.90
WOEX 1005..	9.9	15.00	5.30	4.90
WOEX 1206..	11.6	17.60	6.00	5.95



3

WOEX

			-03 BK8425	-11 BK77	-11 BK7710	-13 BK8425	-13 BK79
							
			WOEX	WOEX	WOEX	WOEX	WOEX
			10 821 ...	10 821 ...	10 821 ...	10 821 ...	10 821 ...
ISO	KOMET no.	RE mm	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#
030204	W29 10110.047710	0.4			14.98 90311		
030204	W29 10130.0479	0.4					16.62 15313
030204	W29 10130.048425	0.4				16.62 30313	
030204	W29 10110.0477	0.4		14.30 80311			
030204	W29 10030.048425	0.4	14.11 30303				
040304	W29 18110.047710	0.4			15.87 90411		
040304	W29 18130.0479	0.4					16.74 15413
040304	W29 18130.048425	0.4				16.74 30413	
040304	W29 18110.0477	0.4		15.02 80411			
040304	W29 18030.048425	0.4	14.98 30403				
05T304	W29 24110.047710	0.4			16.00 90511		
05T304	W29 24130.0479	0.4					17.11 15513
05T304	W29 24130.048425	0.4				17.11 30513	
05T304	W29 24110.0477	0.4		15.18 80511			
05T304	W29 24030.048425	0.4	21.15 30503				
06T304	W29 34110.047710	0.4			18.01 90611		
06T304	W29 34130.0479	0.4					18.89 15613
06T304	W29 34130.048425	0.4				18.89 30613	
06T304	W29 34110.0477	0.4		17.00 80611			
06T304	W29 34030.048425	0.4	22.17 30603				
080404	W29 42110.047710	0.4			22.92 90811		
080404	W29 42130.0479	0.4					24.18 15813
080404	W29 42130.048425	0.4				23.93 30813	
080404	W29 42110.0477	0.4		21.78 80811			
080404	W29 42030.048425	0.4	28.08 30803				
100504	W29 50110.047710	0.4			31.49 91011		
100504	W29 50130.0479	0.4					33.25 16013
100504	W29 50130.048425	0.4				33.25 31013	
100504	W29 50110.0477	0.4		30.11 81011			
100504	W29 50030.048425	0.4	28.08 31003				
120608	W29 58130.088425	0.8				38.41 38213	
120608	W29 58130.0879	0.8					38.41 16213
120608	W29 58030.088425	0.8	31.11 33203				
P			●			●	●
M			●			●	●
K			●			●	●
N			○		●	○	○
S			●	●	○	●	
H			○	○	○	○	
O				○	○		

→ v_c Page 68

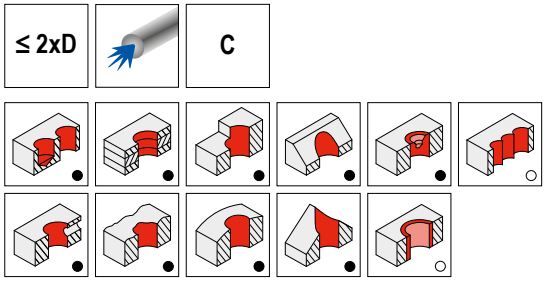
BK6115 -01 / BK8425 -03 are exclusively recommended for use on the peripheral cutting edge!

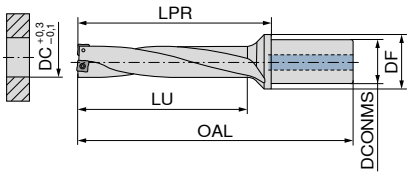
Further information on grades and chip breakers can be found on **page 85 + 86**

MaxiDrill 900 – Indexable insert drill

Scope of supply:

Indexable Insert Drill including clamping screws and key







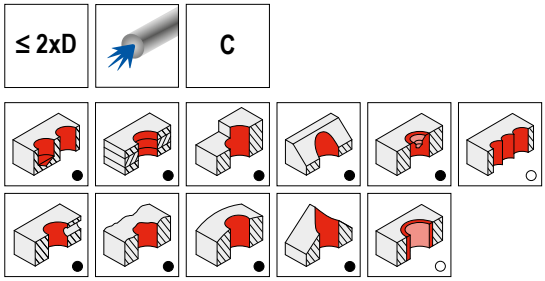
10 852 ...

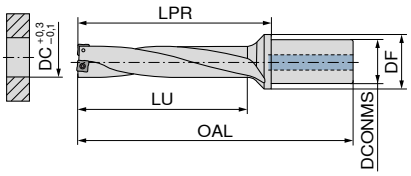
Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	£ 2B/41	
MD900.2D.120.R.03-C20	**12**	20	28	90	24	40	0,4	SONT 031804	295.24	**120**
MD900.2D.125.R.03-C20	**12.5**	20	28	91	25	41	0,4	SONT 031804	295.24	**125**
MD900.2D.130.R.03-C20	**13**	20	28	92	26	42	0,4	SONT 031804	295.24	**130**
MD900.2D.135.R.03-C20	**13.5**	20	28	93	27	43	0,4	SONT 031804	295.24	**135**
MD900.2D.140.R.04-C20	**14**	20	30	96	28	46	0,7	SONT 042105	314.26	**140**
MD900.2D.145.R.04-C20	**14.5**	20	30	97	29	47	0,7	SONT 042105	314.26	**145**
MD900.2D.150.R.04-C20	**15**	20	30	98	30	48	0,7	SONT 042105	314.26	**150**
MD900.2D.155.R.04-C20	**15.5**	20	30	99	31	49	0,7	SONT 042105	314.26	**155**
MD900.2D.160.R.05-C20	**16**	20	30	100	32	50	0,7	SONT 052306	314.26	**160**
MD900.2D.165.R.05-C20	**16.5**	20	30	101	33	51	0,7	SONT 052306	314.26	**165**
MD900.2D.170.R.05-C20	**17**	20	30	102	34	52	0,7	SONT 052306	334.46	**170**
MD900.2D.175.R.05-C20	**17.5**	20	30	103	35	53	0,7	SONT 052306	334.46	**175**
MD900.2D.180.R.06-C25	**18**	25	32	111	36	55	1	SONT 062506	334.46	**180**
MD900.2D.185.R.06-C25	**18.5**	25	32	112	37	56	1	SONT 062506	334.46	**185**
MD900.2D.190.R.06-C25	**19**	25	32	113	38	57	1	SONT 062506	359.43	**190**
MD900.2D.195.R.06-C25	**19.5**	25	32	114	39	58	1	SONT 062506	359.43	**195**
MD900.2D.200.R.06-C25	**20**	25	32	115	40	59	1	SONT 062506	359.43	**200**
MD900.2D.205.R.06-C25	**20.5**	25	32	116	41	60	1	SONT 062506	359.43	**205**
MD900.2D.210.R.07-C25	**21**	25	32	118	42	62	1	SONT 072907	359.43	**210**
MD900.2D.220.R.07-C25	**22**	25	32	120	44	64	1	SONT 072907	359.43	**220**
MD900.2D.230.R.07-C25	**23**	25	32	122	46	66	1	SONT 072907	370.67	**230**
MD900.2D.240.R.08-C32	**24**	32	40	132	48	72	1,2	SONT 083308	370.67	**240**
MD900.2D.250.R.08-C32	**25**	32	40	134	50	74	1,2	SONT 083308	370.67	**250**
MD900.2D.260.R.08-C32	**26**	32	40	136	52	76	1,2	SONT 083308	410.39	**260**
MD900.2D.270.R.08-C32	**27**	32	40	138	54	78	1,2	SONT 083308	410.39	**270**
MD900.2D.280.R.09-C32	**28**	32	40	140	56	80	2,2	SONT 093808	410.39	**280**
MD900.2D.290.R.09-C32	**29**	32	40	142	58	82	2,2	SONT 093808	410.39	**290**
MD900.2D.300.R.09-C32	**30**	32	40	144	60	84	2,2	SONT 093808	410.39	**300**
MD900.2D.310.R.09-C32	**31**	32	40	146	62	86	2,2	SONT 093808	445.15	**310**
MD900.2D.320.R.09-C32	**32**	32	40	148	64	88	2,2	SONT 093808	445.15	**320**
MD900.2D.330.R.10-C40	**33**	40	50	163	66	93	3,2	SONT 104408	445.15	**330**
MD900.2D.340.R.10-C40	**34**	40	50	165	68	95	3,2	SONT 104408	445.15	**340**
MD900.2D.350.R.10-C40	**35**	40	50	167	70	97	3,2	SONT 104408	455.21	**350**
MD900.2D.360.R.10-C40	**36**	40	50	169	72	99	3,2	SONT 104408	455.21	**360**
MD900.2D.370.R.12-C40	**37**	40	56	174	74	104	3,2	SONT 124810	469.98	**370**
MD900.2D.380.R.12-C40	**38**	40	56	176	76	106	3,2	SONT 124810	469.98	**380**
MD900.2D.390.R.12-C40	**39**	40	56	178	78	108	3,2	SONT 124810	469.98	**390**
MD900.2D.400.R.12-C40	**40**	40	56	180	80	110	3,2	SONT 124810	469.98	**400**
MD900.2D.410.R.12-C40	**41**	40	56	182	82	112	3,2	SONT 124810	469.98	**410**
MD900.2D.420.R.13-C40	**42**	40	60	187	84	117	5	SONT 135012	493.72	**420**
MD900.2D.430.R.13-C40	**43**	40	60	189	86	119	5	SONT 135012	493.72	**430**
MD900.2D.440.R.13-C40	**44**	40	60	191	88	121	5	SONT 135012	493.72	**440**

Continued on next page

MaxiDrill 900 – Indexable insert drill

Scope of supply:
Indexable Insert Drill including clamping screws and key







Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 852 ... £ 2B/41	
MD900.2D.450.R.13-C40	45	40	60	193	90	123	5	SONT 135012	493.72	450
MD900.2D.460.R.13-C40	46	40	60	195	92	125	5	SONT 135012	493.72	460
MD900.2D.470.R.15-C40	47	40	60	198	94	128	5	SONT 155312	518.66	470
MD900.2D.480.R.15-C40	48	40	60	200	96	130	5	SONT 155312	518.66	480
MD900.2D.490.R.15-C40	49	40	60	202	98	132	5	SONT 155312	559.58	490
MD900.2D.500.R.15-C40	50	40	60	204	100	134	5	SONT 155312	559.58	500
MD900.2D.520.R.15-C40	51	40	60	206	102	136	5	SONT 155312	574.61	510
MD900.2D.510.R.15-C40	52	40	60	208	104	138	5	SONT 155312	574.61	520
MD900.2D.530.R.15-C40	53	40	60	210	106	140	5	SONT 155312	574.61	530
MD900.2D.540.R.15-C40	54	40	60	212	108	142	5	SONT 155312	574.61	540
MD900.2D.550.R.17-C40	55	40	60	215	110	145	5	SONT 175612	574.61	550
MD900.2D.560.R.17-C40	56	40	60	217	112	147	5	SONT 175612	595.69	560
MD900.2D.570.R.17-C40	57	40	60	219	114	149	5	SONT 175612	595.69	570
MD900.2D.580.R.17-C40	58	40	60	221	116	151	5	SONT 175612	595.69	580
MD900.2D.590.R.17-C40	59	40	60	223	118	153	5	SONT 175612	595.69	590
MD900.2D.600.R.17-C40	60	40	62	225	120	155	5	SONT 175612	595.69	600
MD900.2D.610.R.17-C40	61	40	62	227	122	157	5	SONT 175612	595.69	610
MD900.2D.620.R.17-C40	62	40	64	229	124	159	5	SONT 175612	595.69	620
MD900.2D.630.R.17-C40	63	40	64	231	126	161	5	SONT 175612	595.69	630



Key D



Clamping screw

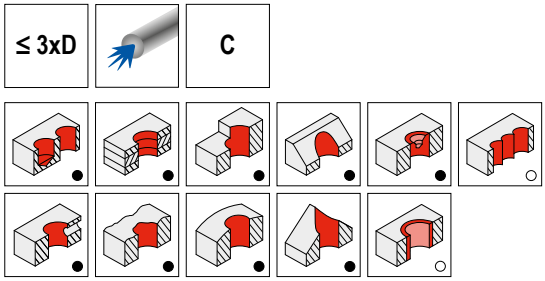
Spare parts DC		80 950 ... £ Y7		70 950 ... £ 2A/28	
12 - 13,5	T06 - IP	18.22	123	M1,8x3,6 - IP	4.47	862
14 - 17,5	T06 - IP	18.22	123	M2x4,3 - IP	3.98	863
18 - 23	T07 - IP	17.97	124	M2,2x5 - IP	3.85	856
24 - 27	T08 - IP	17.97	125	M2,5x6 - IP	4.96	857
28 - 32	T09 - IP	19.68	126	M3x7 - IP	3.79	819
33 - 41	T15 - IP	21.01	128	M3,5x8,6 - IP	3.79	859
42 - 63	T20 - IP	22.06	129	M4,5x10,5 - IP	3.79	864

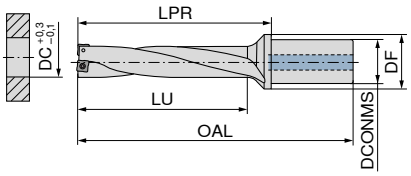
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

MaxiDrill 900 – Indexable insert drill

Scope of supply:

Indexable Insert Drill including clamping screws and key







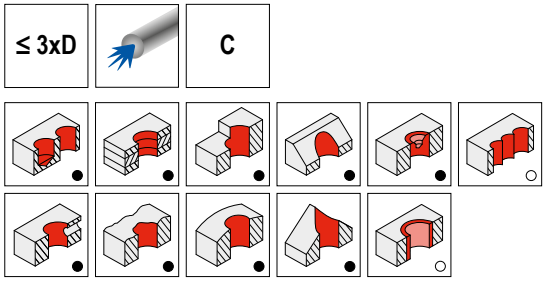
10 853 ...

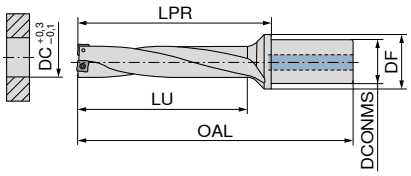
Designation	DC	DCONMS	DF	OAL	LU	LPR	torque moment	Insert	£	
	mm	mm	mm	mm	mm	mm	Nm		2B/41	
MD900.3D.120.R.03-C20	12	20	28	102	36.0	52	0,4	SONT 031804	314.48	120
MD900.3D.125.R.03-C20	12.5	20	28	104	37.5	54	0,4	SONT 031804	314.48	125
MD900.3D.130.R.03-C20	13	20	28	105	39.0	55	0,4	SONT 031804	314.48	130
MD900.3D.135.R.03-C20	13.5	20	28	107	40.5	57	0,4	SONT 031804	314.48	135
MD900.3D.140.R.04-C20	14	20	30	109	42.0	59	0,7	SONT 042105	331.20	140
MD900.3D.145.R.04-C20	14.5	20	30	111	44.0	61	0,7	SONT 042105	331.20	145
MD900.3D.150.R.04-C20	15	20	30	112	45.0	62	0,7	SONT 042105	331.20	150
MD900.3D.155.R.04-C20	15.5	20	30	114	47.0	64	0,7	SONT 042105	339.08	155
MD900.3D.160.R.05-C20	16	20	30	115	48.0	65	0,7	SONT 052306	339.08	160
MD900.3D.165.R.05-C20	16.5	20	30	117	50.0	67	0,7	SONT 052306	339.08	165
MD900.3D.170.R.05-C20	17	20	30	118	51.0	68	0,7	SONT 052306	352.15	170
MD900.3D.175.R.05-C20	17.5	20	30	120	53.0	70	0,7	SONT 052306	352.15	175
MD900.3D.180.R.06-C25	18	25	32	128	54.0	72	1	SONT 062506	352.15	180
MD900.3D.185.R.06-C25	18.5	25	32	130	56.0	74	1	SONT 062506	352.15	185
MD900.3D.190.R.06-C25	19	25	32	131	57.0	75	1	SONT 062506	378.31	190
MD900.3D.195.R.06-C25	19.5	25	32	133	59.0	77	1	SONT 062506	378.31	195
MD900.3D.200.R.06-C25	20	25	32	134	60.0	78	1	SONT 062506	378.31	200
MD900.3D.205.R.06-C25	20.5	25	32	136	62.0	80	1	SONT 062506	378.31	205
MD900.3D.210.R.07-C25	21	25	32	138	63.0	82	1	SONT 072907	378.31	210
MD900.3D.215.R.07-C25	21.5	25	32	140	65.0	84	1	SONT 072907	378.31	215
MD900.3D.220.R.07-C25	22	25	32	141	66.0	85	1	SONT 072907	378.31	220
MD900.3D.225.R.07-C25	22.5	25	32	143	68.0	87	1	SONT 072907	390.06	225
MD900.3D.230.R.07-C25	23	25	32	144	69.0	88	1	SONT 072907	390.06	230
MD900.3D.235.R.07-C25	23.5	25	32	146	71.0	90	1	SONT 072907	390.06	235
MD900.3D.240.R.08-C32	24	32	40	155	72.0	95	1,2	SONT 083308	390.06	240
MD900.3D.245.R.08-C32	24.5	32	40	157	74.0	97	1,2	SONT 083308	390.06	245
MD900.3D.250.R.08-C32	25	32	40	158	75.0	98	1,2	SONT 083308	390.06	250
MD900.3D.255.R.08-C32	25.5	32	40	160	77.0	100	1,2	SONT 083308	390.06	255
MD900.3D.260.R.08-C32	26	32	40	161	78.0	101	1,2	SONT 083308	431.95	260
MD900.3D.265.R.08-C32	26.5	32	40	163	80.0	103	1,2	SONT 083308	431.95	265
MD900.3D.270.R.08-C32	27	32	40	164	81.0	104	1,2	SONT 083308	431.95	270
MD900.3D.275.R.08-C32	27.5	32	40	166	83.0	106	1,2	SONT 083308	431.95	275
MD900.3D.280.R.09-C32	28	32	40	167	84.0	107	2,2	SONT 093808	431.95	280
MD900.3D.285.R.09-C32	28.5	32	40	169	86.0	109	2,2	SONT 093808	431.95	285
MD900.3D.290.R.09-C32	29	32	40	170	87.0	110	2,2	SONT 093808	431.95	290
MD900.3D.295.R.09-C32	29.5	32	40	172	89.0	112	2,2	SONT 093808	431.95	295
MD900.3D.300.R.09-C32	30	32	40	173	90.0	113	2,2	SONT 093808	431.95	300
MD900.3D.305.R.09-C32	30.5	32	40	175	92.0	115	2,2	SONT 093808	431.95	305
MD900.3D.310.R.09-C32	31	32	40	176	93.0	116	2,2	SONT 093808	468.66	310
MD900.3D.315.R.09-C32	31.5	32	40	178	95.0	118	2,2	SONT 093808	468.66	315
MD900.3D.320.R.09-C32	32	32	40	179	96.0	119	2,2	SONT 093808	468.66	320
MD900.3D.325.R.10-C40	32.5	40	50	192	98.0	124	3,2	SONT 104408	468.66	325
MD900.3D.330.R.10-C40	33	40	50	193	99.0	125	3,2	SONT 104408	468.66	330
MD900.3D.335.R.10-C40	33.5	40	50	195	101.0	127	3,2	SONT 104408	468.66	335
MD900.3D.340.R.10-C40	34	40	50	196	102.0	128	3,2	SONT 104408	468.66	340
MD900.3D.345.R.10-C40	34.5	40	50	198	104.0	130	3,2	SONT 104408	468.66	345
MD900.3D.350.R.10-C40	35	40	50	199	105.0	131	3,2	SONT 104408	479.07	350
MD900.3D.355.R.10-C40	35.5	40	50	201	107.0	133	3,2	SONT 104408	479.07	355
MD900.3D.360.R.10-C40	36	40	50	202	108.0	134	3,2	SONT 104408	479.07	360
MD900.3D.365.R.10-C40	36.5	40	50	204	110.0	136	3,2	SONT 104408	479.07	365
MD900.3D.370.R.12-C40	37	40	56	211	111.0	141	3,2	SONT 124810	494.80	370
MD900.3D.380.R.12-C40	38	40	56	214	114.0	144	3,2	SONT 124810	494.80	380

Continued on next page

MaxiDrill 900 – Indexable insert drill

Scope of supply:
Indexable Insert Drill including clamping screws and key







Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 853 ... £ 2B/41	
MD900.3D.390.R.12-C40	39	40	56	217	117.0	147	3,2	SONT 124810	494.80	390
MD900.3D.400.R.12-C40	40	40	56	220	120.0	150	3,2	SONT 124810	494.80	400
MD900.3D.410.R.12-C40	41	40	56	223	123.0	153	3,2	SONT 124810	494.80	410
MD900.3D.420.R.13-C40	42	40	60	229	126.0	159	5	SONT 135012	519.62	420
MD900.3D.430.R.13-C40	43	40	60	232	129.0	162	5	SONT 135012	519.62	430
MD900.3D.440.R.13-C40	44	40	60	235	132.0	165	5	SONT 135012	519.62	440
MD900.3D.450.R.13-C40	45	40	60	238	135.0	168	5	SONT 135012	519.62	450
MD900.3D.460.R.13-C40	46	40	60	241	138.0	171	5	SONT 135012	519.62	460
MD900.3D.470.R.15-C40	47	40	60	245	141.0	175	5	SONT 155312	545.79	470
MD900.3D.480.R.15-C40	48	40	60	248	144.0	178	5	SONT 155312	545.79	480
MD900.3D.490.R.15-C40	49	40	60	251	147.0	181	5	SONT 155312	589.02	490
MD900.3D.500.R.15-C40	50	40	60	254	150.0	184	5	SONT 155312	589.02	500
MD900.3D.510.R.15-C40	51	40	60	257	153.0	187	5	SONT 155312	604.78	510
MD900.3D.520.R.15-C40	52	40	60	260	156.0	190	5	SONT 155312	604.78	520
MD900.3D.530.R.15-C40	53	40	60	263	159.0	193	5	SONT 155312	604.78	530
MD900.3D.540.R.15-C40	54	40	60	266	162.0	196	5	SONT 155312	604.78	540
MD900.3D.550.R.17-C40	55	40	60	270	165.0	200	5	SONT 175612	604.78	550
MD900.3D.560.R.17-C40	56	40	60	273	168.0	203	5	SONT 175612	627.05	560
MD900.3D.570.R.17-C40	57	40	60	276	171.0	206	5	SONT 175612	627.05	570
MD900.3D.580.R.17-C40	58	40	60	279	174.0	209	5	SONT 175612	627.05	580
MD900.3D.590.R.17-C40	59	40	60	282	177.0	212	5	SONT 175612	627.05	590
MD900.3D.600.R.17-C40	60	40	62	285	180.0	215	5	SONT 175612	627.05	600
MD900.3D.610.R.17-C40	61	40	62	288	183.0	218	5	SONT 175612	627.05	610
MD900.3D.620.R.17-C40	62	40	64	291	186.0	221	5	SONT 175612	627.05	620
MD900.3D.630.R.17-C40	63	40	64	294	189.0	224	5	SONT 175612	627.05	630


Key D


Clamping screw

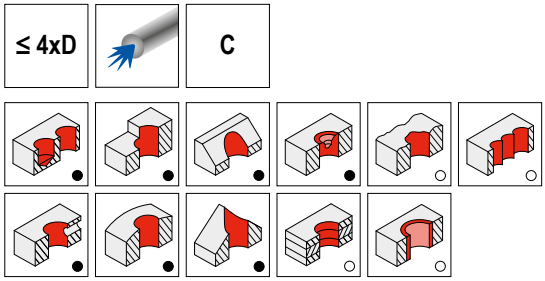
Spare parts DC	80 950 ... £ Y7		70 950 ... £ 2A/28	
12 - 13,5	T06 - IP 18.22	123	M1,8x3,6 - IP 4.47	862
14 - 17,5	T06 - IP 18.22	123	M2x4,3 - IP 3.98	863
18 - 23,5	T07 - IP 17.97	124	M2,2x5 - IP 3.85	856
24 - 27,5	T08 - IP 17.97	125	M2,5x6 - IP 4.96	857
28 - 32	T09 - IP 19.68	126	M3x7 - IP 3.79	819
32,5 - 41	T15 - IP 21.01	128	M3,5x8,6 - IP 3.79	859
42 - 63	T20 - IP 22.06	129	M4,5x10,5 - IP 3.79	864

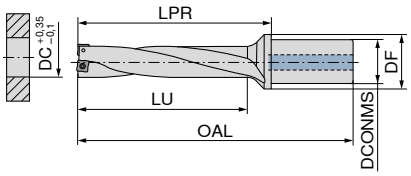
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

MaxiDrill 900 – Indexable insert drill

Scope of supply:

Indexable Insert Drill including clamping screws and key







Designation	DC	DCONMS	DF	OAL	LU	LPR	torque moment	Insert	10 854 ... £ 2B/41	
	mm	mm	mm	mm	mm	mm	Nm			
MD900.4D.120.R.03-C20	12	20	28	114	48	64	0,4	SONT 031804	433.78	120
MD900.4D.125.R.03-C20	12.5	20	28	116	50	66	0,4	SONT 031804	433.78	125
MD900.4D.130.R.03-C20	13	20	28	118	52	68	0,4	SONT 031804	433.78	130
MD900.4D.135.R.03-C20	13.5	20	28	120	54	70	0,4	SONT 031804	433.78	135
MD900.4D.140.R.04-C20	14	20	30	123	56	73	0,7	SONT 042105	446.36	140
MD900.4D.145.R.04-C20	14.5	20	30	125	58	75	0,7	SONT 042105	446.36	145
MD900.4D.150.R.04-C20	15	20	30	127	60	77	0,7	SONT 042105	446.36	150
MD900.4D.155.R.04-C20	15.5	20	30	129	62	79	0,7	SONT 042105	446.36	155
MD900.4D.160.R.05-C20	16	20	30	131	64	81	0,7	SONT 052306	456.78	160
MD900.4D.165.R.05-C20	16.5	20	30	133	66	83	0,7	SONT 052306	456.78	165
MD900.4D.170.R.05-C20	17	20	30	135	68	85	0,7	SONT 052306	473.98	170
MD900.4D.175.R.05-C20	17.5	20	30	137	70	87	0,7	SONT 052306	473.98	175
MD900.4D.180.R.06-C25	18	25	32	146	72	90	1	SONT 062506	473.98	180
MD900.4D.185.R.06-C25	18.5	25	32	148	74	92	1	SONT 062506	473.98	185
MD900.4D.190.R.06-C25	19	25	32	150	76	94	1	SONT 062506	509.22	190
MD900.4D.195.R.06-C25	19.5	25	32	152	78	96	1	SONT 062506	509.22	195
MD900.4D.200.R.06-C25	20	25	32	154	80	98	1	SONT 062506	509.22	200
MD900.4D.205.R.06-C25	20.5	25	32	156	82	100	1	SONT 062506	509.22	205
MD900.4D.210.R.07-C25	21	25	32	159	84	103	1	SONT 072907	509.22	210
MD900.4D.220.R.07-C25	22	25	32	163	88	107	1	SONT 072907	509.22	220
MD900.4D.230.R.07-C25	23	25	32	167	92	111	1	SONT 072907	526.18	230
MD900.4D.240.R.08-C32	24	32	40	179	96	119	1,2	SONT 083308	526.18	240
MD900.4D.250.R.08-C32	25	32	40	183	100	123	1,2	SONT 083308	526.18	250
MD900.4D.260.R.08-C32	26	32	40	187	104	127	1,2	SONT 083308	581.27	260
MD900.4D.270.R.08-C32	27	32	40	191	108	131	1,2	SONT 083308	581.27	270
MD900.4D.280.R.09-C32	28	32	40	195	112	135	2,2	SONT 093808	581.27	280
MD900.4D.290.R.09-C32	29	32	40	199	116	139	2,2	SONT 093808	581.27	290
MD900.4D.300.R.09-C32	30	32	40	203	120	143	2,2	SONT 093808	581.27	300
MD900.4D.310.R.09-C32	31	32	40	207	124	147	2,2	SONT 093808	630.93	310
MD900.4D.320.R.09-C32	32	32	40	211	128	151	2,2	SONT 093808	630.93	320
MD900.4D.330.R.10-C40	33	40	50	228	132	158	3,2	SONT 104408	630.93	330
MD900.4D.340.R.10-C40	34	40	50	232	136	162	3,2	SONT 104408	630.93	340
MD900.4D.350.R.10-C40	35	40	50	236	140	166	3,2	SONT 104408	644.14	350
MD900.4D.360.R.10-C40	36	40	50	240	144	170	3,2	SONT 104408	644.14	360
MD900.4D.370.R.12-C40	37	40	56	248	148	178	3,2	SONT 124810	666.28	370
MD900.4D.380.R.12-C40	38	40	56	252	152	182	3,2	SONT 124810	666.28	380
MD900.4D.390.R.12-C40	39	40	56	256	156	186	3,2	SONT 124810	666.28	390
MD900.4D.400.R.12-C40	40	40	56	260	160	190	3,2	SONT 124810	666.28	400
MD900.4D.410.R.12-C40	41	40	56	264	164	194	3,2	SONT 124810	666.28	410
MD900.4D.420.R.13-C40	42	40	60	271	168	201	5	SONT 135012	698.99	420
MD900.4D.430.R.13-C40	43	40	60	275	172	205	5	SONT 135012	698.99	430
MD900.4D.440.R.13-C40	44	40	60	279	176	209	5	SONT 135012	698.99	440

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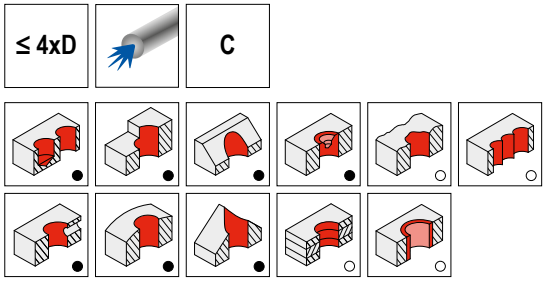
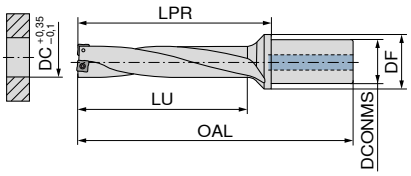
MaxiDrill 900 – Indexable insert drill

Scope of supply:
Indexable Insert Drill including clamping screws and key







Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 854 ... £ 2B/41	
MD900.4D.450.R.13-C40	**45**	40	60	283	180	213	5	SONT 135012	698.99	**450**
MD900.4D.460.R.13-C40	**46**	40	60	287	184	217	5	SONT 135012	698.99	**460**
MD900.4D.470.R.15-C40	**47**	40	60	292	188	222	5	SONT 155312	737.01	**470**
MD900.4D.480.R.15-C40	**48**	40	60	296	192	226	5	SONT 155312	737.01	**480**
MD900.4D.490.R.15-C40	**49**	40	60	300	196	230	5	SONT 155312	737.01	**490**
MD900.4D.500.R.15-C40	**50**	40	60	304	200	234	5	SONT 155312	737.01	**500**
MD900.4D.510.R.15-C40	**51**	40	60	308	204	238	5	SONT 155312	737.01	**510**
MD900.4D.520.R.15-C40	**52**	40	60	312	208	242	5	SONT 155312	737.01	**520**
MD900.4D.530.R.15-C40	**53**	40	60	316	212	246	5	SONT 155312	737.01	**530**
MD900.4D.540.R.15-C40	**54**	40	60	320	216	250	5	SONT 155312	737.01	**540**


Key D


Clamping screw

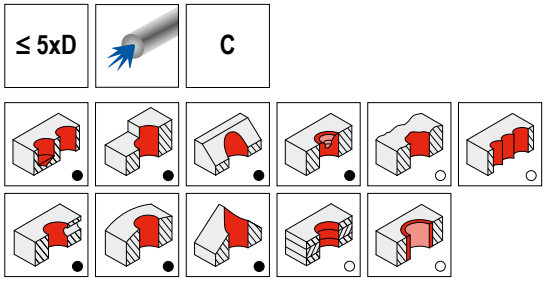
Spare parts DC	80 950 ... £ Y7		70 950 ... £ 2A/28	
12 - 13,5	T06 - IP	18.22 **123**	M1,8x3,6 - IP	4.47 **862**
14 - 17,5	T06 - IP	18.22 **123**	M2x4,3 - IP	3.98 **863**
18 - 23	T07 - IP	17.97 **124**	M2,2x5 - IP	3.85 **856**
24 - 27	T08 - IP	17.97 **125**	M2,5x6 - IP	4.96 **857**
28 - 32	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**
33 - 41	T15 - IP	21.01 **128**	M3,5x8,6 - IP	3.79 **859**
42 - 54	T20 - IP	22.06 **129**	M4,5x10,5 - IP	3.79 **864**

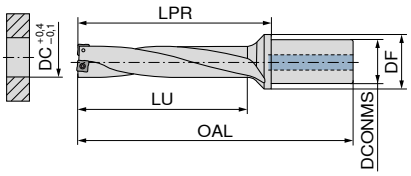
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

MaxiDrill 900 – Indexable insert drill

Scope of supply:

Indexable Insert Drill including clamping screws and key







10 855 ...

Designation	DC	DCONMS	DF	OAL	LU	LPR	torque moment	Insert	£ 2B/41	
	mm	mm	mm	mm	mm	mm	Nm			
MD900.5D.120.R.03-C20	**12**	20	28	126	60.0	76.0	0,4	SONT 031804	518.54	**120**
MD900.5D.125.R.03-C20	**12.5**	20	28	128	62.5	78.0	0,4	SONT 031804	518.54	**125**
MD900.5D.130.R.03-C20	**13**	20	28	131	65.0	81.0	0,4	SONT 031804	518.54	**130**
MD900.5D.135.R.03-C20	**13.5**	20	28	132	67.5	82.0	0,4	SONT 031804	518.54	**135**
MD900.5D.140.R.04-C20	**14**	20	30	137	70.0	87.0	0,7	SONT 042105	530.18	**140**
MD900.5D.145.R.04-C20	**14.5**	20	30	139	72.5	89.0	0,7	SONT 042105	530.18	**145**
MD900.5D.150.R.04-C20	**15**	20	30	142	75.0	92.0	0,7	SONT 042105	530.18	**150**
MD900.5D.155.R.04-C20	**15.5**	20	30	144	77.5	94.5	0,7	SONT 042105	530.18	**155**
MD900.5D.160.R.05-C20	**16**	20	30	147	80.0	97.0	0,7	SONT 052306	543.25	**160**
MD900.5D.165.R.05-C20	**16.5**	20	30	149	82.5	99.0	0,7	SONT 052306	543.25	**165**
MD900.5D.170.R.05-C20	**17**	20	30	152	85.0	102.0	0,7	SONT 052306	562.87	**170**
MD900.5D.175.R.05-C20	**17.5**	20	30	154	87.5	104.0	0,7	SONT 052306	562.87	**175**
MD900.5D.180.R.06-C25	**18**	25	32	164	90.0	108.0	1	SONT 062506	562.87	**180**
MD900.5D.185.R.06-C25	**18.5**	25	32	166	92.5	110.0	1	SONT 062506	562.87	**185**
MD900.5D.190.R.06-C25	**19**	25	32	169	95.0	113.0	1	SONT 062506	604.78	**190**
MD900.5D.195.R.06-C25	**19.5**	25	32	171	97.5	115.0	1	SONT 062506	604.78	**195**
MD900.5D.200.R.06-C25	**20**	25	32	174	100.0	118.0	1	SONT 062506	604.78	**200**
MD900.5D.205.R.06-C25	**20.5**	25	32	175	102.5	119.0	1	SONT 062506	604.78	**205**
MD900.5D.210.R.07-C25	**21**	25	32	180	105.0	124.0	1	SONT 072907	604.78	**210**
MD900.5D.220.R.07-C25	**22**	25	32	184	110.0	128.0	1	SONT 072907	604.78	**220**
MD900.5D.230.R.07-C25	**23**	25	32	189	115.0	133.0	1	SONT 072907	626.32	**230**
MD900.5D.240.R.08-C32	**24**	32	40	203	120.0	143.0	1,2	SONT 083308	626.32	**240**
MD900.5D.250.R.08-C32	**25**	32	40	208	125.0	148.0	1,2	SONT 083308	626.32	**250**
MD900.5D.260.R.08-C32	**26**	32	40	212	130.0	152.0	1,2	SONT 083308	691.23	**260**
MD900.5D.270.R.08-C32	**27**	32	40	217	135.0	157.0	1,2	SONT 083308	691.23	**270**
MD900.5D.280.R.09-C32	**28**	32	40	221	140.0	161.0	2,2	SONT 093808	691.23	**280**
MD900.5D.290.R.09-C32	**29**	32	40	226	145.0	166.0	2,2	SONT 093808	691.23	**290**
MD900.5D.300.R.09-C32	**30**	32	40	230	150.0	170.0	2,2	SONT 093808	691.23	**300**
MD900.5D.310.R.09-C32	**31**	32	40	235	155.0	175.0	2,2	SONT 093808	748.76	**310**
MD900.5D.320.R.09-C32	**32**	32	40	239	160.0	179.0	2,2	SONT 093808	748.76	**320**
MD900.5D.330.R.10-C40	**33**	40	50	259	165.0	191.0	3,2	SONT 104408	748.76	**330**
MD900.5D.340.R.10-C40	**34**	40	50	264	170.0	196.0	3,2	SONT 104408	748.76	**340**
MD900.5D.350.R.10-C40	**35**	40	50	269	175.0	201.0	3,2	SONT 104408	765.71	**350**
MD900.5D.360.R.10-C40	**36**	40	50	274	180.0	206.0	3,2	SONT 104408	765.71	**360**
MD900.5D.370.R.12-C40	**37**	40	56	285	185.0	215.0	3,2	SONT 124810	792.00	**370**
MD900.5D.380.R.12-C40	**38**	40	56	290	190.0	220.0	3,2	SONT 124810	792.00	**380**
MD900.5D.390.R.12-C40	**39**	40	56	295	195.0	225.0	3,2	SONT 124810	792.00	**390**
MD900.5D.400.R.12-C40	**40**	40	56	300	200.0	230.0	3,2	SONT 124810	792.00	**400**
MD900.5D.410.R.12-C40	**41**	40	56	305	205.0	235.0	3,2	SONT 124810	792.00	**410**



Key D



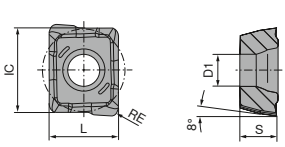
Clamping screw

Spare parts		**80 950 ...**			**70 950 ...**	
DC		£ Y7			£ 2A/28	
12 - 13,5	T06 - IP	18.22	**123**	M1,8x3,6 - IP	4.47	**862**
14 - 17,5	T06 - IP	18.22	**123**	M2x4,3 - IP	3.98	**863**
18 - 23	T07 - IP	17.97	**124**	M2,2x5 - IP	3.85	**856**
24 - 27	T08 - IP	17.97	**125**	M2,5x6 - IP	4.96	**857**
28 - 32	T09 - IP	19.68	**126**	M3x7 - IP	3.79	**819**
33 - 41	T15 - IP	21.01	**128**	M3,5x8,6 - IP	3.79	**859**

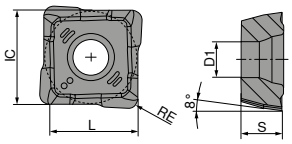
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

SONT

Designation	IC	D1	L	S
	mm	mm	mm	mm
SONT 0318..	5.4	2.10	3.8	1.80
SONT 0421..	4.6	2.25	4.2	2.10
SONT 0523..	5.3	2.25	4.8	2.30
SONT 0625..	5.9	2.50	5.5	2.50
SONT 0729..	6.5	2.50	6.1	2.90
SONT 0833..	7.7	2.90	7.3	3.30
SONT 0938..	8.9	3.50	8.5	3.80
SONT 1044..	10.1	4.10	9.6	4.40
SONT 1248..	11.6	4.10	11.0	4.80
SONT 1350..	13.0	5.30	12.2	5.00
SONT 1553..	15.2	5.30	14.4	5.30
SONT 1756..	17.5	5.30	16.7	5.60



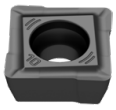
SONT 03..



SONT 04../05../06../07../08../09../10../12../13../15../17..

3

SONT

	-M30 CTPP430 DRAGONSKIN	-M30 CTPP430 DRAGONSKIN	-M30 CTCP420 DRAGONSKIN	-M30 CTCP420 DRAGONSKIN
	 SONT	 SONT	 SONT	 SONT
	10 830 ...	**10 830 ...**	**10 830 ...**	**10 830 ...**
ISO RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
031804 0.4	14.67 **103** [1]		14.67 **703** [1]	
042105 0.5		16.80 **104**		16.80 **704**
052306 0.6		17.04 **105**		17.04 **705**
062506 0.6		17.31 **106**		17.31 **706**
072907 0.7		17.71 **107**		17.71 **707**
083308 0.8		18.08 **108**		18.08 **708**
093808 0.8		18.54 **109**		18.54 **709**
104408 0.8		19.42 **110**		19.42 **710**
124810 1.0		20.56 **112**		20.56 **712**
135012 1.2		21.78 **113**		21.78 **713**
155312 1.2		24.69 **115**		24.69 **715**
175612 1.2		26.17 **117**		26.17 **717**
P	●	●	●	●
M	●	●		
K	○	○	●	●
N	○	○		
S	○	○		
H				
O				

1) two usable cutting edges

→ v_c Page 74–77

CTCP420 -M30 is exclusively recommended for use on the peripheral cutting edge!

Further information on grades and chip breakers can be found on **page 85 + 86**

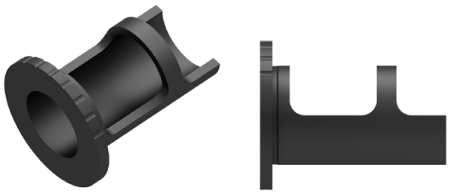
Application tips – eccentric sleeves

Using eccentric sleeves, the diameter of the hole can be varied and adjusted by +/- 0.3 mm with ease.

Two types of eccentric sleeve are available:
One for use with the indexable insert drill adapter and one for use with the Weldon adapter.
The difference lies solely in the design and position of the slots for the adapter's clamping screws.
There are four sizes per type, which are tailored to the shank diameter.

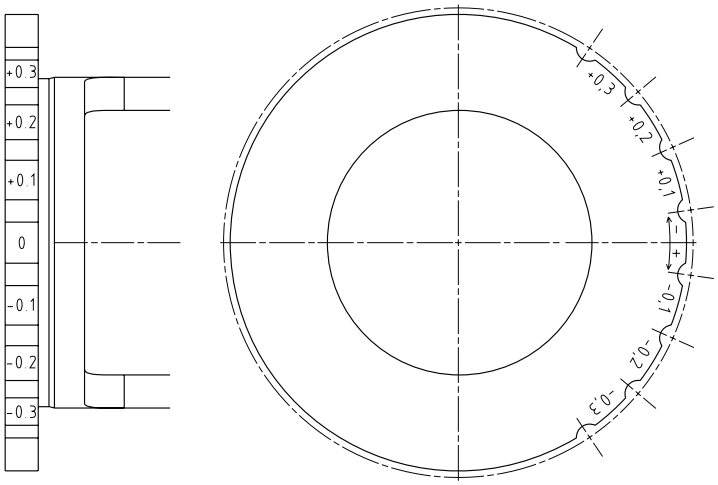


Eccentric sleeve for indexable insert drill adapter



Eccentric sleeve for Weldon adapter

A scale is engraved on every eccentric sleeve (radially and on the face),
so that the user can adjust the bore diameter according to requirements.



Side view *End view*

Instructions for use

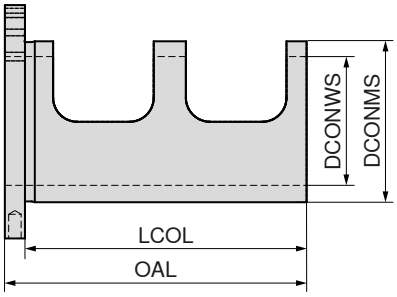
1. Position the sleeve in the respective adapter and insert the indexable insert drill.
2. Set the sleeve to the zero position. → The „0“ must align with the clamping screws on the adapter.
3. Clamp the adapter's clamping screws.
4. Drill.
5. Measure the bore diameter.
6. Loosen the clamping screws.
7. Correct the bore diameter using the sleeve. → Observe the scale on the sleeve.
The value must align with the clamping screws on the adapter.
8. Clamp the clamping screws.
9. Drill.

A scale is engraved on every eccentric sleeve (radially and on the face).

Owing to the radial adjustment of the drill axis, the feed rate should be reduced by approx. 30 % for longer drilling tools (4xD and 5xD).

3

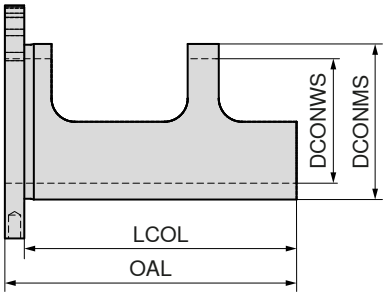
Eccentric sleeve – indexable insert drill adapter





Designation	DCONWS mm	DCONMS mm	OAL mm	LCOL mm	10 870 ... £ 2A/28	
EHB.D20.D25	20	25	61	56	189.16	**120**
EHB.D25.D32	25	32	65	60	205.73	**125**
EHB.D32.D40	32	40	75	70	224.77	**132**
EHB.D40.D50	40	50	85	80	246.33	**140**

Eccentric sleeve – standard Weldon adapter



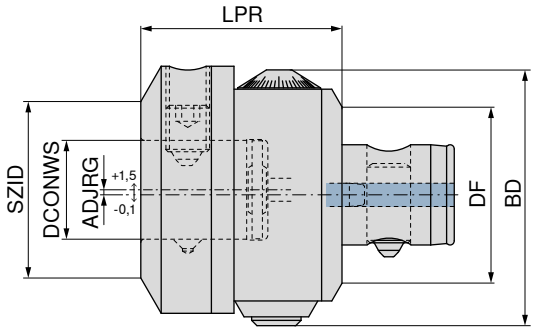


Designation	DCONWS mm	DCONMS mm	OAL mm	LCOL mm	10 871 ... £ 2A/28	
EHW.D20.D25	20	25	61	56	189.16	**120**
EHW.D25.D32	25	32	65	60	205.73	**125**
EHW.D32.D40	32	40	75	70	224.77	**132**
EHW.D40.D50	40	50	85	80	246.33	**140**

Application tips for eccentric sleeves can be found on → **Page 58.**

Adjuster with ABS connection

- ▲ Precise adjustment using micrometric adjusting spindle
- ▲ Max. adjustment range 3 mm on diameter
- ▲ Graduation of scale 1 line 0.02 mm on diameter
- ▲ Stable clamping of the top section after adjustment using four clamping screws arranged on the face
- ▲ SZID = nominal size







AD

84 210 ...

Adapter	KOMET no.	BD mm	LPR mm	DF mm	DCONWS mm	ADJRG mm	SZID	£ W4/6A	
ABS 50	M01 00001	70	57	50	28	1.5	**ABS 50**	1,881.43	**05097**
ABS 63	M01 00011	88	70	63	28	1.5	**ABS 50**	1,881.43	**06397**
ABS 63	M01 00021	88	70	63	34	1.5	**ABS 63**	1,446.73	**06396**

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

* Tensile strength

Cutting data standard values for SOGX indexable inserts

Index	10 820 ...					
	-01 / -13 / -32 BK8425	-03 / -21 BK8430	-01 / -21 BK7935	-01 BK6115	-01 BK7710	-34 BK8425
	v_c (m/min)					
P.1.1	260	260	250	300		
P.1.2	260	260	220	300		260
P.1.3	270	270	270	270		
P.1.4	250	250	250	250		
P.1.5	270	270	200	300		270
P.2.1	270	270	270	270		
P.2.2	260	260	260	260		
P.2.3	180	180	160	240		180
P.2.4	150	150	130	200		150
P.3.1	160	160	140	200		160
P.3.2	130	130	120	160		130
P.3.3	120	120	110	140		120
P.4.1	180	180	150	220		
P.4.2	130	130	120	160		
M.1.1	150	150	160	220		
M.2.1	150	150	160	220		
M.3.1	140	140	150	200		
K.1.1	160	160	150	240		160
K.1.2	120	120	120	180		120
K.2.1	160	160	150	160		160
K.2.2	100	100	90	100		100
K.3.1	120	120	110	120		120
K.3.2	100	100	90	100		100
N.1.1	400	400	400		500	
N.1.2	400	400	400		500	
N.2.1	250	250	250		280	
N.2.2	250	250	250		280	
N.2.3	230	230	230		250	
N.3.1	200	200	200		250	
N.3.2	220	220	220		280	
N.3.3	330	330	330		390	
N.4.1	200	200	200		250	
S.1.1	60	60	60			
S.1.2	50	50	50			
S.2.1	60	60	60			
S.2.2	50	50	50			
S.2.3	30	30	30			
S.3.1	100	100	100		100	
S.3.2	80	80	80		80	
S.3.3	50	50	50		50	
H.1.1	100	100		100		
H.1.2	80	80		80		
H.1.3	50	50		50		
H.1.4						
H.2.1	100	100		100		
H.3.1	80	80		80		
O.1.1			100		100	
O.1.2			100		100	
O.2.1						
O.2.2			100		100	
O.3.1			100		100	

Feed rate values of -34 topography, see → **page 65**.

BK6115 -01 / BK7935 -21 are exclusively recommended for use on the peripheral cutting edge!

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

Cutting data standard values for KUB Pentron – 2xD, 3xD / KUB Pentron CS

Index	10 872 ..., 10 873 ...								
	ABS / PSC / C								
	Ø 14–15,5	Ø 16–17,5	Ø 18–19,5	Ø 20–21,5	Ø 22–23,5	Ø 24–25,5	Ø 26–27,5	Ø 28–30	Ø 31–33
	f (mm/rev)								
P.1.1	0,08	0,08	0,09	0,10	0,10	0,10	0,10	0,10	0,10
P.1.2	0,10	0,13	0,13	0,15	0,16	0,15	0,18	0,18	0,18
P.1.3	0,08	0,12	0,12	0,13	0,13	0,13	0,13	0,13	0,13
P.1.4	0,08	0,11	0,11	0,12	0,12	0,12	0,12	0,12	0,12
P.1.5	0,09	0,12	0,12	0,14	0,14	0,14	0,16	0,16	0,16
P.2.1	0,08	0,12	0,12	0,13	0,13	0,13	0,13	0,13	0,13
P.2.2	0,08	0,11	0,11	0,12	0,12	0,12	0,12	0,12	0,12
P.2.3	0.12	0,14	0,16	0,16	0,16	0,18	0,18	0,18	0,18
P.2.4	0.10	0,11	0,13	0,13	0,13	0,14	0,14	0,14	0,14
P.3.1	0,08	0,12	0,12	0,16	0,16	0,18	0,18	0,18	0,18
P.3.2	0,07	0,10	0,10	0,13	0,13	0,14	0,14	0,14	0,14
P.3.3	0,06	0,08	0,08	0,11	0,11	0,13	0,13	0,13	0,13
P.4.1	0,09	0,13	0,13	0,18	0,18	0,20	0,20	0,20	0,20
P.4.2	0,07	0,10	0,10	0,13	0,13	0,14	0,14	0,14	0,14
M.1.1	0,10	0,10	0,12	0,14	0,15	0,15	0,15	0,15	0,15
M.2.1	0,10	0,08	0,08	0,11	0,11	0,14	0,14	0,14	0,14
M.3.1	0,09	0,07	0,07	0,10	0,10	0,13	0,13	0,13	0,13
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25
K.1.2	0,09	0,11	0,11	0,14	0,14	0,17	0,19	0,19	0,19
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25
K.2.2	0,10	0,12	0,12	0,14	0,14	0,18	0,20	0,20	0,20
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25
K.3.2	0,10	0,12	0,12	0,14	0,14	0,18	0,20	0,20	0,20
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15
N.2.2	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15
N.2.3	0,09	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14
N.3.1	0,10	0,12	0,13	0,13	0,15	0,15	0,15	0,15	0,15
N.3.2	0,11	0,13	0,14	0,14	0,17	0,17	0,17	0,17	0,17
N.3.3	0,11	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14
N.4.1	0,10	0,12	0,13	0,13	0,15	0,15	0,15	0,15	0,15
S.1.1	0,03	0,03	0,03	0,03	0,04	0,06	0,06	0,06	0,06
S.1.2	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06
S.2.1	0,03	0,03	0,03	0,03	0,04	0,06	0,06	0,06	0,06
S.2.2	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06
S.2.3	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,04	0,04
S.3.1	0,05	0,05	0,05	0,05	0,06	0,08	0,10	0,10	0,10
S.3.2	0,04	0,04	0,04	0,04	0,05	0,07	0,09	0,09	0,09
S.3.3	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06
H.1.1	0,05	0,05	0,05	0,05	0,06	0,06	0,06	0,06	0,06
H.1.2	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04
H.1.3	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04
H.1.4									
H.2.1	0,04	0,04	0,04	0,04	0,05	0,05	0,05	0,05	0,05
H.3.1	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04
O.1.1	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10
O.1.2	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10
O.2.1									
O.2.2	0,06	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,07
O.3.1	0,10	0,10	0,10	0,10	0,11	0,11	0,11	0,11	0,11

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for KUB Pentron – 2xD, 3xD / KUB Pentron CS

Index	10 872 ..., 10 873 ... ABS / PSC / C					10 876 ... KUB Pentron CS – 3xD			
	Ø 34–37	Ø 38–42	Ø 43–46	Ø 46–52	Ø 53–65	Ø 64–69	Ø 70–75	Ø 76–84	Ø 85–96
	f (mm/rev)					f (mm/rev)			
P.1.1	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
P.1.2	0,18	0,18	0,18	0,18	0,18	0,15	0,15	0,15	0,15
P.1.3	0,13	0,13	0,13	0,16	0,16	0,15	0,15	0,15	0,15
P.1.4	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14
P.1.5	0,16	0,16	0,16	0,16	0,16	0,14	0,14	0,14	0,14
P.2.1	0,13	0,13	0,13	0,16	0,16	0,15	0,15	0,15	0,15
P.2.2	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14
P.2.3	0,18	0,18	0,18	0,18	0,18	0,20	0,20	0,20	0,20
P.2.4	0,14	0,14	0,14	0,14	0,14	0,16	0,16	0,16	0,16
P.3.1	0,18	0,18	0,18	0,18	0,18	0,18	0,18	0,18	0,18
P.3.2	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
P.3.3	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
P.4.1	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20
P.4.2	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
M.1.1	0,15	0,15	0,15	0,16	0,16	0,16	0,16	0,16	0,16
M.2.1	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
M.3.1	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
K.1.1	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25
K.1.2	0,19	0,19	0,19	0,19	0,19	0,19	0,19	0,19	0,19
K.2.1	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25
K.2.2	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20
K.3.1	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25
K.3.2	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20	0,20
N.1.1	0,13	0,13	0,13	0,14	0,14	0,14	0,14	0,14	0,14
N.1.2	0,13	0,13	0,13	0,14	0,14	0,14	0,14	0,14	0,14
N.2.1	0,15	0,15	0,15	0,18	0,18	0,18	0,18	0,18	0,18
N.2.2	0,15	0,15	0,15	0,18	0,18	0,18	0,18	0,18	0,18
N.2.3	0,14	0,14	0,14	0,16	0,16	0,16	0,16	0,16	0,16
N.3.1	0,15	0,15	0,15	0,16	0,16	0,16	0,16	0,16	0,16
N.3.2	0,17	0,17	0,17	0,18	0,18	0,18	0,18	0,18	0,18
N.3.3	0,14	0,14	0,14	0,18	0,18	0,16	0,16	0,16	0,16
N.4.1	0,15	0,15	0,15	0,16	0,16	0,16	0,16	0,16	0,16
S.1.1	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.1.2	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.2.1	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.2.2	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.2.3	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
S.3.1	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
S.3.2	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09
S.3.3	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
H.1.1	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
H.1.2	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
H.1.3	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
H.1.4									
H.2.1	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
H.3.1	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
O.1.1	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.1.2	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.2.1									
O.2.2	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07
O.3.1	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed.
A safety guard has to be provided as protection.

Cutting data standard values for KUB Pentron – 2xD, 3xD / -34 indexable inserts topography

Index		10 872 ..., 10 873 ...													
		ABS / PSC / C													
	-34 BK8425	Ø 14–15,5	Ø 16–17,5	Ø 18–19,5	Ø 20–21,5	Ø 22–23,5	Ø 24–25,5	Ø 26–27,5	Ø 28–30	Ø 31–33	Ø 34–37	Ø 38–42	Ø 43–46	Ø 46–52	Ø 53–65
	v_c (m/min)	f (mm/rev)													
P.1.1															
P.1.2	260	0,17	0,20	0,20	0,23	0,23	0,23	0,27	0,27	0,27	0,27	0,27	0,27	0,23	0,27
P.1.3															
P.1.4															
P.1.5	270	0,17	0,20	0,20	0,23	0,23	0,23	0,27	0,27	0,27	0,27	0,27	0,27	0,23	0,27
P.2.1															
P.2.2															
P.2.3	180	0,18	0,21	0,24	0,24	0,24	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27
P.2.4	150	0,17	0,2	0,23	0,23	0,23	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,26
P.3.1	160	0,12	0,18	0,18	0,24	0,24	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27	0,27
P.3.2	130	0,11	0,17	0,17	0,23	0,23	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,26
P.3.3	120	0,11	0,17	0,17	0,23	0,23	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,26	0,26
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1	160	0,18	0,23	0,23	0,27	0,27	0,33	0,38	0,38	0,38	0,38	0,38	0,38	0,33	0,38
K.1.2	120	0,14	0,18	0,18	0,22	0,22	0,26	0,30	0,30	0,30	0,30	0,30	0,30	0,26	0,30
K.2.1	160	0,18	0,23	0,23	0,27	0,27	0,33	0,38	0,38	0,38	0,38	0,38	0,38	0,33	0,38
K.2.2	100	0,14	0,18	0,18	0,22	0,22	0,26	0,30	0,30	0,30	0,30	0,30	0,30	0,26	0,30
K.3.1	120	0,18	0,23	0,23	0,27	0,27	0,33	0,38	0,38	0,38	0,38	0,38	0,38	0,33	0,38
K.3.2	100	0,14	0,18	0,18	0,22	0,22	0,26	0,30	0,30	0,30	0,30	0,30	0,30	0,26	0,30
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1															
N.3.2															
N.3.3															
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Usage of -34 topography is recommended only for KUB Pentron 2xD and 3xD. Not recommended for KUB Pentron 4xD and 5xD as well as KUB Pentron CS. Higher drive power and stable setup needed!

Cutting data standard values for KUB Pentron – 4xD

Index	10 874 ...											
	ABS / C											
	Ø 14–15,5	Ø 16–17,5	Ø 18–19,5	Ø 20–21,5	Ø 22–23,5	Ø 24–25,5	Ø 26–27,5	Ø 28–30	Ø 31–33	Ø 34–37	Ø 38–42	Ø 43–46
	f (mm/rev)											
P.1.1	0,06	0,07	0,07	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09
P.1.2	0,08	0,13	0,13	0,15	0,15	0,15	0,18	0,18	0,18	0,18	0,18	0,18
P.1.3	0,06	0,12	0,12	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
P.1.4	0,05	0,11	0,11	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12
P.1.5	0,07	0,12	0,12	0,14	0,14	0,14	0,16	0,16	0,16	0,16	0,16	0,16
P.2.1	0,06	0,12	0,12	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
P.2.2	0,05	0,11	0,11	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12
P.2.3	0,08	0,14	0,14	0,15	0,16	0,18	0,18	0,18	0,18	0,18	0,18	0,18
P.2.4	0,06	0,11	0,11	0,12	0,13	0,14	0,14	0,14	0,14	0,14	0,14	0,14
P.3.1	0,08	0,12	0,12	0,16	0,15	0,18	0,18	0,18	0,18	0,18	0,18	0,18
P.3.2	0,06	0,10	0,10	0,13	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14
P.3.3	0,06	0,08	0,08	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13	0,13
P.4.1	0,09	0,13	0,13	0,18	0,17	0,20	0,20	0,20	0,20	0,20	0,20	0,20
P.4.2	0,06	0,10	0,10	0,13	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14
M.1.1	0,08	0,10	0,10	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
M.2.1	0,08	0,08	0,08	0,11	0,11	0,14	0,14	0,14	0,14	0,14	0,14	0,14
M.3.1	0,07	0,07	0,07	0,10	0,10	0,13	0,13	0,13	0,13	0,13	0,13	0,13
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25	0,25	0,25
K.1.2	0,10	0,10	0,10	0,10	0,10	0,20	0,20	0,20	0,20	0,20	0,20	0,20
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25	0,25	0,25
K.2.2	0,10	0,12	0,12	0,14	0,14	0,18	0,20	0,20	0,20	0,20	0,20	0,20
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25	0,25	0,25
K.3.2	0,10	0,12	0,12	0,14	0,14	0,18	0,20	0,20	0,20	0,20	0,20	0,20
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
N.2.2	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
N.2.3	0,09	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
N.3.1	0,10	0,12	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
N.3.2	0,11	0,13	0,14	0,14	0,17	0,17	0,17	0,17	0,17	0,17	0,17	0,17
N.3.3	0,11	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
N.4.1	0,10	0,12	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
S.1.1	0,03	0,03	0,03	0,03	0,04	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.1.2	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,06	0,06	0,06
S.2.1	0,03	0,03	0,03	0,03	0,04	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.2.2	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,06	0,06	0,06
S.2.3	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04
S.3.1	0,05	0,05	0,05	0,05	0,06	0,08	0,10	0,10	0,10	0,10	0,10	0,10
S.3.2	0,04	0,04	0,04	0,04	0,05	0,07	0,09	0,09	0,09	0,09	0,09	0,09
S.3.3	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,06	0,06	0,06
H.1.1	0,05	0,05	0,05	0,05	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
H.1.2	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
H.1.3	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
H.1.4												
H.2.1	0,04	0,04	0,04	0,04	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
H.3.1	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
O.1.1	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.1.2	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.2.1												
O.2.2	0,06	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07
O.3.1	0,10	0,10	0,10	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed.
A safety guard has to be provided as protection.

Cutting data standard values for KUB Pentron – 5xD

Index	10 875 ...											
	ABS / C											
	Ø 14–15,5	Ø 16–17,5	Ø 18–19,5	Ø 20–21,5	Ø 22–23,5	Ø 24–25,5	Ø 26–27,5	Ø 28–30	Ø 31–33	Ø 34–37	Ø 38–42	Ø 43–46
	f (mm/rev)											
P.1.1	0,06	0,08	0,07	0,09	0,09	0,09	0,10	0,10	0,10	0,10	0,10	0,10
P.1.2	0,08	0,11	0,11	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15
P.1.3	0,06	0,10	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11
P.1.4	0,05	0,09	0,09	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
P.1.5	0,07	0,10	0,10	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14
P.2.1	0,06	0,10	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11
P.2.2	0,05	0,09	0,09	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
P.2.3	0,08	0,09	0,10	0,15	0,18	0,18	0,15	0,15	0,15	0,15	0,15	0,15
P.2.4	0,06	0,07	0,08	0,12	0,14	0,14	0,12	0,12	0,12	0,12	0,12	0,12
P.3.1	0,08	0,12	0,12	0,16	0,15	0,18	0,18	0,18	0,18	0,18	0,18	0,18
P.3.2	0,06	0,10	0,10	0,13	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14
P.3.3	0,06	0,08	0,08	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13	0,13
P.4.1	0,09	0,13	0,13	0,18	0,17	0,20	0,20	0,20	0,20	0,20	0,20	0,20
P.4.2	0,06	0,10	0,10	0,13	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14
M.1.1	0,08	0,08	0,08	0,11	0,11	0,14	0,11	0,11	0,11	0,11	0,11	0,11
M.2.1	0,08	0,08	0,08	0,09	0,09	0,12	0,12	0,12	0,12	0,12	0,12	0,12
M.3.1	0,07	0,07	0,07	0,08	0,08	0,11	0,11	0,11	0,11	0,11	0,11	0,11
K.1.1	0,10	0,13	0,13	0,16	0,16	0,20	0,23	0,23	0,23	0,23	0,23	0,23
K.1.2	0,08	0,10	0,10	0,12	0,12	0,15	0,17	0,17	0,17	0,17	0,17	0,17
K.2.1	0,10	0,13	0,13	0,16	0,16	0,20	0,23	0,23	0,23	0,23	0,23	0,23
K.2.2	0,08	0,10	0,10	0,13	0,13	0,16	0,18	0,18	0,18	0,18	0,18	0,18
K.3.1	0,10	0,13	0,13	0,16	0,16	0,20	0,23	0,23	0,23	0,23	0,23	0,23
K.3.2	0,08	0,10	0,10	0,13	0,13	0,16	0,18	0,18	0,18	0,18	0,18	0,18
N.1.1	0,10	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
N.2.2	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
N.2.3	0,09	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
N.3.1	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
N.3.2	0,11	0,14	0,14	0,14	0,17	0,17	0,17	0,17	0,17	0,17	0,17	0,17
N.3.3	0,11	0,12	0,12	0,12	0,14	0,14	0,14	0,14	0,14	0,14	0,14	0,14
N.4.1	0,10	0,13	0,13	0,13	0,15	0,15	0,15	0,15	0,15	0,15	0,15	0,15
S.1.1	0,03	0,03	0,03	0,03	0,04	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.1.2	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,06	0,06	0,06
S.2.1	0,03	0,03	0,03	0,03	0,04	0,06	0,06	0,06	0,06	0,06	0,06	0,06
S.2.2	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,06	0,06	0,06
S.2.3	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04
S.3.1	0,05	0,05	0,05	0,05	0,06	0,08	0,10	0,10	0,10	0,10	0,10	0,10
S.3.2	0,04	0,04	0,04	0,04	0,05	0,07	0,09	0,09	0,09	0,09	0,09	0,09
S.3.3	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,06	0,06	0,06	0,06	0,06
H.1.1	0,05	0,05	0,05	0,05	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
H.1.2	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
H.1.3	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
H.1.4												
H.2.1	0,04	0,04	0,04	0,04	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
H.3.1	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
O.1.1	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.1.2	0,08	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.2.1												
O.2.2	0,06	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07
O.3.1	0,10	0,10	0,10	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for WOEX indexable inserts

Index	10 821 ...							
	BK8425	BK7935	BK6115	BK7615	BK62	BK77	BK79	BK7710
	v_c (m/min)							
P.1.1	260	250	300				260	
P.1.2	260	220	300				260	
P.1.3	270	270	270				270	
P.1.4	240	240	250				240	
P.1.5	230	200	270				230	
P.2.1	270	270	270				270	
P.2.2	260	260	260				260	
P.2.3	180	160	240				180	
P.2.4	150	130	190				150	
P.3.1	160	140	200				160	
P.3.2	130	110	160				130	
P.3.3	120	100	140				120	
P.4.1	180	160	220				180	
P.4.2	130	110	160				130	
M.1.1	150	160	220				150	
M.2.1	150	160	220				150	
M.3.1	130	150	200				130	
K.1.1	160	150	240	260	240		160	
K.1.2	120	110	140	160	140		120	
K.2.1	160	150	160	180	160		160	
K.2.2	100	90	100	120	100		100	
K.3.1	120	110	120	140	120		120	
K.3.2	100	90	100	120	100		100	
N.1.1	400	400					400	600
N.1.2	400	400					400	500
N.2.1	250	250					250	400
N.2.2	250	250					250	300
N.2.3	230	230					230	250
N.3.1	200	200					200	400
N.3.2	220	220					220	300
N.3.3	330	330					330	300
N.4.1	200	200					200	300
S.1.1	60	50				50		60
S.1.2	50	40				40		60
S.2.1	60	50				50		60
S.2.2	50	40				40		60
S.2.3	30	30				30		60
S.3.1	100	70				70		80
S.3.2	80	60				60		80
S.3.3	50	40				40		80
H.1.1	100		100		100	40		80
H.1.2	80		80		80	30		40
H.1.3	50		50		50	20		40
H.1.4								40
H.2.1	100		100		100	40		80
H.3.1	80		80		80	30		80
O.1.1						100		100
O.1.2						100		100
O.2.1								
O.2.2						100		100
O.3.1						100		100

BK6115 -01 / BK8425 -03 are exclusively recommended for use on the peripheral cutting edge!

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed.
A safety guard has to be provided as protection.

Cutting data standard values for KUB Trigon – 2xD

Index	10 892 ...												
	ABS / K												
	Ø 14–16	Ø 17–19	Ø 20–24	Ø 25–29	Ø 30–36	Ø 37–40	Ø 41–44	Ø 45–46	Ø 46–52	Ø 53–65	Ø 64–69	Ø 70–75	Ø 76–82
	f (mm/rev)												
P.1.1	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12
P.1.2	0,08	0,10	0,12	0,14	0,16	0,16	0,18	0,20	0,20	0,25	0,25	0,25	0,25
P.1.3	0,06	0,08	0,12	0,14	0,14	0,14	0,16	0,14	0,18	0,20	0,25	0,25	0,25
P.1.4	0,05	0,07	0,11	0,13	0,13	0,13	0,14	0,12	0,16	0,18	0,22	0,22	0,22
P.1.5	0,07	0,09	0,11	0,13	0,14	0,14	0,16	0,18	0,20	0,22	0,22	0,22	0,22
P.2.1	0,06	0,08	0,12	0,14	0,14	0,14	0,16	0,14	0,18	0,20	0,25	0,25	0,25
P.2.2	0,06	0,08	0,11	0,13	0,13	0,13	0,15	0,12	0,16	0,18	0,22	0,22	0,22
P.2.3	0,06	0,08	0,10	0,14	0,16	0,16	0,16	0,16	0,16	0,18	0,20	0,20	0,20
P.2.4	0,05	0,06	0,08	0,11	0,13	0,13	0,13	0,14	0,14	0,16	0,18	0,18	0,18
P.3.1	0,06	0,08	0,10	0,12	0,12	0,12	0,14	0,14	0,16	0,16	0,16	0,16	0,16
P.3.2	0,05	0,06	0,08	0,10	0,10	0,10	0,11	0,12	0,14	0,14	0,14	0,14	0,14
P.3.3	0,04	0,06	0,07	0,08	0,08	0,08	0,10	0,11	0,13	0,13	0,13	0,13	0,13
P.4.1	0,07	0,09	0,11	0,13	0,13	0,13	0,15	0,15	0,17	0,17	0,17	0,17	0,17
P.4.2	0,05	0,06	0,08	0,10	0,10	0,10	0,11	0,12	0,14	0,14	0,14	0,14	0,14
M.1.1	0,06	0,06	0,08	0,12	0,12	0,12	0,14	0,14	0,14	0,16	0,16	0,16	0,16
M.2.1	0,06	0,06	0,08	0,12	0,12	0,12	0,12	0,12	0,12	0,16	0,16	0,16	0,16
M.3.1	0,05	0,05	0,07	0,11	0,11	0,11	0,11	0,11	0,11	0,15	0,15	0,15	0,15
K.1.1	0,10	0,12	0,14	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,30
K.1.2	0,08	0,08	0,10	0,14	0,14	0,16	0,18	0,18	0,18	0,20	0,25	0,25	0,25
K.2.1	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,30
K.2.2	0,08	0,10	0,13	0,20	0,13	0,13	0,14	0,22	0,22	0,25	0,25	0,25	0,25
K.3.1	0,10	0,12	0,16	0,25	0,16	0,16	0,18	0,25	0,25	0,30	0,30	0,30	0,30
K.3.2	0,08	0,10	0,13	0,20	0,13	0,13	0,14	0,22	0,22	0,25	0,25	0,25	0,25
N.1.1	0,05	0,08	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,14	0,14	0,14	0,14
N.1.2	0,05	0,08	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,14	0,14	0,14	0,14
N.2.1	0,10	0,12	0,14	0,18	0,18	0,20	0,20	0,18	0,20	0,20	0,20	0,20	0,20
N.2.2	0,10	0,12	0,14	0,18	0,18	0,20	0,20	0,18	0,20	0,20	0,20	0,20	0,20
N.2.3	0,09	0,11	0,13	0,16	0,16	0,18	0,18	0,16	0,18	0,18	0,18	0,18	0,18
N.3.1	0,05	0,08	0,12	0,16	0,16	0,18	0,20	0,20	0,20	0,25	0,25	0,25	0,25
N.3.2	0,06	0,09	0,13	0,18	0,18	0,20	0,22	0,22	0,22	0,26	0,26	0,26	0,26
N.3.3	0,05	0,08	0,08	0,10	0,10	0,10	0,12	0,122	0,12	0,16	0,16	0,16	0,16
N.4.1	0,05	0,08	0,12	0,16	0,16	0,18	0,20	0,20	0,20	0,25	0,25	0,25	0,25
S.1.1	0,04	0,06	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,12	0,12	0,12	0,12
S.1.2	0,03	0,05	0,06	0,08	0,08	0,08	0,08	0,08	0,08	0,10	0,10	0,10	0,10
S.2.1	0,04	0,06	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,12	0,12	0,12	0,12
S.2.2	0,03	0,05	0,06	0,08	0,08	0,08	0,08	0,08	0,08	0,10	0,10	0,10	0,10
S.2.3	0,02	0,03	0,04	0,05	0,05	0,05	0,05	0,06	0,06	0,06	0,06	0,06	0,06
S.3.1	0,07	0,09	0,11	0,13	0,11	0,13	0,13	0,10	0,10	0,12	0,12	0,14	0,14
S.3.2	0,06	0,08	0,10	0,12	0,10	0,12	0,12	0,10	0,10	0,12	0,12	0,14	0,14
S.3.3	0,04	0,05	0,06	0,07	0,06	0,07	0,07	0,06	0,06	0,08	0,08	0,08	0,08
H.1.1	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,08	0,08	0,08	0,08	0,08	0,08
H.1.2	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,06	0,06	0,06	0,06	0,08	0,08
H.1.3	0,04	0,04	0,04	0,04	0,04	0,04	0,04						
H.1.4													
H.2.1	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
H.3.1	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,04
O.1.1	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.1.2	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.2.1													
O.2.2	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07
O.3.1	0,10	0,10	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for KUB Trigon – 3xD

Index	10 893 ...												
	ABS / K												
	Ø 14–16	Ø 17–19	Ø 20–24	Ø 25–29	Ø 30–36	Ø 37–40	Ø 41–44	Ø 45–46	Ø 46–52	Ø 53–65	Ø 64–69	Ø 70–75	Ø 76–82
	f (mm/rev)												
P.1.1	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12	0,12
P.1.2	0,08	0,10	0,12	0,14	0,16	0,16	0,20	0,20	0,20	0,25	0,25	0,25	0,25
P.1.3	0,06	0,08	0,12	0,14	0,14	0,14	0,16	0,14	0,18	0,20	0,25	0,25	0,25
P.1.4	0,05	0,07	0,11	0,13	0,13	0,13	0,14	0,12	0,16	0,18	0,22	0,22	0,22
P.1.5	0,07	0,09	0,11	0,13	0,14	0,14	0,18	0,18	0,20	0,22	0,22	0,22	0,22
P.2.1	0,06	0,08	0,12	0,14	0,14	0,14	0,16	0,14	0,18	0,20	0,25	0,25	0,25
P.2.2	0,06	0,08	0,11	0,13	0,13	0,13	0,15	0,12	0,16	0,18	0,22	0,22	0,22
P.2.3	0,06	0,08	0,10	0,14	0,16	0,16	0,16	0,16	0,16	0,18	0,20	0,20	0,20
P.2.4	0,05	0,06	0,08	0,11	0,13	0,13	0,13	0,14	0,14	0,16	0,18	0,18	0,18
P.3.1	0,06	0,08	0,10	0,12	0,12	0,12	0,14	0,14	0,16	0,16	0,16	0,16	0,16
P.3.2	0,05	0,06	0,08	0,10	0,10	0,10	0,11	0,12	0,14	0,14	0,14	0,14	0,14
P.3.3	0,04	0,06	0,07	0,08	0,08	0,08	0,10	0,11	0,13	0,13	0,13	0,13	0,13
P.4.1	0,07	0,09	0,11	0,13	0,13	0,13	0,15	0,15	0,17	0,17	0,17	0,17	0,17
P.4.2	0,05	0,06	0,08	0,10	0,10	0,10	0,11	0,12	0,14	0,14	0,14	0,14	0,14
M.1.1	0,06	0,06	0,08	0,12	0,12	0,12	0,14	0,14	0,14	0,16	0,16	0,16	0,16
M.2.1	0,06	0,06	0,08	0,12	0,12	0,12	0,12	0,12	0,12	0,16	0,16	0,16	0,16
M.3.1	0,05	0,05	0,07	0,11	0,11	0,11	0,11	0,11	0,11	0,15	0,15	0,15	0,15
K.1.1	0,10	0,12	0,14	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,30
K.1.2	0,08	0,08	0,10	0,14	0,14	0,16	0,18	0,18	0,18	0,20	0,25	0,25	0,25
K.2.1	0,08	0,10	0,14	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,30
K.2.2	0,08	0,10	0,13	0,20	0,20	0,20	0,20	0,22	0,22	0,25	0,25	0,25	0,25
K.3.1	0,10	0,12	0,16	0,25	0,25	0,25	0,25	0,25	0,25	0,30	0,30	0,30	0,30
K.3.2	0,08	0,10	0,13	0,20	0,20	0,20	0,20	0,22	0,22	0,25	0,25	0,25	0,25
N.1.1	0,05	0,08	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,14	0,14	0,14	0,14
N.1.2	0,05	0,08	0,08	0,10	0,10	0,12	0,12	0,12	0,12	0,14	0,14	0,14	0,14
N.2.1	0,10	0,12	0,14	0,18	0,18	0,20	0,20	0,18	0,20	0,20	0,20	0,20	0,20
N.2.2	0,10	0,12	0,14	0,18	0,18	0,20	0,20	0,18	0,20	0,20	0,20	0,20	0,20
N.2.3	0,09	0,11	0,13	0,16	0,16	0,18	0,18	0,16	0,18	0,18	0,18	0,18	0,18
N.3.1	0,05	0,08	0,12	0,16	0,16	0,18	0,20	0,20	0,20	0,25	0,25	0,25	0,25
N.3.2	0,06	0,09	0,13	0,18	0,18	0,20	0,22	0,22	0,22	0,26	0,26	0,26	0,26
N.3.3	0,06	0,09	0,09	0,11	0,11	0,11	0,13	0,122	0,12	0,16	0,16	0,16	0,16
N.4.1	0,05	0,08	0,12	0,16	0,16	0,18	0,20	0,20	0,20	0,25	0,25	0,25	0,25
S.1.1	0,04	0,06	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,12	0,12	0,12	0,12
S.1.2	0,03	0,05	0,06	0,08	0,08	0,08	0,08	0,08	0,08	0,10	0,10	0,10	0,10
S.2.1	0,04	0,06	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,12	0,12	0,12	0,12
S.2.2	0,03	0,05	0,06	0,08	0,08	0,08	0,08	0,08	0,08	0,10	0,10	0,10	0,10
S.2.3	0,02	0,03	0,04	0,05	0,05	0,05	0,05	0,06	0,06	0,06	0,06	0,06	0,06
S.3.1	0,07	0,09	0,11	0,13	0,11	0,13	0,13	0,10	0,10	0,12	0,12	0,14	0,14
S.3.2	0,06	0,08	0,10	0,12	0,10	0,12	0,12	0,10	0,10	0,12	0,12	0,14	0,14
S.3.3	0,04	0,05	0,06	0,07	0,06	0,07	0,07	0,06	0,06	0,08	0,08	0,08	0,08
H.1.1	0,05	0,08	0,08	0,10	0,10	0,10	0,10	0,08	0,08	0,08	0,08	0,08	0,08
H.1.2	0,04	0,06	0,06	0,08	0,08	0,08	0,08	0,06	0,06	0,06	0,06	0,08	0,08
H.1.3	0,03	0,04	0,04	0,05	0,05	0,05	0,05						
H.1.4													
H.2.1	0,05	0,08	0,08	0,10	0,10	0,10	0,10	0,05	0,05	0,05	0,05	0,05	0,05
H.3.1	0,04	0,06	0,06	0,08	0,08	0,08	0,08	0,04	0,04	0,04	0,04	0,04	0,04
O.1.1	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.1.2	0,08	0,08	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10
O.2.1													
O.2.2	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07	0,07
O.3.1	0,10	0,10	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed.
A safety guard has to be provided as protection.

Cutting data standard values for KUB Trigon – 4xD

Index	10 894 ... K					10 894 ... ABS						
	Ø 14–16	Ø 17–19	Ø 20–24	Ø 25–29	Ø 30–35	Ø 14–16	Ø 17–19	Ø 20–24	Ø 25–29	Ø 30–36	Ø 37–40	Ø 41–44
	f (mm/rev)					f (mm/rev)						
P.1.1	0,06	0,08	0,08	0,10	0,11	0,06	0,08	0,08	0,10	0,10	0,10	0,10
P.1.2	0,06	0,08	0,10	0,12	0,14	0,06	0,08	0,10	0,12	0,14	0,14	0,18
P.1.3	0,04	0,06	0,10	0,12	0,12	0,04	0,06	0,10	0,12	0,12	0,12	0,14
P.1.4	0,04	0,05	0,09	0,11	0,11	0,04	0,05	0,09	0,11	0,11	0,11	0,13
P.1.5	0,05	0,07	0,09	0,11	0,13	0,05	0,07	0,09	0,11	0,13	0,13	0,16
P.2.1	0,04	0,06	0,10	0,12	0,12	0,04	0,06	0,10	0,12	0,12	0,12	0,14
P.2.2	0,04	0,06	0,10	0,11	0,11	0,04	0,06	0,10	0,11	0,11	0,11	0,13
P.2.3	0,04	0,06	0,08	0,12	0,14	0,04	0,06	0,08	0,12	0,14	0,14	0,14
P.2.4	0,03	0,05	0,06	0,10	0,11	0,03	0,05	0,06	0,10	0,11	0,11	0,11
P.3.1	0,04	0,06	0,08	0,10	0,11	0,04	0,06	0,08	0,10	0,10	0,10	0,12
P.3.2	0,03	0,05	0,06	0,08	0,09	0,03	0,05	0,06	0,08	0,08	0,08	0,10
P.3.3	0,03	0,04	0,06	0,07	0,08	0,03	0,04	0,06	0,07	0,07	0,07	0,08
P.4.1	0,04	0,07	0,09	0,11	0,12	0,04	0,07	0,09	0,11	0,11	0,11	0,13
P.4.2	0,03	0,05	0,06	0,08	0,09	0,03	0,05	0,06	0,08	0,08	0,08	0,10
M.1.1	0,04	0,04	0,06	0,10	0,11	0,04	0,04	0,06	0,10	0,10	0,10	0,12
M.2.1	0,04	0,04	0,06	0,10	0,11	0,04	0,04	0,06	0,10	0,10	0,10	0,10
M.3.1	0,04	0,04	0,05	0,09	0,10	0,04	0,04	0,05	0,09	0,09	0,09	0,09
K.1.1	0,08	0,10	0,12	0,18	0,19	0,08	0,10	0,12	0,18	0,18	0,18	0,23
K.1.2	0,06	0,06	0,08	0,12	0,12	0,06	0,06	0,08	0,12	0,12	0,14	0,16
K.2.1	0,06	0,08	0,12	0,18	0,19	0,06	0,08	0,12	0,18	0,18	0,18	0,23
K.2.2	0,06	0,08	0,11	0,18	0,19	0,06	0,08	0,11	0,18	0,18	0,18	0,18
K.3.1	0,08	0,10	0,14	0,23	0,24	0,08	0,10	0,14	0,23	0,23	0,23	0,23
K.3.2	0,06	0,08	0,11	0,18	0,19	0,06	0,08	0,11	0,18	0,18	0,18	0,18
N.1.1	0,03	0,06	0,06	0,08	0,09	0,03	0,06	0,06	0,08	0,08	0,10	0,10
N.1.2	0,03	0,06	0,06	0,08	0,09	0,03	0,06	0,06	0,08	0,08	0,10	0,10
N.2.1	0,08	0,10	0,12	0,16	0,17	0,08	0,10	0,12	0,16	0,16	0,18	0,18
N.2.2	0,08	0,10	0,12	0,16	0,17	0,08	0,10	0,12	0,16	0,16	0,18	0,18
N.2.3	0,07	0,09	0,11	0,14	0,15	0,07	0,09	0,11	0,14	0,14	0,16	0,16
N.3.1	0,04	0,06	0,10	0,14	0,15	0,03	0,06	0,10	0,14	0,14	0,16	0,18
N.3.2	0,04	0,07	0,11	0,15	0,17	0,03	0,07	0,11	0,15	0,15	0,18	0,20
N.3.3	0,03	0,07	0,07	0,09	0,10	0,03	0,06	0,06	0,08	0,08	0,08	0,10
N.4.1	0,04	0,06	0,10	0,14	0,15	0,03	0,06	0,10	0,14	0,14	0,16	0,18
S.1.1	0,03	0,05	0,07	0,08	0,09	0,02	0,04	0,06	0,08	0,08	0,08	0,08
S.1.2	0,02	0,04	0,06	0,06	0,07	0,02	0,03	0,05	0,06	0,06	0,06	0,06
S.2.1	0,03	0,05	0,07	0,08	0,09	0,02	0,04	0,06	0,08	0,08	0,08	0,08
S.2.2	0,02	0,04	0,06	0,06	0,07	0,02	0,03	0,05	0,06	0,06	0,06	0,06
S.2.3	0,02	0,03	0,04	0,04	0,05	0,01	0,02	0,03	0,04	0,04	0,04	0,04
S.3.1	0,04	0,07	0,09	0,11	0,11	0,04	0,07	0,09	0,11	0,09	0,11	0,11
S.3.2	0,04	0,06	0,08	0,10	0,10	0,04	0,06	0,08	0,10	0,08	0,10	0,10
S.3.3	0,02	0,04	0,05	0,06	0,06	0,02	0,04	0,05	0,06	0,05	0,06	0,06
H.1.1	0,03	0,06	0,06	0,08	0,08	0,03	0,06	0,06	0,08	0,08	0,08	0,08
H.1.2	0,02	0,05	0,05	0,06	0,06	0,02	0,05	0,05	0,06	0,06	0,06	0,06
H.1.3	0,02	0,03	0,03	0,04	0,04	0,02	0,03	0,03	0,04	0,04	0,04	0,04
H.1.4												
H.2.1	0,03	0,06	0,06	0,08	0,08	0,03	0,06	0,06	0,08	0,08	0,08	0,08
H.3.1	0,02	0,05	0,05	0,06	0,06	0,02	0,05	0,05	0,06	0,06	0,06	0,06
O.1.1	0,08	0,08	0,10	0,10	0,10	0,08	0,08	0,10	0,10	0,10	0,10	0,10
O.1.2	0,08	0,08	0,10	0,10	0,10	0,08	0,08	0,10	0,10	0,10	0,10	0,10
O.2.1												
O.2.2	0,06	0,06	0,06	0,07	0,07	0,06	0,06	0,06	0,07	0,07	0,07	0,07
O.3.1	0,10	0,10	0,10	0,11	0,11	0,10	0,10	0,10	0,11	0,11	0,11	0,11

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for KUB Centron

Index	Ø 20–25 mm				Ø 26–32 mm				Ø 33–45 mm			
		Centring tip				Centring tip				Centring tip		
		10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)		10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)		10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)
	f (mm/rev)	v_c (m/min)			f (mm/rev)	v_c (m/min)			f (mm/rev)	v_c (m/min)		
P.1.1	0,08	250	160		0,08	250	160		0,10	250	160	
P.1.2	0,12	250	160		0,14	250	160		0,14	250	160	
P.1.3	0,10	200	160		0,12	200	160		0,12	200	160	
P.1.4	0,09	180	160		0,11	180	160		0,11	180	160	
P.1.5	0,11	230	160		0,12	230	160		0,12	230	160	
P.2.1	0,10	200	160		0,12	200	160		0,12	200	160	
P.2.2	0,10	190	150		0,11	190	150		0,11	190	150	
P.2.3	0,12	180	140		0,14	180	140		0,14	180	140	
P.2.4	0,10	150	120		0,12	150	120		0,12	150	120	
P.3.1	0,08	160	120		0,10	160	120		0,10	160	120	
P.3.2	0,06	140	100		0,08	140	100		0,08	140	100	
P.3.3	0,07	130	90		0,07	130	90		0,07	130	90	
P.4.1	0,09	180	130		0,11	180	130		0,11	180	130	
P.4.2	0,06	140	100		0,08	140	100		0,08	140	100	
M.1.1	0,10	160		70	0,12	160		70	0,12	160		70
M.2.1	0,08	120		70	0,10	120		70	0,10	120		70
M.3.1	0,07	110		60	0,08	110		60	0,08	110		60
K.1.1	0,14	200		100	0,16	200		100	0,16	200		100
K.1.2	0,12	160		100	0,14	160		100	0,14	160		100
K.2.1	0,12	160		100	0,14	160		100	0,14	160		100
K.2.2	0,10	100		80	0,12	100		80	0,12	100		80
K.3.1	0,12	120		100	0,14	120		100	0,14	120		100
K.3.2	0,10	100		80	0,12	100		80	0,12	100		80
N.1.1	0,07	350	350		0,07	350	350		0,10	350	350	
N.1.2	0,07	350	350		0,07	350	350		0,10	350	350	
N.2.1	0,10	250	250		0,12	250	250		0,16	250	250	
N.2.2	0,10	250	250		0,12	250	250		0,16	250	250	
N.2.3	0,09	230	230		0,11	230	230		0,15	230	230	
N.3.1	0,14	200	200		0,16	200	200		0,18	200	200	
N.3.2	0,15	220	220		0,18	220	220		0,20	220	220	
N.3.3	0,09	250	250		0,10	250	250		0,14	250	250	
N.4.1	0,14	200	200		0,16	200	200		0,18	200	200	
S.1.1	0,04	50		25	0,05	50		25	0,05	50		25
S.1.2	0,03	40		20	0,04	40		20	0,04	40		20
S.2.1	0,04	50		25	0,05	50		25	0,05	50		25
S.2.2	0,03	40		20	0,04	40		20	0,04	40		20
S.2.3	0,03	30		20	0,04	30		20	0,04	30		20
S.3.1	0,06	80		50	0,07	80		50	0,07	80		50
S.3.2	0,05	80		40	0,06	80		40	0,06	80		40
S.3.3	0,03	50		30	0,04	50		30	0,04	50		30
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1	0,08	100	100		0,10	100	100		0,10	100	100	
O.1.2	0,08	100	100		0,10	100	100		0,10	100	100	
O.2.1												
O.2.2	0,08	50	30		0,10	50	30		0,10	50	30	
O.3.1	0,08	100	100		0,10	100	100		0,10	100	100	

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

The cutting data of the KUB Centron depends on the centring tip and not on the indexable inserts. **Please select the cutting data of the centring tip.** 10 863 ... is only suitable up to drilling depth 6xD.

Index	Ø 46–54 mm				Ø 55–64 mm				Ø 65–71 mm			Ø 72–81 mm		
		Centring tip				Centring tip				Centring tip			Centring tip	
		10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)		10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)		10 862 ... (TiN)	10 862 ... (TiAlN)		10 862 ... (TiN)	10 862 ... (TiAlN)
	f (mm/rev)	v_c (m/min)			f (mm/rev)	v_c (m/min)			f (mm/rev)	v_c (m/min)		f (mm/rev)	v_c (m/min)	
P.1.1	0,10	250	160		0,10	250	160		0,10	160		0,10	160	
P.1.2	0,14	250	160		0,16	250	160		0,16	160		0,16	160	
P.1.3	0,12	200	160		0,14	200	160		0,14	160		0,14	160	
P.1.4	0,11	180	160		0,12	180	160		0,12	160		0,12	160	
P.1.5	0,12	230	160		0,14	230	160		0,14	160		0,14	160	
P.2.1	0,12	200	160		0,14	200	160		0,14	160		0,14	160	
P.2.2	0,11	190	150		0,12	190	150		0,12	150		0,12	150	
P.2.3	0,14	180	140		0,16	180	140		0,16	140		0,16	140	
P.2.4	0,12	150	120		0,13	150	120		0,13	120		0,13	120	
P.3.1	0,10	160	120		0,12	160	120		0,12	120		0,12	120	
P.3.2	0,08	140	100		0,10	140	100		0,10	100		0,10	100	
P.3.3	0,07	130	90		0,09	130	90		0,09	90		0,09	90	
P.4.1	0,11	180	130		0,14	180	130		0,14	130		0,14	130	
P.4.2	0,08	140	100		0,10	140	100		0,10	100		0,10	100	
M.1.1	0,12	160		70	0,12	160		70	0,12		70	0,12		70
M.2.1	0,10	120		70	0,10	120		70	0,10		70	0,10		70
M.3.1	0,08	110		60	0,08	110		60	0,08		60	0,08		60
K.1.1	0,16	200		100	0,16	200		100	0,16		100	0,16		100
K.1.2	0,14	160		100	0,14	160		100	0,14		100	0,14		100
K.2.1	0,14	160		100	0,14	160		100	0,14		100	0,14		100
K.2.2	0,12	100		80	0,12	100		80	0,12		80	0,12		80
K.3.1	0,14	120		100	0,14	120		100	0,14		100	0,14		100
K.3.2	0,12	100		80	0,12	100		80	0,12		80	0,12		80
N.1.1	0,10	350	350		0,10	350	350		0,10	350		0,10	350	
N.1.2	0,10	350	350		0,10	350	350		0,10	350		0,10	350	
N.2.1	0,16	250	250		0,16	250	250		0,16	250		0,16	250	
N.2.2	0,16	250	250		0,16	250	250		0,16	250		0,16	250	
N.2.3	0,15	230	230		0,15	230	230		0,15	230		0,15	230	
N.3.1	0,18	200	200		0,18	200	200		0,18	200		0,18	200	
N.3.2	0,20	220	220		0,20	220	220		0,20	220		0,20	220	
N.3.3	0,14	250	250		0,14	250	250		0,14	250		0,14	250	
N.4.1	0,18	200	200		0,18	200	200		0,18	200		0,18	200	
S.1.1	0,05	50		25	0,05	50		25	0,05		25	0,05		25
S.1.2	0,04	40		20	0,04	40		20	0,04		20	0,04		20
S.2.1	0,05	50		25	0,05	50		25	0,05		25	0,05		25
S.2.2	0,04	40		20	0,04	40		20	0,04		20	0,04		20
S.2.3	0,04	30		20	0,04	30		20	0,04		20	0,04		20
S.3.1	0,07	80		50	0,07	80		50	0,07		50	0,07		50
S.3.2	0,06	80		40	0,06	80		40	0,06		40	0,06		40
S.3.3	0,04	50		30	0,04	50		30	0,04		30	0,04		30
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1	0,10	100	100		0,10	100	100		0,10	100		0,10	100	
O.1.2	0,10	100	100		0,10	100	100		0,10	100		0,10	100	
O.2.1														
O.2.2	0,10	50	30		0,10	50	30		0,10	30		0,10	30	
O.3.1	0,10	100	100		0,10	100	100		0,10	100		0,10	100	

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for MaxiDrill 900 – 2xD

Index	10 830 ...		10 852 ...									
	SONT		C									
	CTCP420	CTPP430	Ø 12–15,5	Ø 16–17,5	Ø 18–20,5	Ø 21–23,5	Ø 24–27,5	Ø 28–32	Ø 32,5–36,5	Ø 37–41	Ø 41,5–46	Ø 46,5–63
	v_c (m/min)		f (mm/rev)									
P.1.1	300	215	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	260	190	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	230	165	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	220	160	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	200	150	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	270	200	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	215	160	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	200	140	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	160	110	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	200	140	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	160	100	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	120	70	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	200	140	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	180	120	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1		140	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1		100	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1		130	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	250	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	230	130	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	230	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	210	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	190	100	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	170	100	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1		300	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2		315	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1		270	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2		140	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3		180	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1		65	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2		50	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1		45	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1		65	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2		50	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

CTCP420 -M30 is exclusively recommended for use on the peripheral cutting edge!

Cutting data standard values for MaxiDrill 900 – 3xD

Index	10 853 ...									
	C									
	Ø 12–15,5	Ø 16–17,5	Ø 18–20,5	Ø 21–23,5	Ø 24–27,5	Ø 28–32	Ø 32,5–36,5	Ø 37–41	Ø 41,5–46	Ø 46,5–63
	f (mm/rev)									
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for MaxiDrill 900 – 4xD

Index	10 854 ...									
	C									
	Ø 12–15,5	Ø 16–17,5	Ø 18–20,5	Ø 21–23,5	Ø 24–27,5	Ø 28–32	Ø 32,5–36,5	Ø 37–41	Ø 41,5–46	Ø 46,5–54
	f (mm/rev)									
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

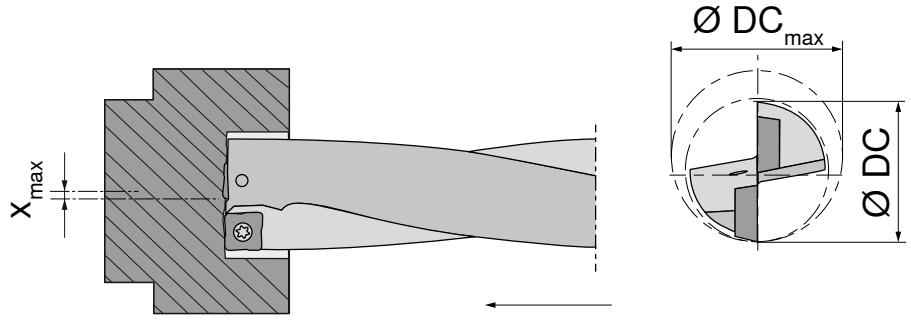
During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed.
A safety guard has to be provided as protection.

Cutting data standard values for MaxiDrill 900 – 5xD

Index	10 855 ...							
	C							
	Ø 12–15,5	Ø 16–17,5	Ø 18–20	Ø 21–23	Ø 24–27	Ø 28–32	Ø 33–36	Ø 37–41
	f (mm/rev)							
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Maximum adjustment range (X) during solid drilling / from the centre for stationary applications – KUB Pentron



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.25 mm:
$D_{max} = D + 0.5 = 20.5$ mm

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
14,0	SOGX 04....	0,25	14,5
14,5		0,25	15,0
15,0		0,25	15,5
15,5		0,25	16,0
16,0		0,25	16,5
16,5	SOGX 05....	0,25	17,0
17,0		0,25	17,5
17,5		0,25	18,0
18,0		0,25	18,5
18,5	SOGX 06....	0,25	19,0
19,0		0,25	19,5
19,5		0,25	20,0
20,0		0,25	20,5
20,5	SOGX 07....	0,25	21,0
21,0		0,25	21,5
21,5		0,25	22,0
22,0		0,25	22,5
22,5		0,25	23,0
23,0		0,25	23,5
23,5	SOGX 08....	0,25	24,0
24,0		0,25	24,5
24,5		0,25	25,0
25,0		0,25	25,5
25,5		0,25	26,0
26,0		0,25	26,5
26,5	SOGX 09....	0,25	27,0
27,0		0,25	27,5
27,5		0,25	28,0
28,0		0,25	28,5
28,5		0,25	29,0
29,0		0,25	29,5
29,5		0,25	30,0
30,0		0,25	30,5
31,0	SOGX 10....	0,25	31,5
32,0		0,25	32,5
33,0		0,25	33,5
34,0	SOGX 11....	0,25	34,5
35,0		0,25	35,5
36,0		0,25	36,5
37,0		0,25	37,5
38,0	SOGX 12....	0,25	38,5
39,0		0,25	39,5
40,0		0,25	40,5
41,0		0,25	41,5
42,0		0,25	42,5
43,0	SOGX 13....	0,25	43,5
44,0		0,25	44,5
45,0		0,25	45,5
46,0		0,25	46,5
47,0	SOGX 08....	0,25	47,5
48,0		0,25	48,5
49,0		0,25	49,5
50,0		0,25	50,5
51,0		0,25	51,5
52,0		0,25	52,5

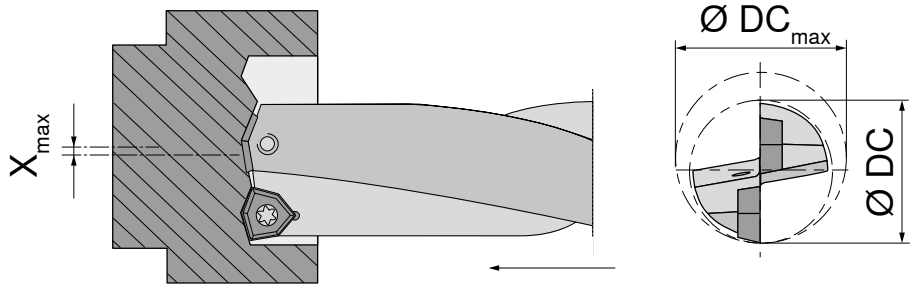
Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
53,0	SOGX 10....	0,25	53,5
54,0		0,25	54,5
55,0		0,25	55,5
56,0		0,25	56,5
57,0		0,25	57,5
58,0		0,25	58,5
59,0		0,25	59,5
60,0		0,25	60,5
61,0		0,25	61,5
62,0		0,25	62,5
63,0		0,25	63,5
64,0		0,25	64,5
65,0		0,25	65,5

KUB Pentron CS

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
64,0	SOGX 10....	0,25	64,5
65,0		0,25	65,5
66,0		0,25	66,5
67,0		0,25	67,5
68,0		0,25	68,5
69,0		0,25	69,5
70,0	SOGX 11....	0,25	70,5
71,0		0,25	71,5
72,0		0,25	72,5
73,0		0,25	73,5
74,0		0,25	74,5
75,0		0,25	75,5
76,0	SOGX 12....	0,25	76,5
77,0		0,25	77,5
78,0		0,25	78,5
79,0		0,25	79,5
80,0		0,25	80,5
81,0		0,25	81,5
82,0		0,25	82,5
83,0		0,25	83,5
84,0		0,25	84,5
85,0	SOGX 13....	0,25	85,5
86,0		0,25	86,5
87,0		0,25	87,5
88,0		0,25	88,5
89,0		0,25	89,5
90,0		0,25	90,5
91,0		0,25	91,5
92,0		0,25	92,5
93,0		0,25	93,5
94,0		0,25	94,5
95,0		0,25	95,5
96,0		0,25	96,5

The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Maximum adjustment range (X) during solid drilling / from the centre for stationary applications – KUB Trigon



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.5 mm:
$D_{max} = D + 1.0 = 21.0$ mm

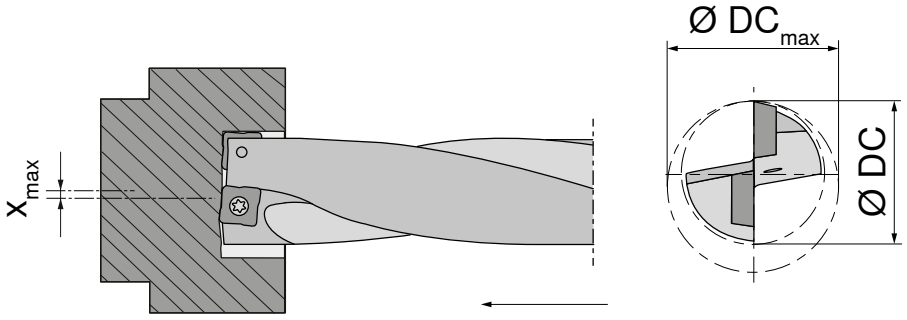
KUB Trigon

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
14,0	WOEX 03....	0,5	15,0
15,0		0,5	16,0
16,0		0,5	17,0
17,0		0,5	18,0
18,0		0,5	19,0
19,0		0,5	20,0
20,0	WOEX 04....	0,5	21,0
21,0		0,5	22,0
22,0		0,5	23,0
23,0		0,5	24,0
24,0		0,5	25,0
25,0	WOEX 05....	0,5	26,0
26,0		1,0	28,0
27,0		1,5	30,0
28,0		1,5	31,0
29,0		1,5	32,0
30,0		1,25	32,5
31,0		1,25	33,5
32,0		1,0	34,0
33,0		0,5	34,0
34,0		0,5	35,0
35,0		0,5	36,0
36,0		0,5	37,0
37,0	WOEX 06....	1,5	40,0
38,0		1,5	41,0
39,0		1,5	42,0
40,0		1,5	43,0
41,0		1,5	44,0
42,0		1,5	45,0
43,0		1,0	45,0
44,0		0,5	45,0

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
45,0	WOEX 08....	1,5	48,0
46,0		1,5	49,0
47,0		1,5	50,0
48,0		1,5	51,0
49,0		1,5	52,0
50,0		1,5	53,0
51,0		1,5	54,0
52,0		1,5	55,0
53,0		1,0	55,0
54,0		0,5	55,0
55,0	WOEX 10....	1,5	58,0
56,0		1,5	59,0
57,0		1,5	60,0
58,0		1,5	61,0
59,0		1,5	62,0
60,0		1,5	63,0
61,0		1,5	64,0
62,0		1,5	65,0
63,0		1,5	66,0
64,0		1,5	67,0
65,0		1,5	68,0
66,0		1,5	69,0
67,0		1,25	69,5
68,0		1,0	70,0
69,0	WOEX 12....	1,5	72,0
70,0		1,5	73,0
71,0		1,5	74,0
72,0		1,5	75,0
73,0		1,5	76,0
74,0		1,5	77,0
75,0		1,5	78,0
76,0		1,5	79,0
77,0		1,5	80,0
78,0		1,5	81,0
79,0		1,5	82,0
80,0		1,0	82,0
81,0		0,75	82,5
82,0		0,5	83,0

The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Maximum off set (X) for drilling into full material / with stationary applications – MaxiDrill 900



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.20 mm:
$D_{max} = D + 0.4 = 20.4$ mm

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
12,0	SONT 03....	0,50	13,0
12,5		0,40	13,3
13,0		0,35	13,7
13,5		0,30	14,1
14,0	SONT 04....	0,35	14,7
14,5		0,25	15,0
15,0		0,20	15,4
15,5		0,15	15,8
16,0	SONT 05....	0,40	16,8
16,5		0,35	17,2
17,0		0,30	17,6
17,5		0,25	18,0
18,0	SONT 06....	0,50	19,0
18,5		0,40	19,3
19,0		0,35	19,7
19,5		0,25	20,0
20,0		0,20	20,4
20,5		0,15	20,8
21,0	SONT 07....	0,35	21,7
21,5		0,30	22,1
22,0		0,25	22,5
22,5		0,15	22,8
23,0		0,15	23,3
23,5		0,10	23,7
24,0	SONT 08....	0,65	25,3
24,5		0,55	25,6
25,0		0,55	26,1
25,5		0,40	26,3
26,0		0,35	26,7
26,5		0,30	27,1
27,0		0,25	27,5
27,5		0,15	27,8
28,0	SONT 09....	0,90	29,8
28,5		0,80	30,1
29,0		0,75	30,5
29,5		0,70	30,9
30,0		0,60	31,2
30,5		0,55	31,6
31,0		0,45	31,9
31,5		0,40	32,3
32,0		0,30	32,6

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
32,5	SONT 10....	0,80	34,1
33,0		0,80	34,6
33,5		0,65	34,8
34,0		0,60	35,2
34,5		0,50	35,5
35,0		0,45	35,9
35,5		0,35	36,2
36,0		0,35	36,7
36,5		0,20	36,9
37,0	SONT 12....	1,00	39,0
38,0		0,85	39,7
39,0		0,70	40,4
40,0		0,50	41,0
41,0		0,35	41,7
42,0	SONT 13....	0,95	43,9
43,0		0,80	44,6
44,0		0,60	45,2
45,0		0,45	45,9
46,0		0,30	46,6
47,0	SONT 15....	1,80	50,6
48,0		1,65	51,3
49,0		1,50	52,0
50,0		1,35	52,7
51,0		1,15	53,3
52,0		0,95	53,9
53,0		0,80	54,6
54,0		0,60	55,2
55,0	SONT 17....	2,10	59,2
56,0		1,90	59,8
57,0		1,75	60,5
58,0		1,55	61,1
59,0		1,35	61,7
60,0		1,15	62,3
61,0		1,00	63,0
62,0		0,85	63,7
63,0		0,65	64,3

The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Technical data for turning – MaxiDrill 900

Insert size	$a_{p\,max.}$ in mm	f in mm/rev.
SONT 03	0,40–1,50	0,08–0,22
SONT 04	0,40–1,80	0,09–0,27
SONT 05	0,60–2,40	0,10–0,30
SONT 06	0,60–2,80	0,11–0,34
SONT 07	0,60–3,40	0,13–0,38
SONT 08	0,70–4,20	0,15–0,41

Insert size	$a_{p\,max.}$ in mm	f in mm/rev.
SONT 09	0,70–4,50	0,16–0,42
SONT 10	0,70–4,80	0,17–0,44
SONT 12	0,90–5,50	0,18–0,45
SONT 13	1,00–6,00	0,20–0,45
SONT 15	1,20–6,40	0,21–0,46
SONT 17	1,20–6,70	0,21–0,47

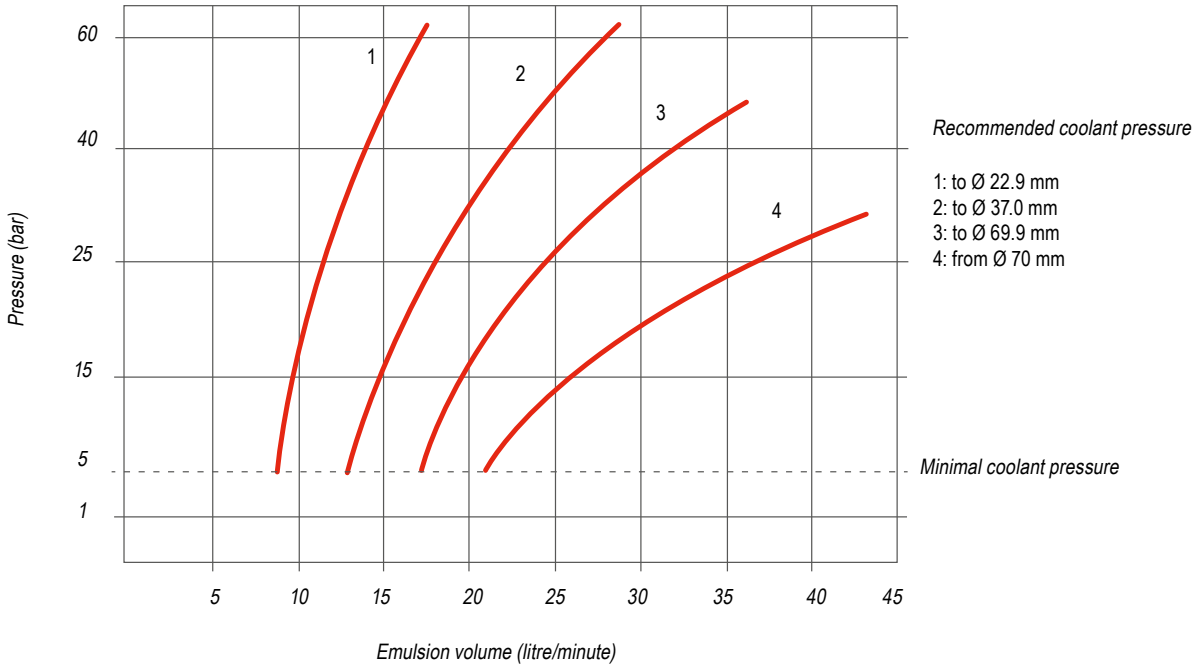
Coding example indexable insert drilling

System		Length		Bore diameter		Direction of rotation		Insert size		Machine connection and size
KUB-P	.	3D	.	215	.	R	.	07	–	ABS 50
KUB-P	.	3D	.	290	.	R	.	04	–	PSC 63
KUB-P.GH-CS	.	3D	.	76-78	.	R			–	ABS 80
MD-900	.	4D	.	240	.	R	.	08	–	C 32
KUB-T	.	2D	.	350	.	R	.	05	–	K 32
KUB-T	.	2D	.	350	.	L	.	05	–	ABS 50
KUB-C.GH	.	4D	.	320	.	R			–	ABS 50

KUB-P = KUB Pentron	215 = 21,5 mm	R = right	ABS50 = ABS adapter size 50
	290 = 29,0 mm	R = right	PSC63 = Polygon shank taper size 63
KUB-P.GH-CS = KUB Pentron CS	76-78 = 76-78 mm	R = right	ABS80 = ABS adapter size 80
MD-900 = MaxiDrill 900	240 = 24,0 mm	R = right	C32 = Cylindrical shank Ø 32.0 mm
KUB-T = KUB Trigon	350 = 35,0 mm	R = right	K32 = Cylindrical shank with combi clamping flat Ø 32.0 mm
		L = Left-hand	ABS50 = ABS adapter size 50
KUB-C.GH = KUB Centron	320 = KLG 32	R = right	ABS50 = ABS adapter size 50

The KOMET number key for KOMET Performance indexable inserts (W80 ... / W29 ...) can be found in **Chapter 5 – Spindle tools on page 75**.

Recommended coolant pressure and coolant flow



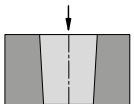
Indexable insert drilling – problems / possible causes / solutions

Rotating and stationary application



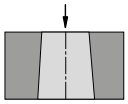
Short service life / types of wear of indexable inserts

- ▲ Cutting speed too high → select the correct cutting speed
- ▲ Insert grade selection has too little wear resistance → select a wear resistant grade
- ▲ Tool overhang too large → if possible, use a shorter tool
- ▲ Damaged insert seat → check tool, replace if necessary
- ▲ Clamping device stability too low → increase stability



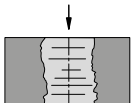
Hole tapers in

- ▲ Chip jam on the outer cutting edge → use a different chip breakage geometry, increase the feed if necessary
- ▲ Material very soft → increase the cutting speed, reduce the feed.
  Use a positive cutting edge geometry



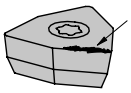
Hole tapers out

- ▲ Chip jam on the inner cutting edge → use a different chip breakage geometry, increase the feed if necessary



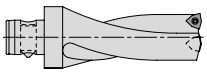
Poor surface quality

- ▲ Poor chip evacuation → optimise the cutting parameters: Increase the cutting speed, reduce the feed



Built-up edge

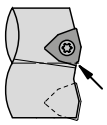
- ▲ Cutting speed too low → increase cutting speed
- ▲ Indexable insert too negative → use positive geometry
- ▲ Unsuitable coating → select the correct coating



Friction marks on the tool shank

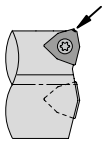
- ▲ Bore diameter too small → check the setting
- ▲ Chip evacuation problems → optimise the cutting parameters, check the geometry of the indexable insert
- ▲ Cutting radius too high → use the correct cutting radius

Stationary application



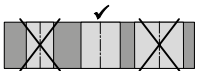
Edge breakage on the inner cutting edge

- ▲ Centre height of the tool too high/too low → adjust tool turret/adapter if necessary → Recalibrate the machine
- ▲ Indexable insert grades interchanged → use correct indexable insert
- ▲ Feed too high → reduce feed
- ▲ Indexable insert grade too brittle → use a tougher indexable insert grade
- ▲ Incorrect indexable insert geometry → if necessary use a geometry with a chamfered cutting edge



Edge breakage on the outer cutting edge

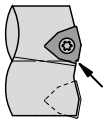
- ▲ Feed too high → reduce feed
- ▲ Interrupted cut → switch to a tougher grade of indexable insert
- ▲ Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large

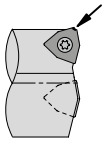
- ▲ Machine is not in the X-0 position → move axis to correct position
- ▲ Machine axis has been moved → recalibrate the machine

Rotating application



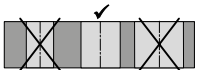
Edge breakage on the inner cutting edge

- ▲ Indexable insert grades interchanged → use correct indexable insert
- ▲ Feed too high → reduce feed
- ▲ Indexable insert grade too brittle → use a tougher indexable insert grade
- ▲ Incorrect indexable insert geometry → if necessary use a geometry with a chamfered cutting edge



Edge breakage on the outer cutting edge

- ▲ Feed too high → reduce feed
- ▲ Interrupted cut → switch to a tougher grade of indexable insert
- ▲ Cutting radius too small → use an indexable insert with a larger cutting radius

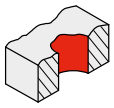


Hole too small / too large when using adjustable tools

- ▲ Incorrect cutting radius used → use the correct cutting radius
- ▲ Incorrect setting → use the correct tool setting
- ▲ Increase cutting fluid supply

KUB Centron – notes on drilling technology

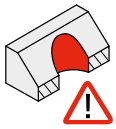
1.



Spot drilling on uneven surfaces (casting surfaces)

- ▲ Generally possible
- ▲ Reduce feed when spot drilling

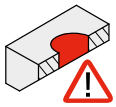
2.



Spot drilling on angled surfaces

- ▲ The spot drilling location must be spot faced in advance
- ▲ Avoid chips jamming on the drill shank

3.



Angled drill exit

- ▲ Possible under certain conditions
- ▲ If necessary, reduce feed
- ▲ Drilling angle max. 3°

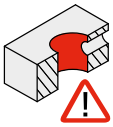
4.



Spot drilling on convex surfaces

- ▲ Central spot drilling possible with reduced feed
- ▲ If the spot drilling location is outside the centre of the radius, spot facing is required

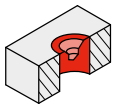
5.



Drilling through a transverse hole

- ▲ Halve the feed for interrupted cut
- ▲ Transverse hole max. 1/3 of the bore diameter
- ▲ Eccentric transverse hole not possible

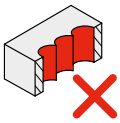
6.



Spot drilling in a pre-op or large centring hole

- ▲ Possible under certain conditions
- ▲ If necessary, reduce feed
- ▲ In the case of a large centre, face turning is required in advance
- ▲ If necessary, optimise the basic setting of the centring tip

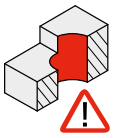
7.



Drilling a cavity

- ▲ Not possible

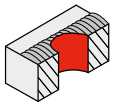
8.



Spot drilling on an edge

- ▲ Not possible with 4xD tools
- ▲ Preparation required due to undefined spot drilling location (spot facing, face milling)
- ▲ Then continue as described under Point 1

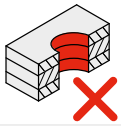
9.



Spot drilling on a forging/welding/casting seam

- ▲ Reduce feed when spot drilling
- ▲ If necessary, carry out facing in advance

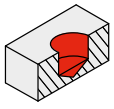
10.



Drilling through stacks

- ▲ Not possible

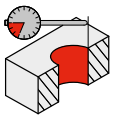
11.



Blind hole

- ▲ Possible
- ▲ Set guide rails 0.5 mm below actual Ø

12.



Adjustable

- ▲ Adjustable from a diameter of 65 mm

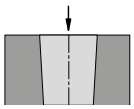
KUB Centron – problems / possible causes / solutions

Rotating and stationary application



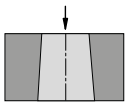
Short service life / types of wear of indexable inserts

- ▲ Cutting speed too high → select the correct cutting speed
- ▲ Grade has too little wear resistance → select a wear-resistant grade
- ▲ Tool overhang too large → if possible, use a shorter tool
- ▲ Damaged insert seat → check tool, replace if necessary
- ▲ Clamping device stability too low → increase stability



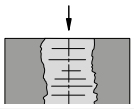
Hole tapers in

- ▲ Chip jam on the outer cutting edge → use a different chip breakage geometry, increase the feed if necessary
- ▲ Material very soft → increase the cutting speed, reduce the feed
- ▲ Use positive cutting edge geometry
- ▲ Axial adjustment of the centring tip not optimal → adjust according to the setting sheet in the operating instructions



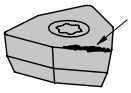
Hole tapers out

- ▲ Chip jam on the inner cutting edge → use a different chip breakage geometry, increase the feed if necessary



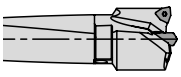
Poor surface quality

- ▲ Poor chip evacuation → optimise the cutting parameters: Increase the cutting speed, reduce the feed



Built-up edge

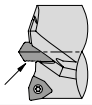
- ▲ Cutting speed too low → increase cutting speed
- ▲ Indexable insert too negative → use positive geometry
- ▲ Unsuitable coating → select the correct coating



Friction marks on the tool shank

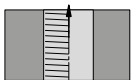
- ▲ Bore diameter too small → check the setting
- ▲ Chip evacuation problems → optimise the cutting parameters, check the geometry of the indexable insert
- ▲ Cutting radius too large → use the correct cutting radius
- ▲ Chips stuck on the supporting element, broken supporting elements, the supporting element does not have to be used for base elements of < 6xD

Stationary application



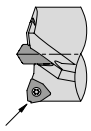
Significant wear on one side of the centring tip

- ▲ Tool not centred → tool turret/adapter may have moved → recalibrate the machine



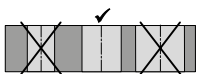
Single-sided retraction scoring

- ▲ Tool not centred → tool turret/adapter may have moved → recalibrate the machine



Edge breakage on the outer cutting edge

- ▲ Feed too high → reduce feed
- ▲ Interrupted cut → switch to a tougher grade of indexable insert
- ▲ Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large

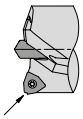
- ▲ Machine is not in the X-0 position → move axis to correct position
- ▲ Machine axis has been moved → recalibrate the machine

Rotating application



Significant wear on one side of the centring tip

- ▲ Guidance insufficient → check length adjustment of the centring tip



Edge breakage on the outer cutting edge

- ▲ Feed too high → reduce feed
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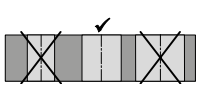


Hole too small / too large

- ▲ Incorrect cutting radius used → use the correct cutting radius
- ▲ Incorrect setting → use the correct tool setting

Chip breakers

		KOMET \ Performance		KOMET \ Standard
		WOEX	SOGX	SONT
-01	▲ Universal geometry with stable cutting edge, suitable for a wide range of materials ▲ Can be used for centre and periphery (BK6115 -01: Recommended for periphery only)			
-03	▲ Geometry for chip breakage problems with excellent chip control even at low feeds ▲ WOEX BK8425 -03: Can be used for periphery only ▲ SOGX BK8430 -03: Suitable for centre and periphery ▲ Main application in long-chipping materials as well as low alloy and stainless steels			
-11	▲ Highly positive, minimally rounded chip breaker ▲ For soft-cutting usage ▲ Main application in aluminium or heat-resistant materials			
-13	▲ Positive geometry, the dome-shaped chip breaker results in more controlled breaking of the chips ▲ Can be used for centre and periphery ▲ Also suitable for unstable machining conditions due to low cutting forces and power consumption ▲ Can be used with a wide range of materials			
-21	▲ Highly positive, soft-cutting geometry ▲ Can be used for centre and periphery ▲ BK7935: Can be used for periphery only ▲ Lower cutting forces and reduced power consumption ▲ Main application (depending on grade) in non-ferrous metals, steels and stainless steels, extended application range also for titanium alloys			
-32	▲ Minimised burr formation on entry and exit of hole ▲ Reliable separation of disc-shaped residual material when the drill exits the hole ▲ Suitable for a wide range of materials			
-34	▲ High-feed geometry ▲ Extremely sturdy indexable insert ▲ Requires higher drive power and stable setup ▲ Designed specially for steel and cast iron materials			
-M30	▲ Universal geometry ▲ Stable indexable insert, also suitable for high feeds ▲ CTPP430: Can be used for centre and periphery ▲ CTCP420: Only suitable for periphery			

Further indexable inserts can be found in our online shop
cuttingtools.ceratizit.com

Grades Overview

CTPP430

DRAGONSKIN

- Carbide, TiAlN-coated
- ISO | **P30** | **M25** | S25 | K30 | N25
- The universal high-performance grade for steel, austenitic steel and heat-resistant alloys.

CTCP420

DRAGONSKIN

- Carbide, TiCN-Al_2O_3-coated
- ISO | **P20** | **K20**
- The wear-resistant solution for steel and cast iron materials at high cutting speeds.

BK7710

- Carbide, TiB_2-coated
- ISO | **N10** | S10 | O10
- The wear-resistant grade with optimum cutting characteristics to prevent built-up edge formation for machining aluminium and titanium alloys.

BK7615

- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- Highly productive grade with extreme edge stability for wet and dry machining of all cast iron materials.

BK62

- Carbide, TiN-TiCN-Al_2O_3-coated
- ISO | **K15** | H15
- Special carbide grade for machining cast iron materials at high cutting speeds. Not suitable for machining aluminium materials.

BK79

- Carbide, TiAlN-coated
- ISO | **P40** | **M35** | **K25** | N30
- Universally applicable grade with high wear-resistance
- low to medium cutting speed for roughing and finishing as well as interrupted cut.

BK8425

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25** | N25 | **S25** | H25
- Universally applicable grade with increased wear resistance thanks to the innovative PVD coating in multilayer design.

BK8430

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25** | N25 | **S25** | H25
- Fine-grain grade with high wear resistance
- Extreme edge stability and maximum wear resistance in the middle and top speed range.

BK6115

- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | **P20** | **M20** | **K20** | H20
- High-quality, surface-treated coating for machining cast iron materials under normal to stable conditions and high cutting speeds.

BK7935

- Carbide, AlTiN-coated
- ISO | **P35** | **M30** | **K30** | N30 | **S30** | O30
- The tough carbide grade for machining stainless steel and acid-resistant steels as well as special alloys.

BK77

- Carbide, TiN-coated
- ISO | **S10** | H10 | O10
- The wear-resistant carbide grade for machining aluminum alloys, superalloys and plastics at medium cutting speeds.

Application

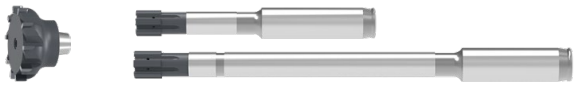
Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O
BK6115	HC-P20	01 05 10 15 20 25 30 35 40 45 50	●						
	HC-M20			●					
	HC-K20				●				
	HC-H20							○	
BK8425	HC-P25		●						
	HC-M25			●					
	HC-K25				●				
	HC-N25					○			
	HC-S25						●		
	HC-H25							○	
BK8430	HC-P30		●						
	HC-M25			●					
	HC-K25				●				
	HC-N25					○			
	HC-S25						●		
	HC-H25							○	
BK7935	HC-P35		●						
	HC-M30			●					
	HC-S30						●		
	HC-K30				●				
	HC-N30					○			
	HC-O30								○
BK7710	HC-N10					●			
	HC-S10						○		
	HC-O10								○
CTCP420 DRAGONSKIN	HC-P20		●						
	HC-K20				●				
CTPP430 DRAGONSKIN	HC-P30		●						
	HC-M25			●					
	HC-S25						○		
	HC-N25					○			
	HC-K30				○				
BK7615	HC-K15				●				
BK62	HC-K15				●				
	HC-H15							○	
BK77	HC-S10						●		
	HC-H10							○	
	HC-O10								○
BK79	HC-P40		●						
	HC-M35			●					
	HC-K25				●				
	HC-N30					○			

● **Main Application**
○ Extended application

wear-resistant v_c+ ◯ ◌ v_c– tough

New products for machining technicians

NEW Expansion of REAMAX TS / Monomax



- Expansion of the REAMAX TS and Monomax range with a Monomax version in two lengths (3xD and 5xD) and a REAMAX TS reaming head variant
- With coated carbide blanks – ideal for interrupted cuts: DBG-P ASG 3000
- Specially designed for through hole machining of cast iron and steel materials

Expansion REAMAX TS → Page 10
Expansion Monomax short → Page 22
Expansion Monomax long → Page 25

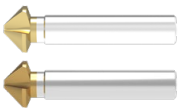
NEW Machine reamers sim. DIN 8093-A / -B



- Extremely irregular pitch
- Universal solid carbide reamer without thro' coolant

→ Page 48

NEW 90° Countersink with irregular pitch, DIN 335-C



- All sizes with 3 cutting edges and extremely irregular pitch, resulting in quiet running, excellent roundness and chatter-free countersinking giving the highest surface quality
- TiN coating and special HPC-TiN coating
- For a very long service life in almost all materials
- Greatly reduced axial and radial forces
- For DIN ISO 7721 and DIN 7991 countersunk head screws

Solid carbide version → Page 63
HSS version → Page 65

NEW Indexable insert countersink for counterbores



- Universal application and maximum service life thanks to use of tried-and-tested WOEX indexable inserts (grade: BK8425 / K10; chip breaker -01)
- For creating countersinks according to DIN 974
- With thro' coolant supply

→ Page 57+58



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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HSS – Reamers	49–56
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KOMET \ Performance

Premium quality tools for high performance.

The premium quality tools from the **KOMET Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

KOMET \ Standard

Quality tools for standard applications.

The quality tools of the **KOMET Standard** product line are high quality, high performance, reliable and enjoy the highest level of trust among our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Symbol explanation

Coolant supply version


central internal coolant


lateral internal coolant

Shank


Plain cylindrical shank


Morse taper


Cylindrical shank with lateral driving face „Weldon“

Applications


Through hole


Blind hole


Through hole with transverse hole/ interrupted cut


Blind hole with transverse hole/interrupted cut

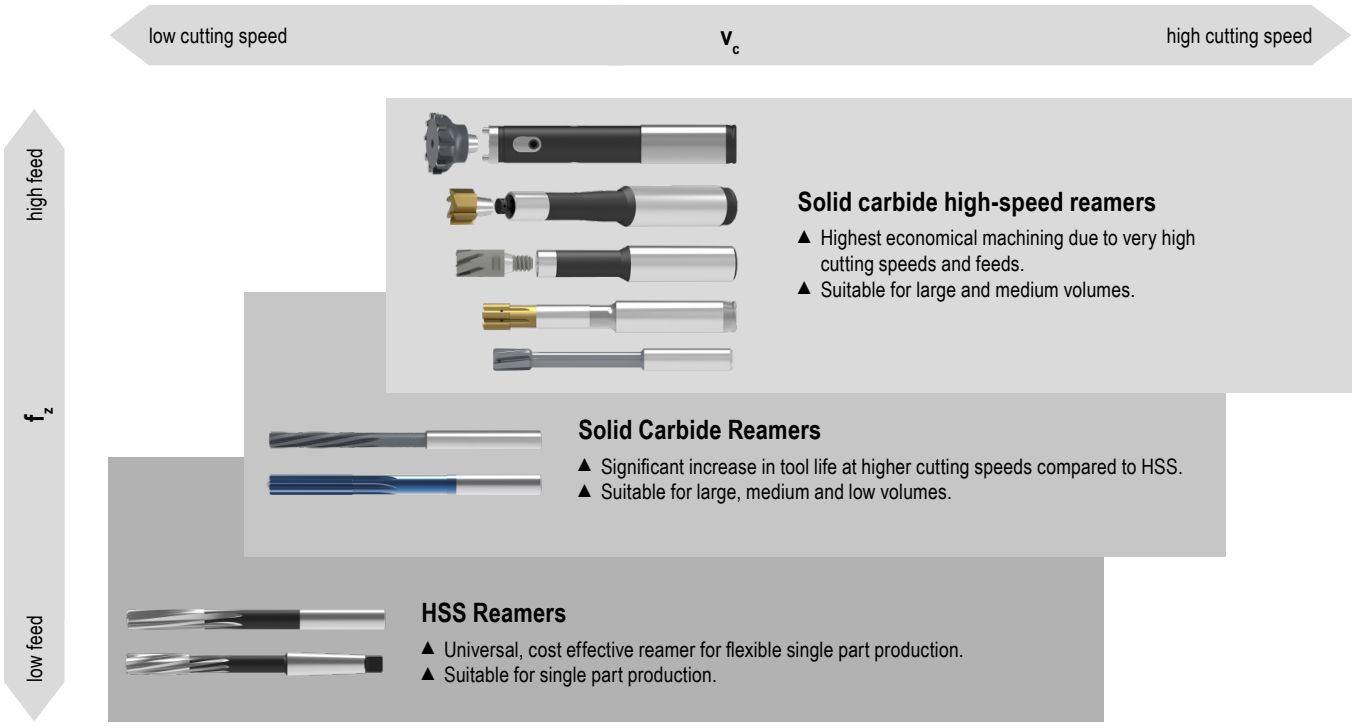
ZEFP = Number of flutes

● = Main Application

○ = Extended application

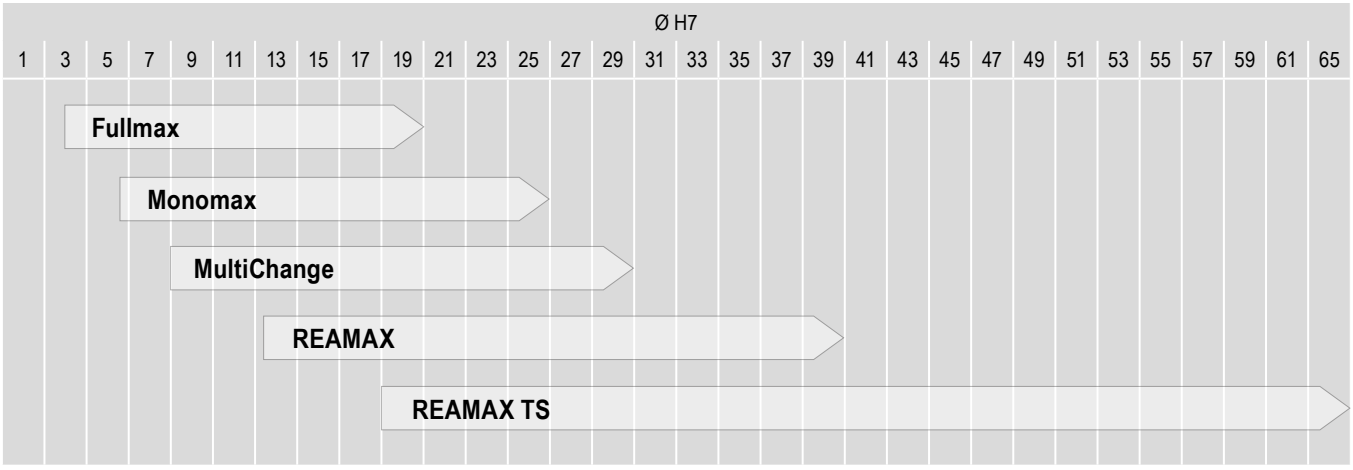


Selection guide – reamers



4

Overview of solid carbide high-speed reamers



	mono	modular
fixed	Fullmax	MultiChange, REAMAX
adjustable	Monomax	REAMAX TS

Toolfinder – Reamers

Solid carbide – high speed reamers	REAMAX TS			▲ highly flexible and economical replaceable head system ▲ all common materials ▲ can be adjusted in µm range
				▲ holder available in 3xD and 5xD ▲ holder type DAH Zero available in 3xD and 5xD
	REAMAX			▲ Exchangeable head system, optimised for use with minimum quantity lubrication (MQL) ▲ Maximum changeover precision guaranteed thanks to face and taper contact
				▲ holder available in 3xD and 5xD
	MultiChange			▲ Flexible quick change system for reaming, countersinking and milling ▲ A high level of changeover precision guaranteed thanks to face and taper contact
				▲ stable holder in solid carbide and steel, from short to long
	Monomax			▲ adjustable monoblock reamer in 3xD and 5xD ▲ regrinding and re-tipping on the base body ▲ all common materials
				
	Fullmax			▲ High-speed reamer in shorter and longer version ▲ Reamers for machining steel, stainless and acid-resistant steels, cast materials, aluminium and hardened materials up to 63 HRC ▲ Extremely irregular pitch ▲ Standard shank ~ DIN 6535 HA
				
Solid carbide – Reamers	NC	NC 100		▲ universal solid carbide reamer without thro' coolant ▲ extremely irregular pitch ▲ DIN 6535 HA shank
	NC	NC 100H		▲ Solid carbide reamer without thro' coolant suitable for use in hardened materials ▲ Standard shank ~ DIN 6535 HA
	N			▲ universal solid carbide reamer without thro' coolant ▲ extremely irregular pitch
HSS – Reamers	NC	NC 100		▲ HSS-E NC machine reamer ▲ DIN 1835 A shank
	N	N 100		▲ HSS-E machine reamer
	AR	AR 100		▲ HSS-E automatic machine reamer DIN 8089
	N			▲ HSS-e machine reamer DIN 208 ▲ with Morse taper
	H			▲ HSS hand reamer with cylindrical shank DIN 206

	Hole diameter (mm) Ø DC	Standard Tolerance	Through hole	Blind hole	Int. coolant supply	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat-resistant	H Tempered steel	O Non-metal materials	KOMET \ Performance	KOMET \ Standard
	18,00–65,00	H7 1/100			✓	●	●	●	●			○	9–11	
					✓								12+13	
	12,50–40,00	H7 1/100			✓	●	●	●	●		●	○	14+15	
					✓								16	
	8,00–30,20	H7 1/100			✓	●	●	●	●				17–19	
					✓								→ Catalogue – Clamping technology, Chapter 16 Accessories	
short version	5,60–25,89	H7 1/100			✓	●	●	●	●			○	20–23	
long version	5,60–25,89	H7 1/100			✓	●	●	●	●			○	24–26	
short version	4,00–16,00 2,96–20,05	H7 1/100			✓	●	●	●	○	○	○		27–32	
long version	4,00–16,00 2,96–20,05	H7 1/100			✓	●	●	●	●	○	●	○	33–42	
	2,00–30,00 0,59–12,05	H7 1/100				●	○	●	●	○	○	●	43–45	
	0,98–12,05	H7				○	○	○			●		46+47	
	2,00–12,00	H7				●		○	●					48
	1,50–20,00 0,95–12,00	H7 1/100				●		●	●			●	49+50	
	1,00–20,00 0,95–12,00	H7 1/100				●	○	●	●	○		●		51–53
	4,00–20,00 3,76–12,00	H7 1/100				●	○	●	●	○		●		54+55
	16,00–50,00	H7				●	○	●	●	○		●		56
	3,00–30,00	H7				●	○	●	●	○		●		56

4

Countersinks Overview

	Tool type	Coating	Hole diameter (mm) Ø DC	Countersinking angle SIG	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	KOMET \ Performance	KOMET \ Standard
Indexable Insert Counterbore Tool													
	WPS		10–48	180°	●	●	●	●	●	○	●	57+58	
Insert countersink 60°/90°													
	WPS		16,5–25,5 19,0–37,0	60° 90°	●	●	●	●	●	○	●	59–61	
HSS – Counterbores													
			6,0–20,0	180°	●	●	●	●	○		●		62
Solid Carbide Countersinks													
	N	HPC-TiN	6,3–31,0	90°	●	○	●	●	○	○	○	63	
	N		12,5–25,0	60°	●	○	●	●	○	○			64
	N		10,4–31,0	90°	●	○	●	●	○	○			64
HSS Countersinks													
	N	TiN	4,3–31,0	90°	●	○	●	●	○	○	○	65	
	N		4,3–31,0	90°	●	○	●	●	○		●		66
	N	TiN	5,0–31,0	90°	●	○	●	●	○	○	●		66
	N	TiAlN	5,0–31,0	90°	●	○	●	●	○	○	●		66
	VA	TiAlN	6,3–31,0	90°	○	●	○	○	○	○	●		66
	AL		6,3–31,0	90°	○	○	○	●	○		●		66
			6,3–25,0	60°	●	○	●	●	○		●		67
	N		30,0–80,0	90°	●	○	●	●	○		●		67
			6,3–25,0	120°	●	○	●	●	○		●		68
Deburring Countersink													
			6,3–28,0	90°	●	○	●	●	○		●		68
		TiN	6,3–28,0	90°	●	○	●	●	○	○	●		68

REAMAX TS – Selection guide

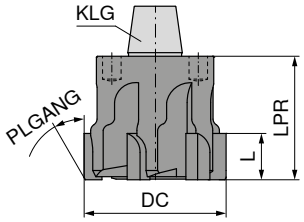
Ø 18 – 65 mm										
Article no.			40 597 …	40 544 …	40 577 …	40 521 …	40 526 …	40 539 …	40 585 …	40 571 …	40 580 …
KOMET no.			75J.93	75J.93	75J.65	75J.65	75J.17	75H.93	75H.65	75H.65	75H.17
Cutting edge geometry			ASG4000	ASG3000	ASG3000	ASG0106	ASG0706	ASG3000	ASG3000	ASG0106	ASG0706
Lead angle			25°	45°	45°	45°	45°/8°	45°	45°	45°	45°/8°
Grade / coating			DST	DST	DBG-P	DBG-P	DBC	DST	DBG-P	DBG-P	DBC
Preferred type available			✓	✓	✓	✓	✓	✓	✓	✓	
Application			Through hole					Blind hole			
Material sub-group		Index			 				 		
P	Non alloyed steel	P.1.1	●	●	●			●	●		
		P.1.2	●	●	●			●	●		
		P.1.3	●	●	●			●	●		
		P.1.4	●	●	●			●	●		
		P.1.5	●	●	●			●	●		
	Low alloyed steel	P.2.1	●	●	●			●	●		
		P.2.2	●	●	●			●	●		
		P.2.3	●	●	●			●	●		
		P.2.4	●	●	●			●	●		
	High-alloy steel and high-alloy tool steel	P.3.1				●				●	
		P.3.2				●				●	
		P.3.3				●				●	
	Stainless steel	P.4.1				●				●	
		P.4.2				●				●	
M	Stainless steel	M.1.1				●				●	
		M.2.1				●				●	
		M.3.1				●				●	
K	Grey cast iron	K.1.1			●				●		
		K.1.2			●				●		
	Spherulitic graphite cast iron	K.2.1	●	●	●			●	●		
		K.2.2	●	●	●			●	●		
	Malleable iron	K.3.1		●	●			●	●		
		K.3.2	●	●	●			●	●		
N	Aluminum alloys	N.1.1					●				●
		N.1.2					●				●
	Cast Aluminium Alloys	N.2.1					●				●
		N.2.2					●				●
		N.2.3					●				●
	Copper and copper alloys (Bronze, Brass)	N.3.1		○				○			
		N.3.2		○				○			
		N.3.3									
	Magnesium alloys	N.4.1					●				●
O	Non-metal materials	O.1.1									
		O.1.2									
		O.2.1									
		O.2.2									
		O.3.1					○				○

● = Main application
○ = Additional range of application

REAMAX TS – Replaceable reaming heads

- ▲ Up to tolerance class IT 6 with absolute process security, from the first hole
- ▲ Maximum changeover precision guaranteed
- ▲ High precision grind for maximum quality
- ▲ Can be adjusted for the smallest hole tolerances
- ▲ Interface enables head change in the machine
- ▲ Retraction from the hole at 3-4x feed rate
- ▲ KLG = Coupling size





					DST	DBG-P	DBC	NEW DBG-P	DST
									
					75J.93 PLGANG 25° ASG4000 CERMET Through hole	75J.65 PLGANG 45° ASG0106 HM Through hole	75J.17 PLGANG 45/8° ASG0706 HM Through hole	75J.65 PLGANG 45° ASG3000 HM Through hole	75J.93 PLGANG 45° ASG3000 CERMET Through hole
					40 597 ...	**40 521 ...**	**40 526 ...**	**40 577 ...**	**40 544 ...**
DC H7 mm	L mm	LPR mm	ZEFP	KLG	£ U3/4E	£ U3/4E	£ U3/4E	£ U3/4E	£ U3/4E
18,00	6	20	6	1	410.37 18000	410.37 18000	410.37 18000	410.37 18000	410.37 18000
18,01 - 19,99	6	20	6	1	879.61 xxxx 1)	879.61 xxxx 1)	879.61 xxxx 1)	879.61 xxxx 1)	879.61 xxxx 1)
20,00	6	20	6	2	420.85 20000	420.85 20000	420.85 20000	420.85 20000	420.85 20000
20,01 - 21,99	6	20	6	2	1,031.29 xxxx 1)	1,031.29 xxxx 1)	1,031.29 xxxx 1)	1,031.29 xxxx 1)	1,031.29 xxxx 1)
22,00	6	20	6	3	428.68 22000	428.68 22000	428.68 22000	428.68 22000	428.68 22000
22,01 - 23,99	6	20	6	3	1,072.89 xxxx 1)	1,072.89 xxxx 1)	1,072.89 xxxx 1)	1,072.89 xxxx 1)	1,072.89 xxxx 1)
24,00	6	20	6	3	441.73 24000	441.73 24000	441.73 24000	441.73 24000	616.38 24000 1)
24,01 - 24,99	6	20	6	3	1,072.89 xxxx 1)	1,072.89 xxxx 1)	1,072.89 xxxx 1)	1,072.89 xxxx 1)	1,072.89 xxxx 1)
25,00	6	20	6	3	441.73 25000	441.73 25000	441.73 25000	441.73 25000	441.73 25000
25,01 - 25,99	6	20	6	3	1,072.89 xxxx 1)	1,072.89 xxxx 1)	1,072.89 xxxx 1)	1,072.89 xxxx 1)	1,072.89 xxxx 1)
26,00	6	20	6	3	458.74 26000	458.74 26000	1,072.89 26000 1)	458.74 26000	458.74 26000
26,01 - 26,99	6	20	6	3	1,072.89 xxxx 1)	1,072.89 xxxx 1)	1,072.89 xxxx 1)	1,072.89 xxxx 1)	1,072.89 xxxx 1)
27,00 - 27,99	6	25	6	4	1,117.34 xxxx 1)	1,117.34 xxxx 1)	1,117.34 xxxx 1)	1,117.34 xxxx 1)	1,117.34 xxxx 1)
28,00	6	25	6	4	458.74 28000	458.74 28000	458.74 28000	458.74 28000	458.74 28000
28,01 - 29,99	6	25	6	4	1,117.34 xxxx 1)	1,117.34 xxxx 1)	1,117.34 xxxx 1)	1,117.34 xxxx 1)	1,117.34 xxxx 1)
30,00	6	25	6	4	479.63 30000	479.63 30000	479.63 30000	479.63 30000	479.63 30000
30,01 - 31,79	6	25	6	4	1,117.34 xxxx 1)	1,117.34 xxxx 1)	1,117.34 xxxx 1)	1,117.34 xxxx 1)	1,117.34 xxxx 1)
31,80 - 31,99	6	25	8	4	1,167.98 xxxx 1)	1,167.98 xxxx 1)	1,167.98 xxxx 1)	1,167.98 xxxx 1)	1,167.98 xxxx 1)
32,00	6	25	8	4	496.64 32000	496.64 32000	496.64 32000	496.64 32000	496.64 32000
32,01 - 34,99	6	25	8	4	1,167.98 xxxx 1)	1,167.98 xxxx 1)	1,167.98 xxxx 1)	1,167.98 xxxx 1)	1,167.98 xxxx 1)
35,00	6	25	8	5	520.15 35000	520.15 35000	520.15 35000	520.15 35000	520.15 35000
35,01 - 39,99	6	25	8	5	1,277.80 xxxx 1)	1,277.80 xxxx 1)	1,277.80 xxxx 1)	1,277.80 xxxx 1)	1,277.80 xxxx 1)
40,00	6	25	8	5	550.21 40000	550.21 40000	550.21 40000	550.21 40000	550.21 40000
40,01 - 41,99	6	25	8	5	1,277.80 xxxx 1)	1,277.80 xxxx 1)	1,277.80 xxxx 1)	1,277.80 xxxx 1)	1,277.80 xxxx 1)
42,00	6	30	8	6	550.21 42000	550.21 42000	1,387.87 42000 1)	550.21 42000	550.21 42000
42,01 - 49,99	6	30	8	6	1,387.87 xxxx 1)	1,387.87 xxxx 1)	1,387.87 xxxx 1)	1,387.87 xxxx 1)	1,387.87 xxxx 1)
50,00	6	30	8	6	563.28 50000	563.28 50000	563.28 50000	563.28 50000	563.28 50000
50,01 - 51,99	6	30	8	6	1,387.87 xxxx 1)	1,387.87 xxxx 1)	1,387.87 xxxx 1)	1,387.87 xxxx 1)	1,387.87 xxxx 1)
52,00 - 53,99	8	35	10	7	1,539.32 xxxx 1)	1,539.32 xxxx 1)	1,539.32 xxxx 1)	1,539.32 xxxx 1)	1,539.32 xxxx 1)
54,00	8	35	10	7	633.86 54000 1)	633.86 54000 1)	1,539.32 54000 1)	633.86 54000 1)	633.86 54000 1)
54,01 - 65,00	8	35	10	7	1,539.32 xxxx 1)	1,539.32 xxxx 1)	1,539.32 xxxx 1)	1,539.32 xxxx 1)	1,539.32 xxxx 1)
P					●	●		●	●
M						●			
K					●			●	●
N							●		○
S									
H									
O							○		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time on request / Minimum order 2 pieces

→ v_c Page 70–72

For xxxx please indicate requested Ø in H7 in the order (e.g Ø 24.12 H7 → article no. 40 597 2412)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!
All heads are also available as fixed head variants (not adjustable) on request.

→ **Page 96+97**
Here you will find a detailed operating instruction.

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

REAMAX TS – Replaceable reaming heads

- ▲ Up to tolerance class IT 6 with absolute process security, from the first hole
- ▲ Maximum changeover precision guaranteed
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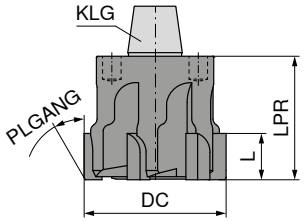
- ▲ KLG = Coupling size





	DST	DBG-P	DBC	DBG-P
				
	75H.93 PLGANG 45° ASG3000 CERMET Blind hole	75H.65 PLGANG 45° ASG0106 HM Blind hole	75H.17 PLGANG 45/8° ASG0706 HM Blind hole	75H.65 PLGANG 45° ASG3000 HM Blind hole
	40 539 ...	**40 571 ...**	**40 580 ...**	**40 585 ...**

DC H7 mm	L mm	LPR mm	ZEFP	KLG	£ U3/E		£ U3/E		£ U3/E		£ U3/E	
18,00	6	20	6	1	410.37	18000	410.37	18000	879.61	18000 1)	879.61	18000
18,01 - 19,99	6	20	6	1	879.61	xxxx 1)	879.61	xxxx 1)	879.61	xxxx 1)	879.61	xxxx 1)
20,00	6	20	6	2	420.85	20000	420.85	20000	1,031.29	20000 1)	1,031.29	20000
20,01 - 21,99	6	20	6	2	1,031.29	xxxx 1)	1,031.29	xxxx 1)	1,031.29	xxxx 1)	1,031.29	xxxx 1)
22,00	6	20	6	3	428.68	22000	428.68	22000	1,072.89	22000 1)	1,072.89	22000
22,01 - 23,99	6	20	6	3	1,072.89	xxxx 1)	1,072.89	xxxx 1)	1,072.89	xxxx 1)	1,072.89	xxxx 1)
24,00	6	20	6	3	441.73	24000	441.73	24000	1,072.89	24000 1)	1,072.89	24000
24,01 - 24,99	6	20	6	3	1,072.89	xxxx 1)	1,072.89	xxxx 1)	1,072.89	xxxx 1)	1,072.89	xxxx 1)
25,00	6	20	6	3	441.73	25000	441.73	25000	1,072.89	25000 1)	1,072.89	25000
25,01 - 25,99	6	20	6	3	1,072.89	xxxx 1)	1,072.89	xxxx 1)	1,072.89	xxxx 1)	1,072.89	xxxx 1)
26,00	6	20	6	3	458.74	26000	458.74	26000	1,072.89	26000 1)	1,072.89	26000
26,01 - 26,99	6	20	6	3	1,072.89	xxxx 1)	1,072.89	xxxx 1)	1,072.89	xxxx 1)	1,072.89	xxxx 1)
27,00 - 27,99	6	25	6	4	1,117.34	xxxx 1)	1,117.34	xxxx 1)	1,117.34	xxxx 1)	1,117.34	xxxx 1)
28,00	6	25	6	4	458.74	28000	458.74	28000	1,117.34	28000 1)	1,117.34	28000
28,01 - 29,99	6	25	6	4	1,117.34	xxxx 1)	1,117.34	xxxx 1)	1,117.34	xxxx 1)	1,117.34	xxxx 1)
30,00	6	25	6	4	479.63	30000	479.63	30000	1,117.34	30000 1)	1,117.34	30000
30,01 - 31,79	6	25	6	4	1,117.34	xxxx 1)	1,117.34	xxxx 1)	1,117.34	xxxx 1)	1,117.34	xxxx 1)
31,80 - 31,99	6	25	8	4	1,167.98	xxxx 1)	1,167.98	xxxx 1)	1,167.98	xxxx 1)	1,167.98	xxxx 1)
32,00	6	25	8	4	496.64	32000	496.64	32000	1,167.98	32000 1)	1,167.98	32000
32,01 - 34,99	6	25	8	4	1,167.98	xxxx 1)	1,167.98	xxxx 1)	1,167.98	xxxx 1)	1,167.98	xxxx 1)
35,00	6	25	8	5	520.15	35000	520.15	35000	1,277.80	35000 1)	1,277.80	35000
35,01 - 39,99	6	25	8	5	1,277.80	xxxx 1)	1,277.80	xxxx 1)	1,277.80	xxxx 1)	1,277.80	xxxx 1)
40,00	6	25	8	5	550.21	40000	550.21	40000	1,277.80	40000 1)	1,277.80	40000
40,01 - 41,99	6	25	8	5	1,277.80	xxxx 1)	1,277.80	xxxx 1)	1,277.80	xxxx 1)	1,277.80	xxxx 1)
42,00	6	30	8	6	550.21	42000	550.21	42000	1,387.87	42000 1)	1,387.87	42000
42,01 - 49,99	6	30	8	6	1,387.87	xxxx 1)	1,387.87	xxxx 1)	1,387.87	xxxx 1)	1,387.87	xxxx 1)
50,00	6	30	8	6	563.28	50000	563.28	50000	1,387.87	50000 1)	1,387.87	50000
50,01 - 51,99	6	30	8	6	1,387.87	xxxx 1)	1,387.87	xxxx 1)	1,387.87	xxxx 1)	1,387.87	xxxx 1)
52,00 - 53,99	8	35	10	7	1,539.32	xxxx 1)	1,539.32	xxxx 1)	1,539.32	xxxx 1)	1,539.32	xxxx 1)
54,00	8	35	10	7	633.86	54000 1)	633.86	54000 1)	1,539.32	54000 1)	1,539.32	54000 1)
54,01 - 65,00	8	35	10	7	1,539.32	xxxx 1)	1,539.32	xxxx 1)	1,539.32	xxxx 1)	1,539.32	xxxx 1)

P							●		●			●
M									●			
K							●					●
N							○				●	
S												
H												
O											○	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time on request / Minimum order 2 pieces

→ v_c Page 70–72

For xxxx please indicate requested Ø in H7 in the order (e.g Ø 24.12 H7 → article no. 40 539 2412)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!
All heads are also available as fixed head variants (not adjustable) on request.

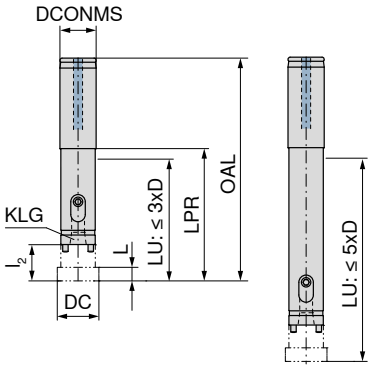
→ **Page 96+97**
Here you will find a detailed operating instruction.

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

REAMAX TS – Holder

▲ KLG = Coupling Size

Scope of supply:
Complete holder incl. pull stud but without exchangeable head





DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	L mm	DCONMS mm	torque moment Nm	40 501 ... £ U3/4E		40 503 ... £ U3/4E	
18,00 - 19,99	75A.40.13010	1	130	20	80	6	20	1,5	439.52	**02099**		
18,00 - 19,99	75A.40.15010	1	190	20	140	6	20	1,5			455.86	**02099**
20,00 - 21,99	75A.40.13020	2	130	20	80	6	20	2,5	455.86	**02299**		
20,00 - 21,99	75A.40.15020	2	190	20	140	6	20	2,5			475.46	**02299**
22,00 - 26,99	75A.40.13030	3	130	20	80	6	20	4	467.22	**02799**		
22,00 - 26,99	75A.40.15030	3	210	20	160	6	20	4			501.60	**02799**
27,00 - 34,99	75A.40.13040	4	176	25	120	6	25	5	485.27	**03599**		
27,00 - 34,99	75A.40.15040	4	236	25	180	6	25	5			516.24	**03599**
35,00 - 41,99	75A.40.13050	5	176	25	120	6	25	6	553.87	**04299**		
35,00 - 41,99	75A.40.15050	5	256	25	200	6	25	6			584.37	**04299**
42,00 - 51,99	75A.40.13060	6	180	30	120	6	32	10	571.79	**05299**		
42,00 - 51,99	75A.40.15060	6	280	30	220	6	32	10			603.27	**05299**
52,00 - 65,00	75A.40.13070	7	180	30	120	8	32	13	589.82	**06599**		
52,00 - 65,00	75A.40.15070	7	280	30	220	8	32	13			622.29	**06599**

Do not heat shrink tools !


Clamping key – T


Key D


Reamax TS pull stud

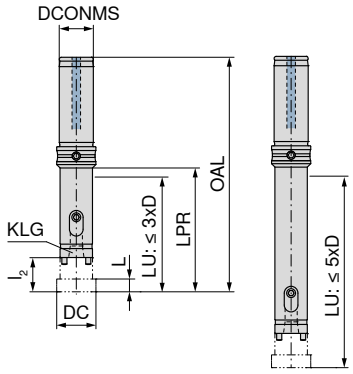
Spare parts DC		80 397 ... £ Y7			80 950 ... £ Y7		40 900 ... £ U3/4E	
18,00 - 19,99				T08 - IP	11.62	**039**	18.29	**00100**
20,00 - 21,99	SW2,5	6.61	**025**				18.29	**00200**
22,00 - 26,99	SW3	6.37	**030**				18.29	**00300**
27,00 - 34,99	SW3	6.37	**030**				18.29	**00400**
35,00 - 41,99	SW3	6.37	**030**				25.36	**00500**
42,00 - 51,99	SW4	6.37	**040**				25.36	**00500**
52,00 - 65,00	SW5	8.11	**050**				25.36	**00700**

→ **Page 96+97**
Here you will find a detailed operating instruction.

REAMAX TS – Holder

▲ KLG = Coupling size
▲ Adjustment inside the machine
▲ Alignable DAH Zero holder for correction of concentricity error
▲ DAH Zero holder is pre-loaded and set to a runout of < 0.005 mm

Scope of supply:
Complete holder incl. pull stud but without exchangeable head





DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	L mm	DCONMS mm	torque moment Nm	40 504 ... £ U3/4E		40 506 ... £ U3/4E	
18,00 - 19,99	75A.41.13010	1	145	20	80	6	20	1,5	589.82	**02099**		
18,00 - 19,99	75A.41.15010	1	205	20	140	6	20	1,5			627.33	**02099**
20,00 - 21,99	75A.41.13020	2	145	20	80	6	20	2,5	596.35	**02299**		
20,00 - 21,99	75A.41.15020	2	205	20	140	6	20	2,5			646.94	**02299**
22,00 - 26,99	75A.41.13030	3	145	20	80	6	20	4	611.00	**02799**		
22,00 - 26,99	75A.41.15030	3	225	20	160	6	20	4			664.97	**02799**
27,00 - 34,99	75A.41.13040	4	176	25	120	6	25	5	642.10	**03599**		
27,00 - 34,99	75A.41.15040	4	236	25	180	6	25	5			664.97	**03599**
35,00 - 41,99	75A.41.13050	5	176	25	120	6	25	6	780.90	**04299**		
35,00 - 41,99	75A.41.15050	5	256	25	200	6	25	6			795.67	**04299**

Do not heat shrink tools !


Clamping key – T

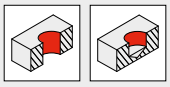
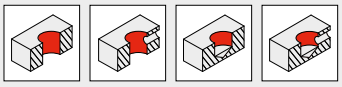

Key D


Reamax TS pull stud

Spare parts DC	80 397 ... £ Y7		80 950 ... £ Y7		40 900 ... £ U3/4E	
18,00 - 19,99			T08 - IP	11.62 **039**	18.29	**00100**
20,00 - 21,99	SW2,5	6.61 **025**			18.29	**00200**
22,00 - 26,99	SW3	6.37 **030**			18.29	**00300**
27,00 - 34,99	SW3	6.37 **030**			18.29	**00400**
35,00 - 41,99	SW3	6.37 **030**			25.36	**00500**

→ **Page 96+97**
Here you will find a detailed operating instruction.

REAMAX – Selection guide

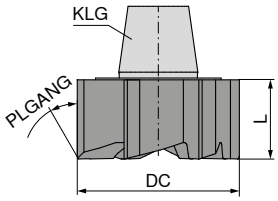
			Ø 12,5 – 40 mm					
Article no.			40 536 …	40 525 …	40 560 …	40 551 …	40 570 …	40 505 …
KOMET no.			640.93	640.93	640.65	640.65	640.27	640.71
Cutting edge geometry			ASG4000	ASG3000	ASG3000	ASG0106	ASG0706	ASG3000
Lead angle			25°	45°	45°	45°	45°/8°	45°
Grade / coating			DST	DST	DBG-P	DBG-P	DBC	TiN
Preferred type available			✓	✓	✓	✓		✓
Application			Through hole	Through hole + blind hole				
Material sub-group		Index						
P	Non alloyed steel	P.1.1	●	●	●			○
		P.1.2	●	●	●			○
		P.1.3	●	●	●			○
		P.1.4	●	●	●			○
		P.1.5	●	●	●			○
	Low alloyed steel	P.2.1	●	●	●			○
		P.2.2	●	●	●			○
		P.2.3	●	●	●			○
		P.2.4			●	●		○
	High-alloy steel and high-alloy tool steel	P.3.1				●		
		P.3.2				●		
		P.3.3				●		
	Stainless steel	P.4.1				●		
		P.4.2				●		
M	Stainless steel	M.1.1				●		
		M.2.1				●		
		M.3.1				●		
K	Grey cast iron	K.1.1			●			○
		K.1.2			●			○
	Spherulitic graphite cast iron	K.2.1	○	●	●			
		K.2.2	○	●	●			
	Malleable iron	K.3.1		●	●			
		K.3.2	○	●	●			
N	Aluminum alloys	N.1.1					●	
		N.1.2					●	
	Cast aluminium alloys	N.2.1					●	
		N.2.2					●	
		N.2.3						
	Copper and copper alloys (Bronze, Brass)	N.3.1		○				●
		N.3.2		○				●
		N.3.3						●
	Magnesium alloys	N.4.1						
H	Hardened steel	H.1.1				●		
		H.1.2				●		
		H.1.3				●		
		H.1.4						
	Chilled iron	H.2.1				●		
	Hardened cast iron	H.3.1				●		
O	Non-metal materials	O.1.1						
		O.1.2						
		O.2.1						
		O.2.2						
		O.3.1					○	

● = Main application
○ = Additional range of application

REAMAX – Replaceable reaming heads

- ▲ Up to tolerance class IT 7 with absolute process security, from the first hole
- ▲ Maximum changeover precision guaranteed
- ▲ Maximum radial run-out accuracy thanks to precision-ground face and taper contact
- ▲ No Ø adjustment necessary
- ▲ Optimised for use with minimum quantity lubrication (MQL)
- ▲ Retraction from the hole at 3-4x feed rate
- ▲ KLG = Coupling size





	DST	DBG-P	DBC	DST	DBG-P	TiN
						
	640.93 PLGANG 25° ASG4000 CERMET Through hole	640.65 PLGANG 45° ASG0106 HM Through hole + blind hole	640.27 PLGANG 45/8° ASG0706 HM Through hole + blind hole	640.93 PLGANG 45° ASG3000 CERMET Through hole + blind hole	640.65 PLGANG 45° ASG3000 HM Through hole + blind hole	640.71 PLGANG 45° ASG3000 HM Through hole + blind hole
	40 536 ...	40 551 ...	40 570 ...	40 525 ...	40 560 ...	40 505 ...

DC H7 mm	L mm	ZEFP	KLG	£ U3/4E		£ U3/4E		£ U3/4E		£ U3/4E		£ U3/4E		£ U3/4E	
12,50 - 14,99	9	6	1	612.18	xxxx 1)	612.18	xxxx 1)	612.18	xxxx 1)	612.18	xxxx 1)	612.18	xxxx 1)	612.18	xxxx 1)
15,00	9	6	1	290.88	15000 1)	278.38	15000	278.38	15000 1)	290.88	15000 1)	278.38	15000	509.35	150
15,01 - 15,99	9	6	1	612.18	xxxx 1)	612.18	xxxx 1)	612.18	xxxx 1)	612.18	xxxx 1)	612.18	xxxx 1)	612.18	xxxx 1)
16,00	9	6	2	585.87	160	320.20	16000	320.20	16000 1)	585.87	160	320.20	16000	585.87	160
16,01 - 17,99	9	6	2	698.47	xxxx 1)	698.47	xxxx 1)	698.47	xxxx 1)	698.47	xxxx 1)	698.47	xxxx 1)	698.47	xxxx 1)
18,00	9	6	2	593.04	180	324.12	18000	324.12	18000 1)	593.04	180	324.12	18000	593.04	180
18,01 - 19,99	9	6	2	698.47	xxxx 1)	698.47	xxxx 1)	698.47	xxxx 1)	698.47	xxxx 1)	698.47	xxxx 1)	698.47	xxxx 1)
20,00	9	6	2	605.00	200	330.66	20000	330.66	20000 1)	605.00	200	330.66	20000	605.00	200
20,01 - 21,99	9	6	2	698.47	xxxx 1)	698.47	xxxx 1)	698.47	xxxx 1)	698.47	xxxx 1)	698.47	xxxx 1)	698.47	xxxx 1)
22,00	9	8	3	619.36	220	338.50	22000	338.50	22000 1)	619.36	220	338.50	22000	619.36	220
22,01 - 23,99	9	8	3	754.80	xxxx 1)	754.80	xxxx 1)	754.80	xxxx 1)	754.80	xxxx 1)	754.80	xxxx 1)	754.80	xxxx 1)
24,00	9	8	3	365.90	24000 1)	350.25	24000	350.25	24000 1)	365.90	24000 1)	350.25	24000	640.88	240
24,01 - 24,99	9	8	3	754.80	xxxx 1)	754.80	xxxx 1)	754.80	xxxx 1)	754.80	xxxx 1)	754.80	xxxx 1)	754.80	xxxx 1)
25,00	9	8	3	667.17	250	364.65	25000	364.65	25000 1)	667.17	250	364.65	25000	667.17	250
25,01 - 25,99	9	8	3	754.80	xxxx 1)	754.80	xxxx 1)	754.80	xxxx 1)	754.80	xxxx 1)	754.80	xxxx 1)	754.80	xxxx 1)
26,00 - 27,99	9	8	4	864.87	xxxx 1)	864.87	xxxx 1)	864.87	xxxx 1)	864.87	xxxx 1)	864.87	xxxx 1)	864.87	xxxx 1)
28,00	9	8	4	691.09	280	377.71	28000	377.71	28000 1)	691.09	280	377.71	28000	691.09	280
28,01 - 29,99	9	8	4	864.87	xxxx 1)	864.87	xxxx 1)	864.87	xxxx 1)	864.87	xxxx 1)	864.87	xxxx 1)	864.87	xxxx 1)
30,00	9	8	4	724.57	300	396.00	30000	396.00	30000 1)	724.57	300	396.00	30000	724.57	300
30,01 - 32,00	9	8	4	864.87	xxxx 1)	864.87	xxxx 1)	864.87	xxxx 1)	864.87	xxxx 1)	864.87	xxxx 1)	864.87	xxxx 1)
32,01 - 39,99	9	8	5	980.65	xxxx 1)	980.65	xxxx 1)	980.65	xxxx 1)	980.65	xxxx 1)	980.65	xxxx 1)	980.65	xxxx 1)
40,00	9	8	5	767.61	400	419.52	40000	419.52	40000 1)	767.61	400	419.52	40000	767.61	400

P	●	●		●	●	○
M		●				
K	○			●	●	○
N			●	○		●
S						
H		●				
O			○			

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time on request / Minimum order 2 pieces

→ v_c Page 73–75

For xxxx please indicate requested Ø in H7 in the order (e.g. Ø 15.12 H7 → article no. 40 525 1512)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!

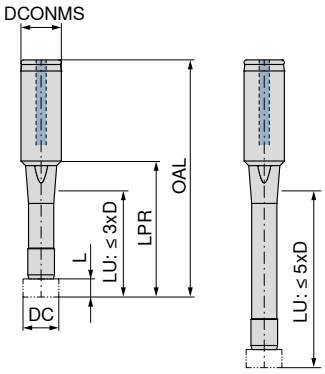
A detailed operating manual is available for download in the online shop next to the product.

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

REAMAX – Holder

▲ KLG = Coupling Size

Scope of supply:
Complete holder, but without exchangeable head





DC mm	KOMET no.	KLG	OAL mm	LPR mm	L mm	DCONMS mm	torque moment Nm	40 590 ... £ U3/4E		40 591 ... £ U3/4E	
12,50 - 15,99	640.01.001	1	107	59	9	16	4 - 5	795.13	**016** [1]		
12,50 - 15,99	640.81.001	1	137	89	9	16	4 - 5			795.13	**016** [1]
16,00 - 21,99	640.01.002	2	119	69	9	20	6 - 7	830.98	**022**		
16,00 - 21,99	640.81.002	2	169	119	9	20	6 - 7			830.98	**022**
22,00 - 25,99	640.01.003	3	140	84	9	25	10 - 12	884.78	**026**		
22,00 - 25,99	640.81.003	3	196	140	9	25	10 - 12			884.78	**026**
26,00 - 32,00	640.01.005	4	160	104	9	25	18 - 20	914.67	**032**		
26,00 - 32,00	640.81.005	4	226	170	9	25	18 - 20			914.67	**032**
32,01 - 40,00	640.01.006	5	199	139	9	32	26 - 28	1,046.21	**040**		
32,01 - 40,00	640.81.006	5	270	210	9	32	26 - 28			1,046.21	**040**

1) This holder can also be used for reaming heads for through holes from Ø 12 mm, which are available on request

Do not heat shrink tools !

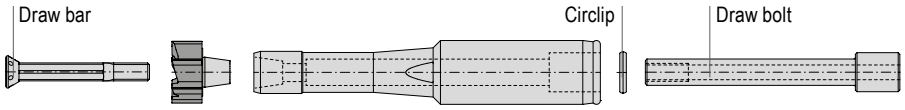

Draw bolt 5xD


Draw bolt 3xD


Draw bar


Circlip

Spare parts DC	40 950 ... £ U3/4E		40 950 ... £ U3/4E		40 950 ... £ U3/4E		40 950 ... £ U3/4E	
12,50 - 15,99			108.33	**101**	275.00	**001**	1.30	**301**
12,50 - 15,99	110.85	**107**			275.00	**001**	1.30	**301**
16,00 - 21,99			108.33	**102**	275.00	**002**	1.30	**302**
16,00 - 21,99	110.85	**108**			275.00	**002**	1.30	**302**
22,00 - 25,99			126.74	**103**	286.96	**003**	1.30	**303**
22,00 - 25,99	130.53	**109**			286.96	**003**	1.30	**303**
26,00 - 32,00			145.87	**104**	302.03	**004**	1.30	**303**
26,00 - 32,00	150.24	**110**			302.03	**004**	1.30	**303**
32,01 - 40,00			165.00	**106**	325.93	**005**	1.30	**304**
32,01 - 40,00	169.96	**112**			325.93	**005**	1.30	**304**



A detailed operating manual is available for download in the online shop next to the product.

MultiChange – Programme Overview

The "MultiChange" interchangeable head system enables an extremely fast and problem free tool change. Provides quick changeover and concentricity with the highest stability at the same time. For a multitude of applications, the suitable interchangeable heads are available in the following chapters.

Exchangeable heads

→ Chapter 2, Solid carbide drilling

Page No. 2|107

Solid Carbide NC Spot Drills

Ø 8, 10, 12, 16, 20 mm
NOF 2



SIG 90° | SIG 120° | SIG 142°

→ Chapter 4, Reaming and countersinking

Page No. 4|18 + 4|19

Replaceable reaming heads

Ø 8,00 – 30,20 mm



Through hole

Ø 12,20 – 30,20 mm



Blind hole

→ Chapter 14, Solid carbide milling cutters

Page No. 14|198 – 14|202

Solid carbide shoulder mills
Ø 8, 10, 12, 16, 20 mm /
ZEFP 3+4



Type PCR-UNI | Type PCR-ALU | Type N

Solid carbide torus bull nose milling cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 3+4



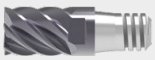
Type W | Type N

Solid carbide rough and finish milling cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 4+6



Type NF

Solid carbide finish milling cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 6



Type N

Solid carbide ball-nosed end mills
Ø 10, 12, 16, 20 mm / ZEFP 4



Type N

Solid carbide high-feed cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 6



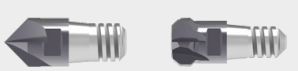
Type N

Solid carbide quarter round cutter
Ø 8, 10, 12, 16, 20 mm / ZEFP 6



Type N

Solid carbide deburring cutters
Ø 10, 12, 16, 20 mm / ZEFP 4+6



Type N | Type N

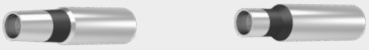
NOF / ZEFP = Number of cutting edges

Tool holder

→ Catalogue – Clamping technology, Chapter 16 Accessories

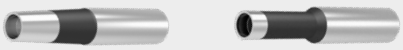
Page No. 16|259 – 16|261

OAL 60 – 90 mm

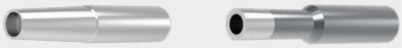


Tapered 87° / Steel | Cylindrical* / Steel

OAL 85 – 120 mm



Tapered 87° / Steel | Cylindrical* / Steel



Tapered 87° / Solid carbide | Cylindrical* / Solid carbide

OAL 110 – 150 mm



Tapered 87° / Solid carbide



Cylindrical* / Solid carbide

OAL 150 – 200 mm



Tapered 87° / Solid carbide



Cylindrical* / Steel



Cylindrical* / Solid carbide

OAL 200 – 250 mm



Cylindrical* / Steel



Cylindrical* / Solid carbide

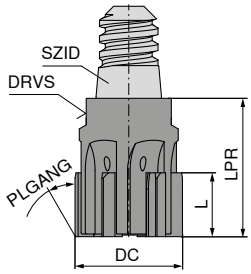
* only conditionally suitable for milling

4

MultiChange – Reaming Head, for Thro' Holes

- ▲ Up to tolerance class IT 7 with absolute process security, from the first hole
- ▲ High-speed reaming heads
- ▲ Irregular pitch for highest radial run-out accuracy
- ▲ A high level of changeover precision guaranteed
- ▲ SZID = Coupling size





	CWC10	TiAlN	K10
			
	Left Hand Helix PLGANG 30° CERMET Through hole	Left Hand Helix PLGANG 30° HM Through hole	straight flute PLGANG 45° Solid carbide Through hole
	40 210 ...	**40 220 ...**	**40 240 ...**

DC H7 mm	SZID	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm	£ U3		£ U3		£ U3	
8,00	06	8	18	4	6	5.0	355.49	**080**	355.49	**080**	320.40	**080** [1]
8,01 - 9,70	06	8	18	4	6	5.0	385.89	**xxxx** [1]	385.89	**xxxx** [2]	348.46	**xxxx** [1]
9,71 - 9,99	06	8	18	6	8	5.0	437.34	**xxxx** [1]	437.34	**xxxx** [2]	392.88	**xxxx** [1]
10,00	06	8	18	6	8	5.0	402.23	**100**	402.23	**100**	362.50	**100** [1]
10,01 - 10,70	06	8	18	6	8	5.0	437.34	**xxxx** [1]	437.34	**xxxx** [2]	392.88	**xxxx** [1]
10,71 - 11,99	08	8	20	6	8	12.5	437.34	**xxxx** [1]	437.34	**xxxx** [2]	392.88	**xxxx** [1]
12,00	08	8	20	6	8	12.5	402.23	**120**	402.23	**120**	362.50	**120** [1]
12,01 - 12,70	08	8	20	6	8	12.5	437.34	**xxxx** [1]	437.34	**xxxx** [2]	392.88	**xxxx** [1]
12,71 - 13,99	10	8	22	6	10	15.0	465.39	**xxxx** [1]	465.39	**xxxx** [2]	418.63	**xxxx** [1]
14,00	10	8	22	6	10	15.0	427.96	**140**	427.96	**140**	385.89	**140** [1]
14,01 - 15,99	10	8	22	6	10	15.0	465.39	**xxxx** [1]	465.39	**xxxx** [2]	418.63	**xxxx** [1]
16,00	10	8	22	6	10	15.0	427.96	**160**	427.96	**160**	385.89	**160** [1]
16,01 - 16,20	10	8	22	6	10	15.0	465.39	**xxxx** [1]	465.39	**xxxx** [2]	418.63	**xxxx** [1]
16,21 - 17,20	10	8	22	6	13	15.0	465.39	**xxxx** [1]	465.39	**xxxx** [2]	418.63	**xxxx** [1]
17,21 - 17,99	12	12	26	6	13	20.0	486.44	**xxxx** [1]	486.44	**xxxx** [2]	437.34	**xxxx** [1]
18,00	12	12	26	6	13	20.0	446.72	**180**	446.72	**180**	402.23	**180** [1]
18,01 - 19,20	12	12	26	6	13	20.0	486.44	**xxxx** [1]	486.44	**xxxx** [2]	437.34	**xxxx** [1]
19,21 - 19,99	12	12	26	6	16	20.0	486.44	**xxxx** [1]	486.44	**xxxx** [2]	437.34	**xxxx** [1]
20,00	12	12	26	6	16	20.0	446.72	**200**	446.72	**200**	402.23	**200** [1]
20,01 - 20,20	12	12	26	6	16	20.0	486.44	**xxxx** [1]	486.44	**xxxx** [2]	437.34	**xxxx** [1]
20,21 - 21,20	12	12	26	6	16	20.0	507.49	**xxxx** [1]	507.49	**xxxx** [2]	456.03	**xxxx** [1]
21,21 - 21,99	16	12	26	6	16	25.0	507.49	**xxxx** [1]	507.49	**xxxx** [2]	456.03	**xxxx** [1]
22,00	16	12	26	6	16	25.0	467.74	**220**	467.74	**220**	418.63	**220** [1]
22,01 - 23,99	16	12	26	6	16	25.0	507.49	**xxxx** [1]	507.49	**xxxx** [2]	456.03	**xxxx** [1]
24,00	16	12	26	6	16	25.0	467.74	**240**	467.74	**240**	418.63	**240** [1]
24,01 - 24,20	16	12	26	6	16	25.0	507.49	**xxxx** [1]	507.49	**xxxx** [2]	456.03	**xxxx** [1]
24,21 - 24,99	16	12	26	6	19	25.0	542.56	**xxxx** [1]	542.56	**xxxx** [2]	488.79	**xxxx** [1]
25,00	16	12	26	6	19	25.0	498.12	**250**	498.12	**250**	449.00	**250** [1]
25,01 - 25,99	16	12	26	6	19	25.0	542.56	**xxxx** [1]	542.56	**xxxx** [2]	488.79	**xxxx** [1]
26,00	16	12	26	6	19	25.0	498.12	**260**	498.12	**260**	449.00	**260** [1]
26,01 - 26,20	16	12	26	6	19	25.0	542.56	**xxxx** [1]	542.56	**xxxx** [2]	488.79	**xxxx** [1]
26,21 - 27,99	16	12	26	6	21	25.0	542.56	**xxxx** [1]	542.56	**xxxx** [2]	488.79	**xxxx** [1]
28,00	16	12	26	6	21	25.0	498.12	**280**	498.12	**280**	449.00	**280** [1]
28,01 - 28,20	16	12	26	6	21	25.0	542.56	**xxxx** [1]	542.56	**xxxx** [2]	488.79	**xxxx** [1]
28,21 - 29,20	16	12	26	6	24	25.0	601.02	**xxxx** [1]	601.02	**xxxx** [2]	540.22	**xxxx** [1]
29,21 - 29,99	16	12	26	8	24	25.0	601.02	**xxxx** [1]	601.02	**xxxx** [2]	540.22	**xxxx** [1]
30,00	16	12	26	8	24	25.0	551.93	**300**	551.93	**300**	498.12	**300** [1]
30,01 - 30,20	16	12	26	8	24	25.0	601.02	**xxxx** [1]	601.02	**xxxx** [2]	540.22	**xxxx** [1]

P	●	●	
M		●	
K	●		
N			●
S			
H			
O			

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 23 working days / Minimum order 2 pieces

→ v_c Page 76

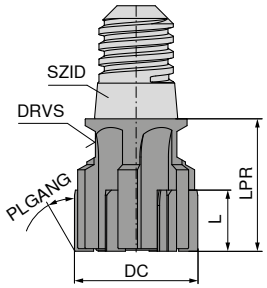
For xxxx please indicate requested diameter in H7 in the order (e.g. 10.89 H7 → article no. 40 210 1089)!
All other diameters and tolerance classes are also possible on request (e.g. 8.5 $^{+0.025}$ or 11 N7).

Holders and accessories can be found in → **Catalogue – Clamping technology, Chapter 16**.

MultiChange – Reaming Head, for blind holes

- ▲ Up to tolerance class IT 7 with absolute process security, from the first hole
- ▲ High-speed reaming heads
- ▲ Irregular pitch for highest radial run-out accuracy
- ▲ A high level of changeover precision guaranteed
- ▲ SZID = Coupling size





CWC10	TiAlN	K10
		
straight flute PLGANG 60° CERMET Blind hole	straight flute PLGANG 60° HM Blind hole	straight flute PLGANG 60° Solid carbide Blind hole
40 211 ...	**40 221 ...**	**40 241 ...**

DC H7 mm	SZID	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm	£ U3		£ U3		£ U3	
12,20 - 12,70	06	8	20	6	6	5.0	437.34	**xxxx** [1]	437.34	**xxxx** [2]	392.88	**xxxx** [1]
12,71 - 13,99	06	8	22	6	6	5.0	465.39	**xxxx** [1]	465.39	**xxxx** [2]	418.63	**xxxx** [1]
14,00	06	8	22	6	6	5.0	427.96	**140**	427.96	**140**	385.89	**140** [1]
14,01 - 14,20	06	8	22	6	6	5.0	465.39	**xxxx** [1]	465.39	**xxxx** [2]	418.63	**xxxx** [1]
14,21 - 15,99	08	8	22	6	8	12.5	465.39	**xxxx** [1]	465.39	**xxxx** [2]	418.63	**xxxx** [1]
16,00	08	8	22	6	8	12.5	427.96	**160**	427.96	**160**	385.89	**160** [1]
16,01 - 16,20	08	8	22	6	8	12.5	465.39	**xxxx** [1]	465.39	**xxxx** [2]	418.63	**xxxx** [1]
16,21 - 17,20	10	8	22	6	10	15.0	465.39	**xxxx** [1]	465.39	**xxxx** [2]	418.63	**xxxx** [1]
17,21 - 17,99	10	12	26	6	10	15.0	486.44	**xxxx** [1]	486.44	**xxxx** [2]	437.34	**xxxx** [1]
18,00	10	12	26	6	10	15.0	446.72	**180**	446.72	**180**	402.23	**180** [1]
18,01 - 19,99	10	12	26	6	10	15.0	486.44	**xxxx** [1]	486.44	**xxxx** [2]	437.34	**xxxx** [1]
20,00	10	12	26	6	10	15.0	446.72	**200**	446.72	**200**	402.23	**200** [1]
20,01 - 20,20	10	12	26	6	10	15.0	486.44	**xxxx** [1]	486.44	**xxxx** [2]	437.34	**xxxx** [1]
20,21 - 21,99	12	12	26	6	13	20.0	507.49	**xxxx** [1]	507.49	**xxxx** [2]	456.03	**xxxx** [1]
22,00	12	12	26	6	13	20.0	467.74	**220**	467.74	**220**	418.63	**220** [1]
22,01 - 23,99	12	12	26	6	13	20.0	507.49	**xxxx** [1]	507.49	**xxxx** [2]	456.03	**xxxx** [1]
24,00	12	12	26	6	13	20.0	467.74	**240**	467.74	**240**	418.63	**240** [1]
24,01 - 24,20	12	12	26	6	13	20.0	507.49	**xxxx** [1]	507.49	**xxxx** [2]	456.03	**xxxx** [1]
24,21 - 24,99	16	12	26	6	16	25.0	542.56	**xxxx** [1]	542.56	**xxxx** [2]	488.79	**xxxx** [1]
25,00	16	12	26	6	16	25.0	498.12	**250**	498.12	**250**	449.00	**250** [1]
25,01 - 25,99	16	12	26	6	16	25.0	542.56	**xxxx** [1]	542.56	**xxxx** [2]	488.79	**xxxx** [1]
26,00	16	12	26	6	16	25.0	498.12	**260**	498.12	**260**	449.00	**260** [1]
26,01 - 27,99	16	12	26	6	16	25.0	542.56	**xxxx** [1]	542.56	**xxxx** [2]	488.79	**xxxx** [1]
28,00	16	12	26	6	16	25.0	498.12	**280**	498.12	**280**	449.00	**280** [1]
28,01 - 28,20	16	12	26	6	16	25.0	542.56	**xxxx** [1]	542.56	**xxxx** [2]	488.79	**xxxx** [1]
28,21 - 29,20	16	12	26	6	16	25.0	601.02	**xxxx** [1]	601.02	**xxxx** [2]	540.22	**xxxx** [1]
29,21 - 29,99	16	12	26	8	16	25.0	601.02	**xxxx** [1]	601.02	**xxxx** [2]	540.22	**xxxx** [1]
30,00	16	12	26	8	16	25.0	551.93	**300**	551.93	**300**	498.12	**300** [1]
30,01 - 30,20	16	12	26	8	16	25.0	601.02	**xxxx** [1]	601.02	**xxxx** [2]	540.22	**xxxx** [1]

P	●	●	
M		●	
K	●		
N			●
S			
H			
O			

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 23 working days / Minimum order 2 pieces

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For xxxx please indicate requested diameter in H7 in the order (e.g. 12.89 H7 → article no. 40 211 1289)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 15 N7).

Holders and accessories can be found in → **Catalogue – Clamping technology, Chapter 16**.

Monomax – Selection guide

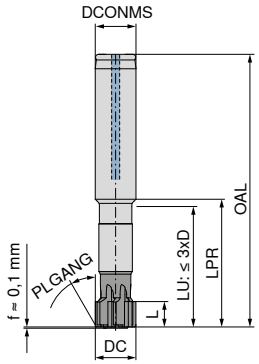
			Ø 5,60 – 25,89 mm								
Article no. (3xD)			40 635 …	40 625 …	40 656 …	40 652 …	40 648 …	40 605 …	40 657 …	40 644 …	40 640 …
Article no. (5xD)			40 636 …	40 626 …	40 666 …	40 653 …	40 649 …	40 606 …	40 665 …	40 645 …	40 641 …
KOMET no. (3xD)			56J.93	56J.93	56J.65	56J.65	56J.17	56J.71	56H.65	56H.65	56H.17
KOMET no. (5xD)			56R.93	56R.93	56R.65	56R.65	56R.17	56R.71	56Q.65	56Q.65	56Q.17
Cutting edge geometry			ASG4000	ASG3000	ASG3000	ASG0106	ASG0706	ASG3000	ASG3000	ASG0106	ASG0706
Lead angle			25°	45°	45°	45°	45°/8°	45°	45°	45°	45°/8°
Grade / coating			DST	DST	DBG-P	DBG-P	DBC	TIN	DBG-P	DBG-P	DBC
Preferred type available			✓	✓	✓	✓		✓			
Application			Through hole						Blind hole		
Material sub-group		Index									
P	Non alloyed steel	P.1.1	●	●	●			○	●		
		P.1.2	●	●	●			○	●		
		P.1.3	●	●	●			○	●		
		P.1.4	●	●	●			○	●		
		P.1.5	●	●	●			○	●		
	Low alloyed steel	P.2.1	●	●	●			○	●		
		P.2.2	●	●	●			○	●		
		P.2.3	●	●	●			○	●		
		P.2.4			●	●		○	●		
	High-alloy steel and high-alloy tool steel	P.3.1				●				●	
		P.3.2				●				●	
		P.3.3				●				●	
	Stainless steel	P.4.1				●				●	
		P.4.2				●				●	
M	Stainless steel	M.1.1				●				●	
		M.2.1				●				●	
		M.3.1				●				●	
K	Grey cast iron	K.1.1			●			○	●		
		K.1.2			●			○	●		
	Spherulitic graphite cast iron	K.2.1	○	●	●				●		
		K.2.2	○	●	●				●		
	Malleable iron	K.3.1	○	●	●				●		
		K.3.2	○	●	●				●		
N	Aluminum alloys	N.1.1					●				●
		N.1.2					●				●
	Cast aluminium alloys	N.2.1					●				●
		N.2.2					●				●
		N.2.3					●				●
	Copper and copper alloys (Bronze, Brass)	N.3.1		○				●			
		N.3.2		○				●			
		N.3.3						●			
	Magnesium alloys	N.4.1									
O	Non-metal materials	O.1.1									
		O.1.2									
		O.2.1									
		O.2.2									
		O.3.1					○				○

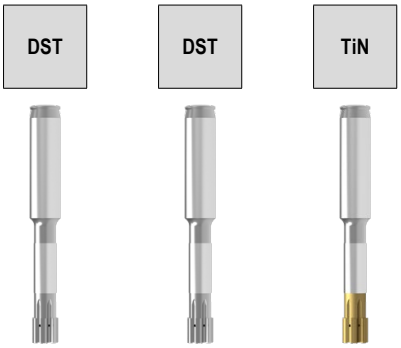
● = Main application
○ = Additional range of application

Monomax – High-speed reamers, short

▲ adjustable for smallest bore tolerances
▲ wear compensation within the tolerance zone
▲ retraction from the hole at 3–4 times the cutting feed rate
▲ up to tolerance class IT 5 with absolute process security, from the first hole







56J.93 | 56J.93 | 56J.71
≤ 3xD | ≤ 3xD | ≤ 3xD
PLGANG 45° | PLGANG 25° | PLGANG 45°
ASG3000 | ASG4000 | ASG3000
CERMET | CERMET | HM
Through hole | Through hole | Through hole

DC H7 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 625 ... £ U3/4E		40 635 ... £ U3/4E		40 605 ... £ U3/4E	
5,60 - 5,99	9.5	35	40	85	12	4	843.95	xxxx 1)	843.95	xxxx 1)	843.95	xxxx 1)
6,00	9.5	35	40	85	12	4	698.27	060	698.27	060	698.27	060
6,01 - 7,99	9.5	35	40	85	12	4	843.95	xxxx 1)	843.95	xxxx 1)	843.95	xxxx 1)
8,00	9.5	35	40	85	12	4	724.57	080	724.57	080	724.57	080
8,01 - 8,89	9.5	35	40	85	12	4	843.95	xxxx 1)	843.95	xxxx 1)	843.95	xxxx 1)
8,90 - 9,89	9.5	45	50	95	12	6	971.85	xxxx 1)	971.85	xxxx 1)	971.85	xxxx 1)
9,90 - 9,99	9.5	45	50	95	12	6	971.85	xxxx 1)	971.85	xxxx 1)	971.85	xxxx 1)
10,00	9.5	45	50	95	12	6	784.35	100	784.35	100	784.35	100
10,01 - 11,99	9.5	45	50	95	12	6	971.85	xxxx 1)	971.85	xxxx 1)	971.85	xxxx 1)
12,00	9.5	45	50	95	12	6	808.26	120	808.26	120	808.26	120
12,01 - 13,99	9.5	45	50	95	12	6	971.85	xxxx 1)	971.85	xxxx 1)	971.85	xxxx 1)
14,00	9.5	45	50	95	12	6	865.66	140	865.66	140	865.66	140
14,01 - 14,99	9.5	45	50	95	12	6	971.85	xxxx 1)	971.85	xxxx 1)	971.85	xxxx 1)
15,00	9.5	45	50	95	12	6	887.17	150	887.17	150	887.17	150
15,01 - 15,89	9.5	45	50	95	12	6	971.85	xxxx 1)	971.85	xxxx 1)	971.85	xxxx 1)
15,90 - 15,99	9.5	45	50	100	16	6	1,194.60	xxxx 1)	1,194.60	xxxx 1)	1,194.60	xxxx 1)
16,00	9.5	45	50	100	16	6	908.70	160	908.70	160	908.70	160
16,01 - 17,99	9.5	45	50	100	16	6	1,194.60	xxxx 1)	1,194.60	xxxx 1)	1,194.60	xxxx 1)
18,00	9.5	45	50	100	16	6	970.85	180	970.85	180	970.85	180
18,01 - 18,89	9.5	45	50	100	16	6	1,194.60	xxxx 1)	1,194.60	xxxx 1)	1,194.60	xxxx 1)
18,90 - 19,99	9.5	55	60	120	20	6	1,450.15	xxxx 1)	1,450.15	xxxx 1)	1,450.15	xxxx 1)
20,00	9.5	55	60	120	20	6	1,047.40	200	1,047.40	200	1,047.40	200
20,01 - 25,89	9.5	55	60	120	20	6	1,450.15	xxxx 1)	1,450.15	xxxx 1)	1,450.15	xxxx 1)
P							●		●		○	
M												
K							●		○		○	
N							○				●	
S												
H												
O												

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time on request / Minimum order 2 pieces

→ v_c Page 77–80

Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 635 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

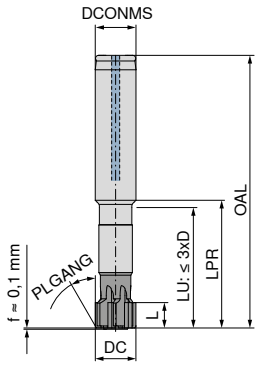
Detailed adjustment instructions are available to download in the online shop for the item.

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

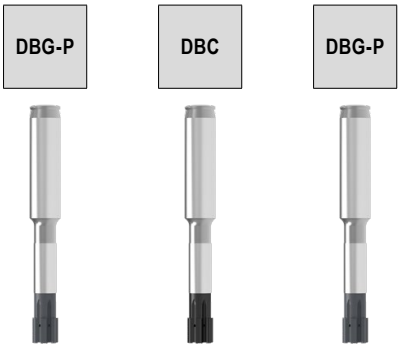
Monomax – High-speed reamers, short

▲ adjustable for smallest bore tolerances
▲ wear compensation within the tolerance zone
▲ retraction from the hole at 3–4 times the cutting feed rate
▲ up to tolerance class IT 5 with absolute process security, from the first hole





NEW



	DBG-P	DBC	DBG-P
	56J.65	56J.17	56J.65
	≤ 3xD	≤ 3xD	≤ 3xD
	PLGANG 45°	PLGANG 45/8°	PLGANG 45°
	ASG0106	ASG0706	ASG3000
	HM	HM	HM
	Through hole	Through hole	Through hole
	40 652 ...	**40 648 ...**	**40 656 ...**

DC H7 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ U3/4E		£ U3/4E		£ U3/4E	
5,60 - 5,99	9.5	35	40	85	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
6,00	9.5	35	40	85	12	4	381.63	**06000**	843.95	**06000**[1]	698.27	**06000**
6,01 - 7,99	9.5	35	40	85	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
8,00	9.5	35	40	85	12	4	396.00	**08000**	843.95	**08000**[1]	724.57	**08000**
8,01 - 8,89	9.5	35	40	85	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
8,90 - 9,89	9.5	45	50	95	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
9,90 - 9,99	9.5	45	50	95	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
10,00	9.5	45	50	95	12	6	428.68	**10000**	971.85	**10000**[1]	784.35	**10000**
10,01 - 11,99	9.5	45	50	95	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
12,00	9.5	45	50	95	12	6	441.73	**12000**	971.85	**12000**[1]	808.26	**12000**
12,01 - 13,99	9.5	45	50	95	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
14,00	9.5	45	50	95	12	6	473.13	**14000**	971.85	**14000**[1]	865.66	**14000**
14,01 - 14,99	9.5	45	50	95	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
15,00	9.5	45	50	95	12	6	484.88	**15000**	971.85	**15000**[1]	887.17	**15000**
15,01 - 15,89	9.5	45	50	95	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
15,90 - 15,99	9.5	45	50	100	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
16,00	9.5	45	50	100	16	6	496.64	**16000**	1,194.60	**16000**[1]	908.70	**16000**
16,01 - 17,99	9.5	45	50	100	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
18,00	9.5	45	50	100	16	6	530.63	**18000**	1,194.60	**18000**[1]	970.85	**18000**
18,01 - 18,89	9.5	45	50	100	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
18,90 - 19,99	9.5	55	60	120	20	6	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]
20,00	9.5	55	60	120	20	6	572.46	**20000**	1,450.15	**20000**[1]	1,047.40	**20000**
20,01 - 25,89	9.5	55	60	120	20	6	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]

P	●		●
M	●		
K			●
N		●	
S			
H			
O		○	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time on request / Minimum order 2 pieces

→ v_c Page 77–80

Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 652 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

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→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

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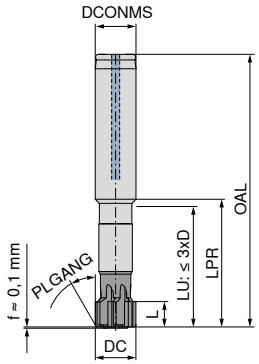
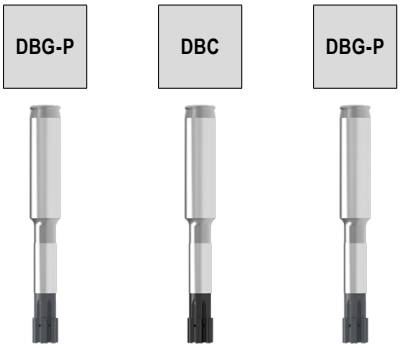
- ▲ up to tolerance class IT 5 with absolute process security, from the first hole







	DBG-P	DBC	DBG-P
	56H.65	56H.17	56H.65
	≤ 3xD	≤ 3xD	≤ 3xD
	PLGANG 45°	PLGANG 45/8°	PLGANG 45°
	ASG0106	ASG0706	ASG3000
	HM	HM	HM
	Blind hole	Blind hole	Blind hole
	40 644 ...	**40 640 ...**	**40 657 ...**
	£ U3/4E	£ U3/4E	£ U3/4E

DC H7 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP								
5,60 - 5,99	9.5	35	40	85	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
6,00	9.5	35	40	85	12	4	843.95	**06000** [1]	843.95	**06000** [1]	843.95	**06000** [1]
6,01 - 7,99	9.5	35	40	85	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
8,00	9.5	35	40	85	12	4	843.95	**08000** [1]	843.95	**08000** [1]	843.95	**08000** [1]
8,01 - 8,89	9.5	35	40	85	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
8,90 - 9,89	9.5	45	50	95	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
9,90 - 9,99	9.5	45	50	95	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
10,00	9.5	45	50	95	12	6	971.85	**10000** [1]	971.85	**10000** [1]	971.85	**10000** [1]
10,01 - 11,99	9.5	45	50	95	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
12,00	9.5	45	50	95	12	6	971.85	**12000** [1]	971.85	**12000** [1]	971.85	**12000** [1]
12,01 - 13,99	9.5	45	50	95	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
14,00	9.5	45	50	95	12	6	971.85	**14000** [1]	971.85	**14000** [1]	971.85	**14000** [1]
14,01 - 14,99	9.5	45	50	95	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
15,00	9.5	45	50	95	12	6	971.85	**15000** [1]	971.85	**15000** [1]	971.85	**15000** [1]
15,01 - 15,89	9.5	45	50	95	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
15,90 - 15,99	9.5	45	50	100	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
16,00	9.5	45	50	100	16	6	1,194.60	**16000** [1]	1,194.60	**16000** [1]	1,194.60	**16000** [1]
16,01 - 17,99	9.5	45	50	100	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
18,00	9.5	45	50	100	16	6	1,194.60	**18000** [1]	1,194.60	**18000** [1]	1,194.60	**18000** [1]
18,01 - 18,89	9.5	45	50	100	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
18,90 - 19,99	9.5	55	60	120	20	6	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]
20,00	9.5	55	60	120	20	6	1,450.15	**20000** [1]	1,450.15	**20000** [1]	1,450.15	**20000** [1]
20,01 - 25,89	9.5	55	60	120	20	6	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]

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1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time on request / Minimum order 2 pieces

→ v_c Page 77–80

Do not heat shrink tools !

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→ **Page 100**
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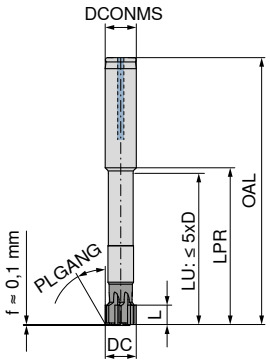
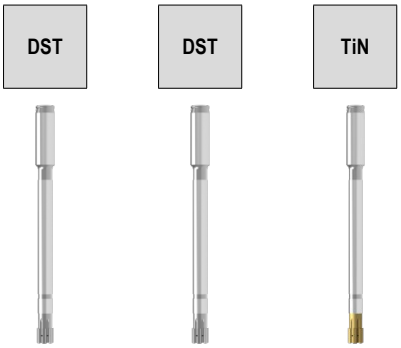
▲ wear compensation within the tolerance zone
▲ retraction from the hole at 3–4 times the cutting feed rate
▲ up to tolerance class IT 5 with absolute process security, from the first hole







56R.93	56R.93	56R.71
≤ 5xD	≤ 5xD	≤ 5xD
PLGANG 45°	PLGANG 25°	PLGANG 45°
ASG3000	ASG4000	ASG3000
CERMET	CERMET	HM
Through hole	Through hole	Through hole

DC H7 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 626 ... £ U3/4E		40 636 ... £ U3/4E		40 606 ... £ U3/4E	
5,60 - 5,99	9.5	80	85	130	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
6,00	9.5	80	85	130	12	4	698.27	**060**	698.27	**060**	698.27	**060**
6,01 - 7,99	9.5	80	85	130	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
8,00	9.5	80	85	130	12	4	724.57	**080**	724.57	**080**	724.57	**080**
8,01 - 8,89	9.5	80	85	130	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
8,90 - 9,89	9.5	80	85	130	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
9,90 - 9,99	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
10,00	9.5	110	115	160	12	6	784.35	**100**	784.35	**100**	784.35	**100**
10,01 - 11,99	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
12,00	9.5	110	115	160	12	6	808.26	**120**	808.26	**120**	808.26	**120**
12,01 - 13,99	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
14,00	9.5	110	115	160	12	6	865.66	**140**	865.66	**140**	865.66	**140**
14,01 - 14,99	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
15,00	9.5	110	115	160	12	6	887.17	**150**	887.17	**150**	887.17	**150**
15,01 - 15,89	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
15,90 - 15,99	9.5	125	130	180	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
16,00	9.5	125	130	180	16	6	908.70	**160**	908.70	**160**	908.70	**160**
16,01 - 17,99	9.5	125	130	180	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
18,00	9.5	125	130	180	16	6	970.85	**180**	970.85	**180**	970.85	**180**
18,01 - 18,89	9.5	125	130	180	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
18,90 - 19,99	9.5	135	140	200	20	6	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]
20,00	9.5	135	140	200	20	6	1,047.40	**200**	1,047.40	**200**	1,047.40	**200**
20,01 - 25,89	9.5	135	140	200	20	6	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]
P							●		●		○	
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H												
O												

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→ v_c Page 77–80

Do not heat shrink tools !

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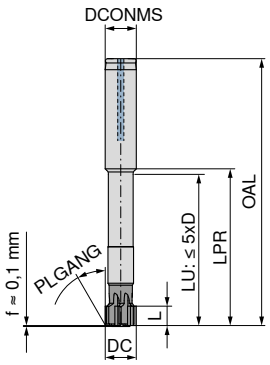
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ up to tolerance class IT 5 with absolute process security, from the first hole





NEW

	DBG-P	DBC	DBG-P
			
	56R.65	56R.17	56R.65
			
	≤ 5xD	≤ 5xD	≤ 5xD
	PLGANG 45°	PLGANG 45/8°	PLGANG 45°
	ASG0106	ASG0706	ASG3000
	HM	HM	HM
	Through hole	Through hole	Through hole
	40 653 ...	**40 649 ...**	**40 666 ...**

DC H7 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ U3/4E		£ U3/4E		£ U3/4E	
5,60 - 5,99	9.5	80	85	130	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
6,00	9.5	80	85	130	12	4	381.63	**06000**	843.95	**06000**[1]	698.27	**06000**
6,01 - 7,99	9.5	80	85	130	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
8,00	9.5	80	85	130	12	4	396.00	**08000**	843.95	**08000**[1]	724.57	**08000**
8,01 - 8,89	9.5	80	85	130	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
8,90 - 9,89	9.5	80	85	130	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
9,90 - 9,99	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
10,00	9.5	110	115	160	12	6	428.68	**10000**	1,078.82	**10000**[1]	784.35	**10000**
10,01 - 11,99	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
12,00	9.5	110	115	160	12	6	441.73	**12000**	1,078.82	**12000**[1]	808.26	**12000**
12,01 - 13,99	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
14,00	9.5	110	115	160	12	6	473.13	**14000**	1,078.82	**14000**[1]	865.66	**14000**
14,01 - 14,99	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
15,00	9.5	110	115	160	12	6	484.88	**15000**	1,078.82	**15000**[1]	887.17	**15000**
15,01 - 15,89	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
15,90 - 15,99	9.5	125	130	180	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
16,00	9.5	125	130	180	16	6	496.64	**16000**	1,194.60	**16000**[1]	908.70	**16000**
16,01 - 17,99	9.5	125	130	180	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
18,00	9.5	125	130	180	16	6	530.63	**18000**	1,194.60	**18000**[1]	970.85	**18000**
18,01 - 18,89	9.5	125	130	180	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
18,90 - 19,99	9.5	135	140	200	20	6	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]
20,00	9.5	135	140	200	20	6	572.46	**20000**	1,450.15	**20000**[1]	1,047.40	**20000**
20,01 - 25,89	9.5	135	140	200	20	6	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]

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→ v_c Page 77–80

Do not heat shrink tools !

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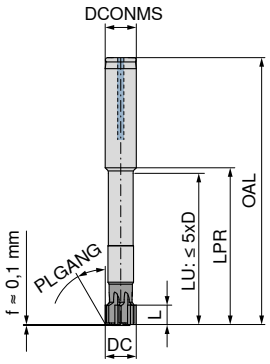

	DBG-P	DBC	DBG-P
			
	56Q.65	56Q.17	56Q.65
			
	≤ 5xD	≤ 5xD	≤ 5xD
	PLGANG 45°	PLGANG 45/8°	PLGANG 45°
	ASG0106	ASG0706	ASG3000
	HM	HM	HM
	Blind hole	Blind hole	Blind hole
	40 645 ...	**40 641 ...**	**40 665 ...**

DC H7 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ U3/4E		£ U3/4E		£ U3/4E	
5,60 - 5,99	9.5	80	85	130	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
6,00	9.5	80	85	130	12	4	843.95	**06000** [1]	843.95	**06000** [1]	843.95	**06000** [1]
6,01 - 7,99	9.5	80	85	130	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
8,00	9.5	80	85	130	12	4	843.95	**08000** [1]	843.95	**08000** [1]	843.95	**08000** [1]
8,01 - 8,89	9.5	80	85	130	12	4	843.95	**xxxx** [1]	843.95	**xxxx** [1]	843.95	**xxxx** [1]
8,90 - 9,89	9.5	80	85	130	12	6	971.85	**xxxx** [1]	971.85	**xxxx** [1]	971.85	**xxxx** [1]
9,90 - 9,99	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
10,00	9.5	110	115	160	12	6	1,078.82	**10000** [1]	1,078.82	**10000** [1]	1,078.82	**10000** [1]
10,01 - 11,99	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
12,00	9.5	110	115	160	12	6	1,078.82	**12000** [1]	1,078.82	**12000** [1]	1,078.82	**12000** [1]
12,01 - 13,99	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
14,00	9.5	110	115	160	12	6	1,078.82	**14000** [1]	1,078.82	**14000** [1]	1,078.82	**14000** [1]
14,01 - 14,99	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
15,00	9.5	110	115	160	12	6	1,078.82	**15000** [1]	1,078.82	**15000** [1]	1,078.82	**15000** [1]
15,01 - 15,89	9.5	110	115	160	12	6	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]	1,078.82	**xxxx** [1]
15,90 - 15,99	9.5	125	130	180	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
16,00	9.5	125	130	180	16	6	1,194.60	**16000** [1]	1,194.60	**16000** [1]	1,194.60	**16000** [1]
16,01 - 17,99	9.5	125	130	180	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
18,00	9.5	125	130	180	16	6	1,194.60	**18000** [1]	1,194.60	**18000** [1]	1,194.60	**18000** [1]
18,01 - 18,89	9.5	125	130	180	16	6	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]	1,194.60	**xxxx** [1]
18,90 - 19,99	9.5	135	140	200	20	6	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]
20,00	9.5	135	140	200	20	6	1,450.15	**20000** [1]	1,450.15	**20000** [1]	1,450.15	**20000** [1]
20,01 - 25,89	9.5	135	140	200	20	6	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]	1,450.15	**xxxx** [1]

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O		○	

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→ v_c Page 77–80

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→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

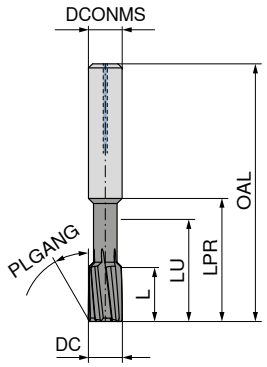
Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometry and coating for universal use

UNI



DBG-U





51P.57



Left Hand Helix
PLGANG 30°
ASG2210
Solid carbide
Through hole

40 483 ...

DC $_{H7}$ mm	L mm	LU mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U4/4R	
4	12	24	28	50	4	4	128.86	**04000**
5	12	31	36	64	6	4	130.78	**05000**
6	12	31	36	64	6	4	133.68	**06000**
7	16	31	36	70	8	6	139.52	**07000**
8	16	31	36	70	8	6	139.52	**08000**
9	16	35	40	80	10	6	197.15	**09000**
10	16	35	40	80	10	6	197.15	**10000**
11	20	40	45	90	12	6	261.58	**11000**
12	20	40	45	90	12	6	261.58	**12000**
16	20	40	45	93	16	8	387.88	**16000**

P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c Page 83

→ **Page 100**
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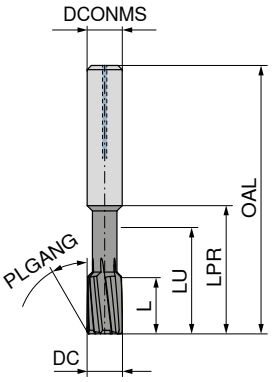
Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometry and coating for universal use
- ▲ tolerance: Ø 2,96 – 6,03 mm = +0,004 mm
- ▲ tolerance: Ø 6,04 – 20,05 mm = +0,005 mm

UNI

DBG-U





51P.57



Left Hand Helix
PLGANG 30°
ASG2210
Solid carbide
Through hole

40 489 ...

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ U4/4R	
2,96 - 3,96	12	24	28	50	4	4	161.06	**xxxxx**[1)]
3,97	12	24	28	50	4	4	136.60	**03970**
3,98	12	24	28	50	4	4	136.60	**03980**
3,99	12	24	28	50	4	4	136.60	**03990**
4,00	12	24	28	50	4	4	136.60	**04000**
4,01	12	24	28	50	4	4	136.60	**04010**
4,02	12	24	28	50	4	4	136.60	**04020**
4,03	12	24	28	50	4	4	136.60	**04030**
4,04 - 4,05	12	24	28	50	4	4	161.06	**xxxxx**[1)]
4,06 - 4,96	12	31	36	64	6	4	163.49	**xxxxx**[1)]
4,97	12	31	36	64	6	4	139.52	**04970**
4,98	12	31	36	64	6	4	139.52	**04980**
4,99	12	31	36	64	6	4	139.52	**04990**
5,00	12	31	36	64	6	4	139.52	**05000**
5,01	12	31	36	64	6	4	139.52	**05010**
5,02	12	31	36	64	6	4	139.52	**05020**
5,03	12	31	36	64	6	4	139.52	**05030**
5,04 - 5,96	12	31	36	64	6	4	163.49	**xxxxx**[1)]
5,97	12	31	36	64	6	4	140.60	**05970**
5,98	12	31	36	64	6	4	140.60	**05980**
5,99	12	31	36	64	6	4	140.60	**05990**
6,00	12	31	36	64	6	4	140.60	**06000**
6,01	12	31	36	64	6	4	140.60	**06010**
6,02	12	31	36	64	6	4	140.60	**06020**
6,03	12	31	36	64	6	4	140.60	**06030**
6,04 - 6,05	12	31	36	64	6	4	163.49	**xxxxx**[1)]
6,06 - 7,96	16	31	36	70	8	6	172.08	**xxxxx**[1)]
7,97	16	31	36	70	8	6	147.38	**07970**
7,98	16	31	36	70	8	6	147.38	**07980**
7,99	16	31	36	70	8	6	147.38	**07990**
8,00	16	31	36	70	8	6	147.38	**08000**
8,01	16	31	36	70	8	6	147.38	**08010**
8,02	16	31	36	70	8	6	147.38	**08020**
8,03	16	31	36	70	8	6	147.38	**08030**

P	●
M	●
K	●
N	○
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O	

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→ v_c Page 83

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Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 489 08820)!

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

Continued on next page

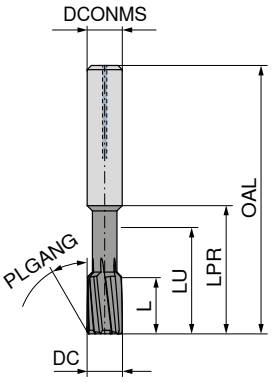
Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometry and coating for universal use
- ▲ tolerance: Ø 2,96 – 6,03 mm = +0,004 mm
- ▲ tolerance: Ø 6,04 – 20,05 mm = +0,005 mm

UNI



DBG-U





51P.57



Left Hand Helix
PLGANG 30°
ASG2210
Solid carbide
Through hole

40 489 ...

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ U4/4R	
8,04 - 8,05	16	31	36	70	8	6	172.08	**xxxxx**[1]
8,06 - 9,96	16	35	40	80	10	6	213.62	**xxxxx**[1]
9,97	16	35	40	80	10	6	209.87	**09970**
9,98	16	35	40	80	10	6	209.87	**09980**
9,99	16	35	40	80	10	6	209.87	**09990**
10,00	16	35	40	80	10	6	209.87	**10000**
10,01	16	35	40	80	10	6	209.87	**10010**
10,02	16	35	40	80	10	6	209.87	**10020**
10,03	16	35	40	80	10	6	209.87	**10030**
10,04 - 10,05	16	35	40	80	10	6	213.62	**xxxxx**[1]
10,06 - 11,96	20	40	45	90	12	6	322.13	**xxxxx**[1]
11,97	20	40	45	90	12	6	279.14	**11970**
11,98	20	40	45	90	12	6	279.14	**11980**
11,99	20	40	45	90	12	6	279.14	**11990**
12,00	20	40	45	90	12	6	279.14	**12000**
12,01	20	40	45	90	12	6	279.14	**12010**
12,02	20	40	45	90	12	6	279.14	**12020**
12,03	20	40	45	90	12	6	279.14	**12030**
12,04 - 12,05	20	40	45	90	12	6	322.13	**xxxxx**[1]
12,06 - 14,05	20	40	45	90	14	6	375.76	**xxxxx**[1]
14,06 - 15,96	20	40	45	93	16	6	428.33	**xxxxx**[1]
15,97 - 16,05	20	40	45	93	16	8	483.65	**xxxxx**[1]
16,06 - 18,05	20	47	52	100	18	8	515.15	**xxxxx**[1]
18,06 - 20,05	20	45	50	102	20	8	547.00	**xxxxx**[1]

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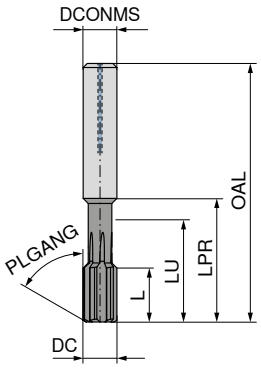
Fullmax – High-performance machine reamers, short

▲ extremely irregular pitch
▲ designed for high-speed machining
▲ specialised geometry and coating for universal use

UNI



DBG-U





51M.57



straight flute
PLGANG 60°
ASG2110
Solid carbide
Blind hole

40 481 ...

DC $_{H7}$ mm	L mm	LU mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U4/4R	
4	12	24	28	50	4	4	107.34	**04000**
5	12	31	36	64	6	4	109.33	**05000**
6	12	31	36	64	6	4	114.23	**06000**
7	16	31	36	70	8	6	120.04	**07000**
8	16	31	36	70	8	6	120.04	**08000**
9	16	35	40	80	10	6	171.72	**09000**
10	16	35	40	80	10	6	171.72	**10000**
11	20	40	45	90	12	6	228.38	**11000**
12	20	40	45	90	12	6	228.38	**12000**
16	20	40	45	93	16	8	347.19	**16000**

P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c Page 83

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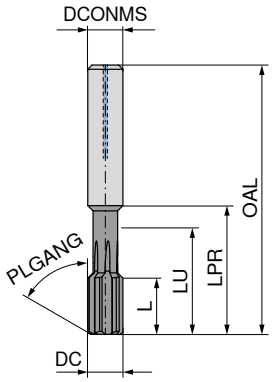
UNI



DBG-U





51M.57



straight flute
PLGANG 60°
ASG2110
Solid carbide
Blind hole

4

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 488 ... £ U4/4R	
2,96 - 3,96	12	24	28	50	4	4	134.19	xxxxx[1]
3,97	12	24	28	50	4	4	115.16	03970
3,98	12	24	28	50	4	4	115.16	03980
3,99	12	24	28	50	4	4	115.16	03990
4,00	12	24	28	50	4	4	115.16	04000
4,01	12	24	28	50	4	4	115.16	04010
4,02	12	24	28	50	4	4	115.16	04020
4,03	12	24	28	50	4	4	115.16	04030
4,04 - 4,05	12	24	28	50	4	4	134.19	xxxxx[1]
4,06 - 4,96	12	31	36	64	6	4	137.94	xxxxx[1]
4,97	12	31	36	64	6	4	118.06	04970
4,98	12	31	36	64	6	4	118.06	04980
4,99	12	31	36	64	6	4	118.06	04990
5,00	12	31	36	64	6	4	118.06	05000
5,01	12	31	36	64	6	4	118.06	05010
5,02	12	31	36	64	6	4	118.06	05020
5,03	12	31	36	64	6	4	118.06	05030
5,04 - 5,96	12	31	36	64	6	4	137.94	xxxxx[1]
5,97	12	31	36	64	6	4	120.04	05970
5,98	12	31	36	64	6	4	120.04	05980
5,99	12	31	36	64	6	4	120.04	05990
6,00	12	31	36	64	6	4	120.04	06000
6,01	12	31	36	64	6	4	120.04	06010
6,02	12	31	36	64	6	4	120.04	06020
6,03	12	31	36	64	6	4	120.04	06030
6,04 - 6,05	12	31	36	64	6	4	137.94	xxxxx[1]
6,06 - 7,96	16	31	36	70	8	6	148.84	xxxxx[1]
7,97	16	31	36	70	8	6	125.95	07970
7,98	16	31	36	70	8	6	125.95	07980
7,99	16	31	36	70	8	6	125.95	07990
8,00	16	31	36	70	8	6	125.95	08000
8,01	16	31	36	70	8	6	125.95	08010
8,02	16	31	36	70	8	6	125.95	08020
8,03	16	31	36	70	8	6	125.95	08030

P	●
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S	○
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Continued on next page

Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
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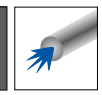
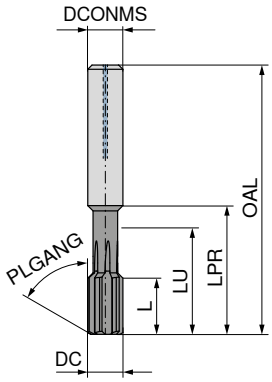
- ▲ tolerance: Ø 2,96 – 6,03 mm = +0,004 mm
- ▲ tolerance: Ø 6,04 – 20,05 mm = +0,005 mm

UNI



DBG-U





51M.57



straight flute
PLGANG 60°
ASG2110
Solid carbide
Blind hole

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 488 ... £ U4/4R	
8,04 - 8,05	16	31	36	70	8	6	148.84	**xxxxx**[1]
8,06 - 9,96	16	35	40	80	10	6	189.16	**xxxxx**[1]
9,97	16	35	40	80	10	6	183.47	**09970**
9,98	16	35	40	80	10	6	183.47	**09980**
9,99	16	35	40	80	10	6	183.47	**09990**
10,00	16	35	40	80	10	6	183.47	**10000**
10,01	16	35	40	80	10	6	183.47	**10010**
10,02	16	35	40	80	10	6	183.47	**10020**
10,03	16	35	40	80	10	6	183.47	**10030**
10,04 - 10,05	16	35	40	80	10	6	189.16	**xxxxx**[1]
10,06 - 11,96	20	40	45	90	12	6	286.75	**xxxxx**[1]
11,97	20	40	45	90	12	6	245.00	**11970**
11,98	20	40	45	90	12	6	245.00	**11980**
11,99	20	40	45	90	12	6	245.00	**11990**
12,00	20	40	45	90	12	6	245.00	**12000**
12,01	20	40	45	90	12	6	245.00	**12010**
12,02	20	40	45	90	12	6	245.00	**12020**
12,03	20	40	45	90	12	6	245.00	**12030**
12,04 - 12,05	20	40	45	90	12	6	286.75	**xxxxx**[1]
12,06 - 14,05	20	40	45	90	14	6	333.13	**xxxxx**[1]
14,06 - 15,96	20	40	45	93	16	6	385.58	**xxxxx**[1]
15,97 - 16,05	20	40	45	93	16	8	435.23	**xxxxx**[1]
16,06 - 18,05	20	47	52	100	18	8	461.63	**xxxxx**[1]
18,06 - 20,05	20	45	50	102	20	8	500.12	**xxxxx**[1]

P	●
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→ v_c Page 83

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→ **Page 100**
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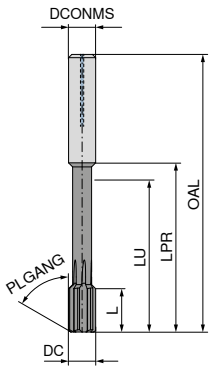
Fullmax – High-performance machine reamers, long

▲ extremely irregular pitch
▲ designed for high-speed machining
▲ specialised geometries and coatings





UNI	VA	ALU
DBG-U	DBQ	DBC-N
		
52P.57	52S.44	52N.17
		
Left Hand Helix	Left Hand Helix	straight flute
PLGANG 30°	PLGANG 30°	PLGANG 30°
ASG2210	ASG2231	ASG2270
Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole
40 484 ...	**40 401 ...**	**40 471 ...**

DC $_{H7}$ mm	L mm	LU mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U4/4R		£ U4/4R		£ U4/4R	
4	12	28	32	60	4	4	172.52	**04000**	189.50	**04000**	189.50	**04000**[1)]
5	12	35	40	76	6	4	175.12	**05000**	192.11	**05000**	192.11	**05000**[1)]
6	12	35	40	76	6	4	179.06	**06000**	196.05	**06000**	196.05	**06000**[1)]
7	16	60	65	101	8	6	186.90	**07000**	205.19	**07000**	205.19	**07000**[1)]
8	16	60	65	101	8	6	186.90	**08000**	205.19	**08000**	205.19	**08000**[1)]
9	16	63	68	108	10	6	264.01	**09000**	291.45	**09000**	291.45	**09000**[1)]
10	16	63	68	108	10	6	264.01	**10000**	291.45	**10000**	291.45	**10000**[1)]
11	20	80	85	130	12	6	350.25	**11000**	384.23	**11000**	384.23	**11000**[1)]
12	20	80	85	130	12	6	350.25	**12000**	384.23	**12000**	384.23	**12000**[1)]
16	20	97	102	150	16	6	460.04	**16000**	505.76	**16000**	505.76	**16000**[1)]

P	●	●	
M	●	●	
K	●		
N	○		●
S	○		
H	○		
O			○

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→ v_c Page 81+82

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
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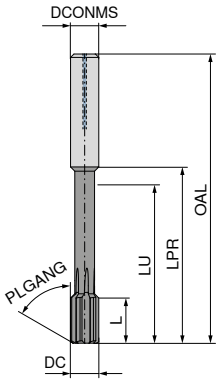
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



	52P.57	52S.44	52J.65	52N.17	52G.55
	Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
	PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°
	ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	Through hole	Through hole	Through hole	Through hole	Through hole

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 486 ... £ U4/4R		40 403 ... £ U4/4R		40 477 ... £ U4/4R		40 473 ... £ U4/4R		40 475 ... £ U4/4R	
2,96 - 3,96	12	28	32	60	4	4	392.25	xxxxx[2]	401.28	xxxxx[1]			401.28	xxxxx[1]	401.28	xxxxx[1]
2,96 - 3,96	12	28	32	60	4	6					401.28	xxxxx[1]				
3,97	12	28	32	60	4	4	182.98	03970	201.28	03970[1]			401.28	03970[1]	401.28	03970[1]
3,97	12	28	32	60	4	6					401.28	03970[1]				
3,98	12	28	32	60	4	4	182.98	03980	201.28	03980[1]			401.28	03980[1]	401.28	03980[1]
3,98	12	28	32	60	4	6					401.28	03980[1]				
3,99	12	28	32	60	4	4	182.98	03990	201.28	03990[1]			401.28	03990[1]	401.28	03990[1]
3,99	12	28	32	60	4	6					401.28	03990[1]				
4,00	12	28	32	60	4	4	182.98	04000	201.28	04000[1]			401.28	04000[1]	457.65	04000[1]
4,00	12	28	32	60	4	6					457.65	04000[1]				
4,01	12	28	32	60	4	4	182.98	04010	201.28	04010[1]			401.28	04010[1]	401.28	04010[1]
4,01	12	28	32	60	4	6					401.28	04010[1]				
4,02	12	28	32	60	4	4	182.98	04020	201.28	04020[1]			401.28	04020[1]	401.28	04020[1]
4,02	12	28	32	60	4	6					401.28	04020[1]				
4,03	12	28	32	60	4	4	182.98	04030	201.28	04030[1]			401.28	04030[1]	401.28	04040[1]
4,03	12	28	32	60	4	6					401.28	04030[1]				
4,04 - 4,05	12	28	32	60	4	4	392.25	xxxxx[2]	401.28	xxxxx[1]			401.28	xxxxx[1]	401.28	xxxxx[1]
4,04 - 4,05	12	28	32	60	4	6					401.28	xxxxx[1]				
4,06 - 4,96	12	35	40	76	6	4	398.20	xxxxx[2]	416.04	xxxxx[1]			416.04	xxxxx[1]	416.04	xxxxx[1]
4,06 - 4,96	12	35	40	76	6	6					416.04	xxxxx[1]				
4,97	12	35	40	76	6	4	186.90	04970	205.19	04970[1]			416.04	04970[1]	416.04	04970[1]
4,97	12	35	40	76	6	6					416.04	04970[1]				
4,98	12	35	40	76	6	4	186.90	04980	205.19	04980[1]			416.04	04980[1]	416.04	04980[1]
4,98	12	35	40	76	6	6					416.04	04980[1]				
4,99	12	35	40	76	6	4	186.90	04990	205.19	04990[1]			416.04	04990[1]	416.04	04990[1]
4,99	12	35	40	76	6	6					416.04	04990[1]				
5,00	12	35	40	76	6	4	186.90	05000	205.19	05000[1]			416.04	05000[1]	472.62	05000[1]
5,00	12	35	40	76	6	6					472.62	05000[1]				
5,01	12	35	40	76	6	4	186.90	05010	205.19	05010[1]			416.04	05010[1]	416.04	05010[1]
5,01	12	35	40	76	6	6					416.04	05010[1]				
5,02	12	35	40	76	6	4	186.90	05020	205.19	05020[1]			416.04	05020[1]	416.04	05020[1]

P	●	●				
M	●	●				
K	●		●			
N	○			●		
S	○					
H	○					●
O				○		

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Continued on next page

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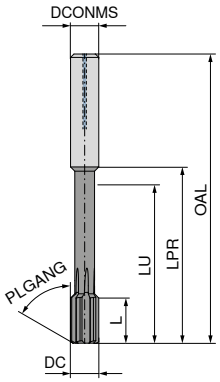
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A
				
52P.57	52S.44	52J.65	52N.17	52G.55
				
Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°
ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole	Through hole	Through hole

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 486 ... £ U4/4R		40 403 ... £ U4/4R		40 477 ... £ U4/4R		40 473 ... £ U4/4R		40 475 ... £ U4/4R	
5,02	12	35	40	76	6	6					416.04	**05020**[1]				
5,03	12	35	40	76	6	4	186.90	**05030**	205.19	**05030**[1]			416.04	**05030**[1]	416.04	**05030**[1]
5,03	12	35	40	76	6	6					416.04	**05030**[1]				
5,04 - 5,96	12	35	40	76	6	4	398.20	**xxxxx**[2]	416.04	**xxxxx**[1]			416.04	**xxxxx**[1]	416.04	**xxxxx**[1]
5,04 - 5,96	12	35	40	76	6	6					416.04	**xxxxx**[1]				
5,97	12	35	40	76	6	4	188.19	**05970**	207.81	**05970**[1]			416.04	**05970**[1]	416.04	**05970**[1]
5,97	12	35	40	76	6	6					416.04	**05970**[1]				
5,98	12	35	40	76	6	4	188.19	**05980**	207.81	**05980**[1]			416.04	**05980**[1]	416.04	**05980**[1]
5,98	12	35	40	76	6	6					416.04	**05980**[1]				
5,99	12	35	40	76	6	4	188.19	**05990**	207.81	**05990**[1]			416.04	**05990**[1]	416.04	**05990**[1]
5,99	12	35	40	76	6	6					416.04	**05990**[1]				
6,00	12	35	40	76	6	4	188.19	**06000**	207.81	**06000**[1]			416.04	**06000**[1]	472.62	**06000**[1]
6,00	12	35	40	76	6	6					472.62	**06000**[1]				
6,01	12	35	40	76	6	4	188.19	**06010**	207.81	**06010**[1]			416.04	**06010**[1]	416.04	**06010**[1]
6,01	12	35	40	76	6	6					416.04	**06010**[1]				
6,02	12	35	40	76	6	4	188.19	**06020**	207.81	**06020**[1]			416.04	**06020**[1]	416.04	**06020**[1]
6,02	12	35	40	76	6	6					416.04	**06020**[1]				
6,03	12	35	40	76	6	4	188.19	**06030**	207.81	**06030**[1]			416.04	**06030**[1]	416.04	**06030**[1]
6,03	12	35	40	76	6	6					416.04	**06030**[1]				
6,04 - 6,05	12	35	40	76	6	4	398.20	**xxxxx**[2]	416.04	**xxxxx**[1]			416.04	**xxxxx**[1]	416.04	**xxxxx**[1]
6,04 - 6,05	12	35	40	76	6	6					416.04	**xxxxx**[1]				
6,06 - 7,96	16	60	65	101	8	6	419.13	**xxxxx**[2]	427.92	**xxxxx**[1]			427.92	**xxxxx**[1]	427.92	**xxxxx**[1]
6,06 - 7,96	16	60	65	101	8	8					427.92	**xxxxx**[1]				
7,97	16	60	65	101	8	6	197.35	**07970**	216.95	**07970**[1]			427.92	**07970**[1]	427.92	**07970**[1]
7,97	16	60	65	101	8	8					427.92	**07970**[1]				
7,98	16	60	65	101	8	6	197.35	**07980**	216.95	**07980**[1]			427.92	**07980**[1]	427.92	**07980**[1]
7,98	16	60	65	101	8	8					427.92	**07980**[1]				
7,99	16	60	65	101	8	6	197.35	**07990**	216.95	**07990**[1]			427.92	**07990**[1]	427.92	**07990**[1]
7,99	16	60	65	101	8	8					427.92	**07990**[1]				
8,00	16	60	65	101	8	6	197.35	**08000**	216.95	**08000**[1]			427.92	**08000**[1]	487.35	**08000**[1]
8,00	16	60	65	101	8	8					487.35	**08000**[1]				

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→ v_c Page 81+82

→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
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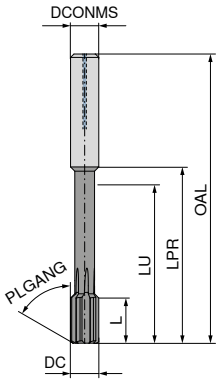
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



	52P.57	52S.44	52J.65	52N.17	52G.55
	Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
	PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°
	ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	Through hole	Through hole	Through hole	Through hole	Through hole

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 486 ... £ U4/4R		40 403 ... £ U4/4R		40 477 ... £ U4/4R		40 473 ... £ U4/4R		40 475 ... £ U4/4R	
8,01	16	60	65	101	8	6	197.35	**08010**	216.95	**08010**[1]			427.92	**08010**[1]	427.92	**08010**[1]
8,01	16	60	65	101	8	8					427.92	**08010**[1]				
8,02	16	60	65	101	8	6	197.35	**08020**	216.95	**08020**[1]			427.92	**08020**[1]	427.92	**08020**[1]
8,02	16	60	65	101	8	8					427.92	**08020**[1]				
8,03	16	60	65	101	8	6	197.35	**08030**	216.95	**08030**[1]			427.92	**08030**[1]	427.92	**08030**[1]
8,03	16	60	65	101	8	8					427.92	**08030**[1]				
8,04 - 8,05	16	60	65	101	8	6	419.13	**xxxxx**[2]	427.92	**xxxxx**[1]			427.92	**xxxxx**[1]	427.92	**xxxxx**[1]
8,04 - 8,05	16	60	65	101	8	8					427.92	**xxxxx**[1]				
8,06 - 9,96	16	63	68	108	10	6	520.15	**xxxxx**[2]	603.37	**xxxxx**[1]			603.37	**xxxxx**[1]	603.37	**xxxxx**[1]
8,06 - 9,96	16	63	68	108	10	8					603.37	**xxxxx**[1]				
9,97	16	63	68	108	10	6	281.00	**09970**	309.76	**09970**[1]			603.37	**09970**[1]	603.37	**09970**[1]
9,97	16	63	68	108	10	8					603.37	**09970**[1]				
9,98	16	63	68	108	10	6	281.00	**09980**	309.76	**09980**[1]			603.37	**09980**[1]	603.37	**09980**[1]
9,98	16	63	68	108	10	8					603.37	**09980**[1]				
9,99	16	63	68	108	10	6	281.00	**09990**	309.76	**09990**[1]			603.37	**09990**[1]	603.37	**09990**[1]
9,99	16	63	68	108	10	8					603.37	**09990**[1]				
10,00	16	63	68	108	10	6	281.00	**10000**	309.76	**10000**[1]			603.37	**10000**[1]	686.57	**10000**[1]
10,00	16	63	68	108	10	8					686.57	**10000**[1]				
10,01	16	63	68	108	10	6	281.00	**10010**	309.76	**10010**[1]			603.37	**10010**[1]	603.37	**10010**[1]
10,01	16	63	68	108	10	8					603.37	**10010**[1]				
10,02	16	63	68	108	10	6	281.00	**10020**	309.76	**10020**[1]			603.37	**10020**[1]	603.37	**10020**[1]
10,02	16	63	68	108	10	8					603.37	**10020**[1]				
10,03	16	63	68	108	10	6	281.00	**10030**	309.76	**10030**[1]			603.37	**10030**[1]	603.37	**10030**[1]
10,03	16	63	68	108	10	8					603.37	**10030**[1]				
10,04 - 10,05	16	63	68	108	10	6	520.15	**xxxxx**[2]	603.37	**xxxxx**[1]			603.37	**xxxxx**[1]	603.37	**xxxxx**[1]
10,04 - 10,05	16	63	68	108	10	8					603.37	**xxxxx**[1]				
10,06 - 11,96	20	80	85	130	12	6	784.53	**xxxxx**[2]	808.29	**xxxxx**[1]			808.29	**xxxxx**[1]	808.29	**xxxxx**[1]
10,06 - 11,96	20	80	85	130	12	8					808.29	**xxxxx**[1]				
11,97	20	80	85	130	12	6	373.78	**11970**	411.69	**11970**[1]			808.29	**11970**[1]	808.29	**11970**[1]
11,97	20	80	85	130	12	8					808.29	**11970**[1]				
11,98	20	80	85	130	12	6	373.78	**11980**	411.69	**11980**[1]			808.29	**11980**[1]	808.29	**11980**[1]

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→ v_c Page 81+82

→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

→ **Page 100**
Here you will find more information on chamfer geometries (ASG).

Continued on next page

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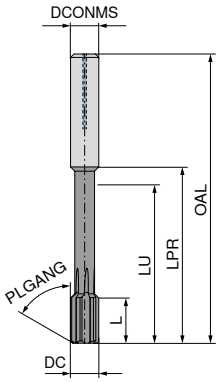

UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52P.57	52S.44	52J.65	52N.17	52G.55
Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°	PLGANG 30°
ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Through hole	Through hole	Through hole	Through hole	Through hole

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 486 ... £ U4/4R		40 403 ... £ U4/4R		40 477 ... £ U4/4R		40 473 ... £ U4/4R		40 475 ... £ U4/4R	
11,98	20	80	85	130	12	8					808.29	**11980**[1]				
11,99	20	80	85	130	12	6	373.78	**11990**	411.69	**11990**[1]			808.29	**11990**[1]	808.29	**11990**[1]
11,99	20	80	85	130	12	8					808.29	**11990**[1]				
12,00	20	80	85	130	12	6	373.78	**12000**	411.69	**12000**[1]			808.29	**12000**[1]	918.35	**12000**[1]
12,00	20	80	85	130	12	8					918.35	**12000**[1]				
12,01	20	80	85	130	12	6	373.78	**12010**	411.69	**12010**[1]			808.29	**12010**[1]	808.29	**12010**[1]
12,01	20	80	85	130	12	8					808.29	**12010**[1]				
12,02	20	80	85	130	12	6	373.78	**12020**	411.69	**12020**[1]			808.29	**12020**[1]	808.29	**12020**[1]
12,02	20	80	85	130	12	8					808.29	**12020**[1]				
12,03	20	80	85	130	12	6	373.78	**12030**	411.69	**12030**[1]			808.29	**12030**[1]	808.29	**12030**[1]
12,03	20	80	85	130	12	8					808.29	**12030**[1]				
12,04 - 12,05	20	80	85	130	12	6	784.53	**xxxxx**[2]	808.29	**xxxxx**[1]			808.29	**xxxxx**[1]	808.29	**xxxxx**[1]
12,04 - 12,05	20	80	85	130	12	8					808.29	**xxxxx**[1]				
12,06 - 14,05	20	80	85	130	14	6	915.25	**xxxxx**[2]	942.13	**xxxxx**[1]			942.13	**xxxxx**[1]	942.13	**xxxxx**[1]
12,06 - 14,05	20	80	85	130	14	8					942.13	**xxxxx**[1]				
14,06 - 16,05	20	97	102	150	16	6	1,043.18	**xxxxx**[2]	1,069.80	**xxxxx**[1]			1,069.80	**xxxxx**[1]	1,069.80	**xxxxx**[1]
14,06 - 16,05	20	97	102	150	16	8					1,069.80	**xxxxx**[1]				
16,06 - 18,05	20	97	102	150	18	6	1,111.39	**xxxxx**[2]	1,162.04	**xxxxx**[1]			1,162.04	**xxxxx**[1]	1,162.04	**xxxxx**[1]
16,06 - 18,05	20	97	102	150	18	8					1,162.04	**xxxxx**[1]				
18,06 - 20,05	20	105	110	160	20	6	1,179.87	**xxxxx**[2]	1,224.32	**xxxxx**[1]			1,224.32	**xxxxx**[1]	1,224.32	**xxxxx**[1]
18,06 - 20,05	20	105	110	160	20	8					1,224.32	**xxxxx**[1]				

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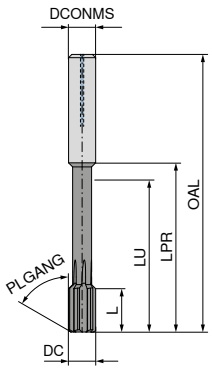

UNI	VA	ALU
DBG-U	DBQ	DBC-N
		
52M.57	52T.45	52Q.17
		
straight flute	straight flute	straight flute
PLGANG 60°	PLGANG 45°	PLGANG 60°
ASG2110	ASG2131	ASG2170
Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole

DC $_{H7}$ mm	L mm	LU mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	40 485 ... £ U4/4R	40 402 ... £ U4/4R	40 472 ... £ U4/4R
4	12	28	32	60	4	4	143.77 **04000**	158.13 **04000**	158.13 **04000**[1)]
5	12	35	40	76	6	4	146.37 **05000**	162.06 **05000**	162.06 **05000**[1)]
6	12	35	40	76	6	4	152.92 **06000**	168.58 **06000**	168.58 **06000**[1)]
7	16	60	65	101	8	6	160.75 **07000**	176.42 **07000**	176.42 **07000**[1)]
8	16	60	65	101	8	6	160.75 **08000**	176.42 **08000**	176.42 **08000**[1)]
9	16	63	68	108	10	6	230.02 **09000**	253.54 **09000**	253.54 **09000**[1)]
10	16	63	68	108	10	6	230.02 **10000**	253.54 **10000**	253.54 **10000**[1)]
11	20	80	85	130	12	6	305.81 **11000**	335.89 **11000**	335.89 **11000**[1)]
12	20	80	85	130	12	6	305.81 **12000**	335.89 **12000**	335.89 **12000**[1)]
16	20	97	102	150	16	6	411.69 **16000**	453.50 **16000**	453.50 **16000**[1)]
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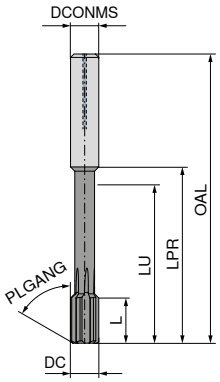

UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



	52M.57	52T.45	52K.65	52Q.17	52H.55
	straight flute	straight flute	straight flute	straight flute	straight flute
	PLGANG 60°	PLGANG 45°	PLGANG 30°	PLGANG 60°	PLGANG 30°
	ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	Blind hole	Blind hole	Blind hole	Blind hole	Blind hole

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 487 ... £ U4/4R		40 404 ... £ U4/4R		40 478 ... £ U4/4R		40 474 ... £ U4/4R		40 476 ... £ U4/4R	
2,96 - 3,96	12	28	32	60	4	4	326.88	xxxxx[2]	338.76	xxxxx[1]			338.76	xxxxx[1]	338.76	xxxxx[1]
2,96 - 3,96	12	28	32	60	4	6					338.76	xxxxx[1]				
3,97	12	28	32	60	4	4	154.21	03970	169.92	03970[1]			338.76	03970[1]	338.76	03970[1]
3,97	12	28	32	60	4	6					338.76	03970[1]				
3,98	12	28	32	60	4	4	154.21	03980	169.92	03980[1]			338.76	03980[1]	338.76	03980[1]
3,98	12	28	32	60	4	6					338.76	03980[1]				
3,99	12	28	32	60	4	4	154.21	03990	169.92	03990[1]			338.76	03990[1]	338.76	03990[1]
3,99	12	28	32	60	4	6					338.76	03990[1]				
4,00	12	28	32	60	4	4	154.21	04000	169.92	04000[1]			338.76	04000[1]	338.76	04000[1]
4,00	12	28	32	60	4	6					338.76	04000[1]				
4,01	12	28	32	60	4	4	154.21	04010	169.92	04010[1]			338.76	04010[1]	338.76	04010[1]
4,01	12	28	32	60	4	6					338.76	04010[1]				
4,02	12	28	32	60	4	4	154.21	04020	169.92	04020[1]			338.76	04020[1]	338.76	04020[1]
4,02	12	28	32	60	4	6					338.76	04020[1]				
4,03	12	28	32	60	4	4	154.21	04030	169.92	04030[1]			338.76	04030[1]	338.76	04030[1]
4,03	12	28	32	60	4	6					338.76	04030[1]				
4,04 - 4,05	12	28	32	60	4	4	326.88	xxxxx[2]	338.76	xxxxx[1]			338.76	xxxxx[1]	338.76	xxxxx[1]
4,04 - 4,05	12	28	32	60	4	6					338.76	xxxxx[1]				
4,06 - 4,96	12	35	40	76	6	4	335.91	xxxxx[2]	347.82	xxxxx[1]			347.82	xxxxx[1]	347.82	xxxxx[1]
4,06 - 4,96	12	35	40	76	6	6					347.82	xxxxx[1]				
4,97	12	35	40	76	6	4	158.13	04970	172.52	04970[1]			347.82	04970[1]	347.82	04970[1]
4,97	12	35	40	76	6	6					347.82	04970[1]				
4,98	12	35	40	76	6	4	158.13	04980	172.52	04980[1]			347.82	04980[1]	347.82	04980[1]
4,98	12	35	40	76	6	6					347.82	04980[1]				
4,99	12	35	40	76	6	4	158.13	04990	172.52	04990[1]			347.82	04990[1]	347.82	04990[1]
4,99	12	35	40	76	6	6					347.82	04990[1]				
5,00	12	35	40	76	6	4	158.13	05000	172.52	05000[1]			347.82	05000[1]	347.82	05000[1]
5,00	12	35	40	76	6	6					347.82	05000[1]				
5,01	12	35	40	76	6	4	158.13	05010	172.52	05010[1]			347.82	05010[1]	347.82	05010[1]
5,01	12	35	40	76	6	6					347.82	05010[1]				
5,02	12	35	40	76	6	4	158.13	05020	172.52	05020[1]			347.82	05020[1]	347.82	05020[1]

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→ v_c Page 81+82

→ **Page 101**
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→ **Page 100**
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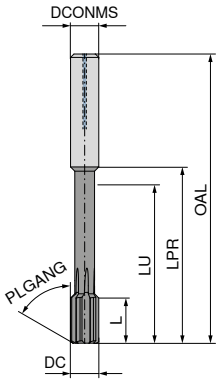
Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52M.57
straight flute
PLGANG 60°
ASG2110
Solid carbide
Blind hole

52T.45
straight flute
PLGANG 45°
ASG2131
Solid carbide
Blind hole

52K.65
straight flute
PLGANG 30°
ASG2350
Solid carbide
Blind hole

52Q.17
straight flute
PLGANG 60°
ASG2170
Solid carbide
Blind hole

52H.55
straight flute
PLGANG 30°
ASG2360
Solid carbide
Blind hole

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 487 ... £ U4/4R		40 404 ... £ U4/4R		40 478 ... £ U4/4R		40 474 ... £ U4/4R		40 476 ... £ U4/4R	
5,02	12	35	40	76	6	6					347.82	**05020**[1]				
5,03	12	35	40	76	6	4	158.13	**05030**	172.52	**05030**[1]			347.82	**05030**[1]	347.82	**05030**[1]
5,03	12	35	40	76	6	6					347.82	**05030**[1]				
5,04 - 5,96	12	35	40	76	6	4	335.91	**xxxxx**[2]	347.82	**xxxxx**[1]			347.82	**xxxxx**[1]	347.82	**xxxxx**[1]
5,04 - 5,96	12	35	40	76	6	6					347.82	**xxxxx**[1]				
5,97	12	35	40	76	6	4	160.75	**05970**	176.42	**05970**[1]			347.82	**05970**[1]	347.82	**05970**[1]
5,97	12	35	40	76	6	6					347.82	**05970**[1]				
5,98	12	35	40	76	6	4	160.75	**05980**	176.42	**05980**[1]			347.82	**05980**[1]	347.82	**05980**[1]
5,98	12	35	40	76	6	6					347.82	**05980**[1]				
5,99	12	35	40	76	6	4	160.75	**05990**	176.42	**05990**[1]			347.82	**05990**[1]	347.82	**05990**[1]
5,99	12	35	40	76	6	6					347.82	**05990**[1]				
6,00	12	35	40	76	6	4	160.75	**06000**	176.42	**06000**[1]			347.82	**06000**[1]	347.82	**06000**[1]
6,00	12	35	40	76	6	6					347.82	**06000**[1]				
6,01	12	35	40	76	6	4	160.75	**06010**	176.42	**06010**[1]			347.82	**06010**[1]	347.82	**06010**[1]
6,01	12	35	40	76	6	6					347.82	**06010**[1]				
6,02	12	35	40	76	6	4	160.75	**06020**	176.42	**06020**[1]			347.82	**06020**[1]	347.82	**06020**[1]
6,02	12	35	40	76	6	6					347.82	**06020**[1]				
6,03	12	35	40	76	6	4	160.75	**06030**	176.42	**06030**[1]			347.82	**06030**[1]	347.82	**06030**[1]
6,03	12	35	40	76	6	6					347.82	**06030**[1]				
6,04 - 6,05	12	35	40	76	6	4	335.91	**xxxxx**[2]	347.82	**xxxxx**[1]			347.82	**xxxxx**[1]	347.82	**xxxxx**[1]
6,04 - 6,05	12	35	40	76	6	6					347.82	**xxxxx**[1]				
6,06 - 7,96	16	60	65	101	8	6	362.54	**xxxxx**[2]	374.42	**xxxxx**[1]			374.42	**xxxxx**[1]	374.42	**xxxxx**[1]
6,06 - 7,96	16	60	65	101	8	8					374.42	**xxxxx**[1]				
7,97	16	60	65	101	8	6	168.58	**07970**	185.59	**07970**[1]			374.42	**07970**[1]	374.42	**07970**[1]
7,97	16	60	65	101	8	8					374.42	**07970**[1]				
7,98	16	60	65	101	8	6	168.58	**07980**	185.59	**07980**[1]			374.42	**07980**[1]	374.42	**07980**[1]
7,98	16	60	65	101	8	8					374.42	**07980**[1]				
7,99	16	60	65	101	8	6	168.58	**07990**	185.59	**07990**[1]			374.42	**07990**[1]	374.42	**07990**[1]
7,99	16	60	65	101	8	8					374.42	**07990**[1]				
8,00	16	60	65	101	8	6	168.58	**08000**	185.59	**08000**[1]			374.42	**08000**[1]	374.42	**08000**[1]
8,00	16	60	65	101	8	8					374.42	**08000**[1]				

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→ v_c Page 81+82

→ **Page 101**
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Continued on next page

Fullmax – High-performance machine reamers, long

- ▲ extremely irregular pitch
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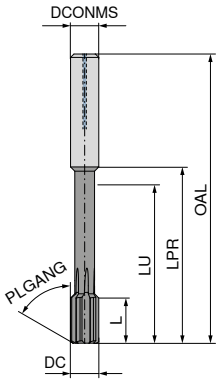
- ▲ specialised geometries and coatings
- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- ▲ tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52M.57 — straight flute — PLGANG 60° — ASG2110 — Solid carbide — Blind hole

52T.45 — straight flute — PLGANG 45° — ASG2131 — Solid carbide — Blind hole

52K.65 — straight flute — PLGANG 30° — ASG2350 — Solid carbide — Blind hole

52Q.17 — straight flute — PLGANG 60° — ASG2170 — Solid carbide — Blind hole

52H.55 — straight flute — PLGANG 30° — ASG2360 — Solid carbide — Blind hole

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 487 ... £ U4/4R		40 404 ... £ U4/4R		40 478 ... £ U4/4R		40 474 ... £ U4/4R		40 476 ... £ U4/4R	
8,01	16	60	65	101	8	6	168.58	08010	185.59	08010[1]			374.42	08010[1]	374.42	08010[1]
8,01	16	60	65	101	8	8					374.42	08010[1]				
8,02	16	60	65	101	8	6	168.58	08020	185.59	08020[1]			374.42	08020[1]	374.42	08020[1]
8,02	16	60	65	101	8	8					374.42	08020[1]				
8,03	16	60	65	101	8	6	168.58	08030	185.59	08030[1]			374.42	08030[1]	374.42	08030[1]
8,03	16	60	65	101	8	8					374.42	08030[1]				
8,04 - 8,05	16	60	65	101	8	6	362.54	xxxxx[2]	374.42	xxxxx[1]			374.42	xxxxx[1]	374.42	xxxxx[1]
8,04 - 8,05	16	60	65	101	8	8					374.42	xxxxx[1]				
8,06 - 9,96	16	63	68	108	10	6	460.72	xxxxx[2]	540.84	xxxxx[1]			540.84	xxxxx[1]	540.84	xxxxx[1]
8,06 - 9,96	16	63	68	108	10	8					540.84	xxxxx[1]				
9,97	16	63	68	108	10	6	245.69	09970	270.53	09970[1]			540.84	09970[1]	540.84	09970[1]
9,97	16	63	68	108	10	8					540.84	09970[1]				
9,98	16	63	68	108	10	6	245.69	09980	270.53	09980[1]			540.84	09980[1]	540.84	09980[1]
9,98	16	63	68	108	10	8					540.84	09980[1]				
9,99	16	63	68	108	10	6	245.69	09990	270.53	09990[1]			540.84	09990[1]	540.84	09990[1]
9,99	16	63	68	108	10	8					540.84	09990[1]				
10,00	16	63	68	108	10	6	245.69	10000	270.53	10000[1]			540.84	10000[1]	540.84	10000[1]
10,00	16	63	68	108	10	8					540.84	10000[1]				
10,01	16	63	68	108	10	6	245.69	10010	270.53	10010[1]			540.84	10010[1]	540.84	10010[1]
10,01	16	63	68	108	10	8					540.84	10010[1]				
10,02	16	63	68	108	10	6	245.69	10020	270.53	10020[1]			540.84	10020[1]	540.84	10020[1]
10,02	16	63	68	108	10	8					540.84	10020[1]				
10,03	16	63	68	108	10	6	245.69	10030	270.53	10030[1]			540.84	10030[1]	540.84	10030[1]
10,03	16	63	68	108	10	8					540.84	10030[1]				
10,04 - 10,05	16	63	68	108	10	6	460.72	xxxxx[2]	540.84	xxxxx[1]			540.84	xxxxx[1]	540.84	xxxxx[1]
10,04 - 10,05	16	63	68	108	10	8					540.84	xxxxx[1]				
10,06 - 11,96	20	80	85	130	12	6	698.47	xxxxx[2]	736.96	xxxxx[1]			736.96	xxxxx[1]	736.96	xxxxx[1]
10,06 - 11,96	20	80	85	130	12	8					736.96	xxxxx[1]				
11,97	20	80	85	130	12	6	328.03	11970	360.72	11970[1]			736.96	11970[1]	736.96	11970[1]
11,97	20	80	85	130	12	8					736.96	11970[1]				
11,98	20	80	85	130	12	6	328.03	11980	360.72	11980[1]			736.96	11980[1]	736.96	11980[1]

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Continued on next page

Fullmax – High-performance machine reamers, long

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- ▲ tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
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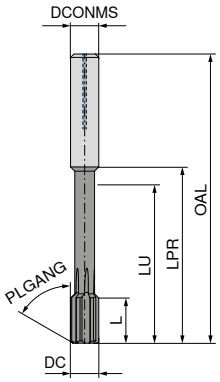

UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52M.57	52T.45	52K.65	52Q.17	52H.55
straight flute	straight flute	straight flute	straight flute	straight flute
PLGANG 60°	PLGANG 45°	PLGANG 30°	PLGANG 60°	PLGANG 30°
ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole	Blind hole	Blind hole

DC +0,004/+0,005 mm	L mm	LU mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	40 487 ... £ U4/4R		40 404 ... £ U4/4R		40 478 ... £ U4/4R		40 474 ... £ U4/4R		40 476 ... £ U4/4R	
11,98	20	80	85	130	12	8					736.96	**11980**[1]				
11,99	20	80	85	130	12	6	328.03	**11990**	360.72	**11990**[1]			736.96	**11990**[1]	736.96	**11990**[1]
11,99	20	80	85	130	12	8					736.96	**11990**[1]				
12,00	20	80	85	130	12	6	328.03	**12000**	360.72	**12000**[1]			736.96	**12000**[1]	736.96	**12000**[1]
12,00	20	80	85	130	12	8					736.96	**12000**[1]				
12,01	20	80	85	130	12	6	328.03	**12010**	360.72	**12010**[1]			736.96	**12010**[1]	736.96	**12010**[1]
12,01	20	80	85	130	12	8					736.96	**12010**[1]				
12,02	20	80	85	130	12	6	328.03	**12020**	360.72	**12020**[1]			736.96	**12020**[1]	736.96	**12020**[1]
12,02	20	80	85	130	12	8					736.96	**12020**[1]				
12,03	20	80	85	130	12	6	328.03	**12030**	360.72	**12030**[1]			736.96	**12030**[1]	736.96	**12030**[1]
12,03	20	80	85	130	12	8					736.96	**12030**[1]				
12,04 - 12,05	20	80	85	130	12	6	698.47	**xxxxx**[2]	736.96	**xxxxx**[1]			736.96	**xxxxx**[1]	736.96	**xxxxx**[1]
12,04 - 12,05	20	80	85	130	12	8					736.96	**xxxxx**[1]				
12,06 - 14,05	20	80	85	130	14	6	811.39	**xxxxx**[2]	847.03	**xxxxx**[1]			847.03	**xxxxx**[1]	847.03	**xxxxx**[1]
12,06 - 14,05	20	80	85	130	14	8					847.03	**xxxxx**[1]				
14,06 - 16,05	20	97	102	150	16	6	939.04	**xxxxx**[2]	977.78	**xxxxx**[1]			977.78	**xxxxx**[1]	977.78	**xxxxx**[1]
14,06 - 16,05	20	97	102	150	16	8					977.78	**xxxxx**[1]				
16,06 - 18,05	20	97	102	150	18	6	995.63	**xxxxx**[2]	1,034.15	**xxxxx**[1]			1,034.15	**xxxxx**[1]	1,034.15	**xxxxx**[1]
16,06 - 18,05	20	97	102	150	18	8					1,034.15	**xxxxx**[1]				
18,06 - 20,05	20	105	110	160	20	6	1,078.82	**xxxxx**[2]	1,111.39	**xxxxx**[1]			1,111.39	**xxxxx**[1]	1,111.39	**xxxxx**[1]
18,06 - 20,05	20	105	110	160	20	8					1,111.39	**xxxxx**[1]				

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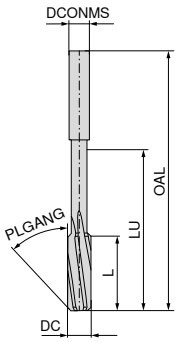
NC machine reamers, DIN 8093-2B

- ▲ extremely irregular pitch
- ▲ Ø 2–3.5 mm with centres both ends
- ▲ Ø 4–13 mm with protected centres
- ▲ from Ø 22 mm, similar to DIN 8093-2B
- ▲ PLGANG ≤ Ø 3,75 = 30° / > Ø 3,75 = 45°

NC







Left Hand Helix
Solid carbide
Through hole

40 420 ...

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	£ U4	
2.0	12	18.5	50	3	4	82.94	020
2.5	16	29.0	60	3	4	82.94	025
3.0	17	33.0	65	4	6	86.35	030
3.2	18	33.0	65	4	6	86.35	032
3.5	18	43.0	75	4	6	86.35	035
4.0	19	43.0	75	4	6	103.40	040
4.5	21	39.0	80	6	6	103.40	045
5.0	23	52.0	93	6	6	115.88	050
5.5	26	53.0	93	6	6	115.88	055
6.0	26	53.0	93	6	6	124.94	060
6.5	28	61.0	101	6	6	124.94	065
7.0	31	68.0	109	8	6	138.56	070
7.5	31	68.0	109	8	6	138.56	075
8.0	33	77.0	117	8	6	161.36	080
8.5	33	77.0	117	8	6	161.36	085
9.0	36	80.0	125	10	6	176.10	090
9.5	36	80.0	125	10	6	176.10	095
10.0	38	88.0	133	10	6	188.61	100
10.5	38	88.0	133	10	6	188.61	105
11.0	41	97.0	142	10	6	243.13	110
12.0	44	100.0	151	12	6	243.13	120
13.0	44	100.0	151	12	6	238.61	130
14.0	47	106.0	160	16	6	238.61	140 1)
15.0	50	108.0	162	16	6	254.53	150 1)
16.0	52	116.0	170	16	6	261.24	160 1)
17.0	52	121.0	175	18	6	268.08	170 1)
18.0	52	128.0	182	18	6	270.39	180 1)
19.0	52	133.0	189	20	6	281.69	190 1)
20.0	52	139.0	195	20	6	284.03	200 1)
22.0	25	105.0	160	20	6	284.03	220 1)
24.0	25	125.0	180	20	8	345.39	240 1)
25.0	25	125.0	180	20	8	345.39	250 1)
26.0	25	125.0	180	20	8	388.55	260 1)
28.0	25	119.0	180	25	8	406.70	280 1)
30.0	25	139.0	200	25	8	420.33	300 1)

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→ v_c Page 84

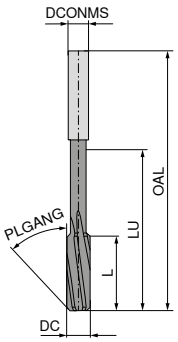
1) with carbide cutting edges

NC machine reamers, DIN 8093-2B

- ▲ extremely irregular pitch
- ▲ Ø 2–3.5 mm with centres both ends
- ▲ Ø 4–13 mm with protected centres
- ▲ PLGANG ≤ Ø 3,75 = 30° / > Ø 3,75 = 45°

NC

TiAlN







Left Hand Helix
Solid carbide
Through hole

40 421 ...

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	£ U4	
2.0	12	18.5	50	3	4	109.78	020
2.5	16	29.0	60	3	4	109.78	025
3.0	17	33.0	65	4	6	114.46	030
3.2	18	33.0	65	4	6	114.46	032
3.5	18	43.0	75	4	6	114.46	035
4.0	19	43.0	75	4	6	136.95	040
4.5	21	39.0	80	6	6	136.95	045
5.0	23	52.0	93	6	6	153.51	050
5.5	26	53.0	93	6	6	153.51	055
6.0	26	53.0	93	6	6	165.65	060
6.5	28	61.0	101	6	6	165.65	065
7.0	31	68.0	109	8	6	183.67	070
7.5	31	68.0	109	8	6	183.67	075
8.0	33	77.0	117	8	6	213.58	080
8.5	33	77.0	117	8	6	213.58	085
9.0	36	80.0	125	10	6	233.37	090
9.5	36	80.0	125	10	6	233.37	095
10.0	38	88.0	133	10	6	249.67	100
10.5	38	88.0	133	10	6	249.67	105
11.0	41	97.0	142	10	6	321.35	110
12.0	44	100.0	151	12	6	321.35	120
13.0	44	100.0	151	12	6	316.41	130
14.0	47	106.0	160	16	6	316.41	140 1)
15.0	50	108.0	162	16	6	336.17	150 1)
16.0	52	116.0	170	16	6	346.11	160 1)
17.0	52	121.0	175	18	6	355.97	170 1)
18.0	52	128.0	182	18	6	358.47	180 1)
19.0	52	133.0	189	20	6	373.27	190 1)
20.0	52	139.0	195	20	6	375.75	200 1)

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→ v_c Page 84

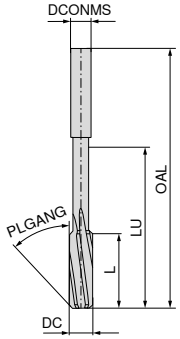
1) with carbide cutting edges

4

NC machine reamers, DIN 8093-2B

- ▲ 0.01 mm steps
- ▲ extremely irregular pitch
- ▲ PLGANG ≤ Ø 3.75 = 30° / > Ø 3.75 = 45°
- ▲ Ø 0.6–0.94 mm similar to DIN 8093-B
- ▲ Ø 0.95–3.75 mm with centres both ends
- ▲ Ø 3.76–12.05 mm with protected centres

NC 100





Left Hand Helix
Solid carbide
Through hole

40 430 ...

DC +0,004 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	£ U4	
0,59 - 0,64	5	7.5	45	3	4	147.04	xxxxx[1]
0,65 - 0,74	5	7.5	45	3	4	147.04	xxxxx[1]
0,75 - 0,84	6	8.0	45	3	4	147.04	xxxxx[1]
0,85 - 0,95	6	8.0	45	3	4	147.04	xxxxx[1]
0,96	6	17.5	50	3	3	114.90	00960[1]
0,97	6	17.5	50	3	3	114.90	00970[1]
0,98	6	17.5	50	3	3	114.90	00980[2]
0,99	6	17.5	50	3	3	114.90	00990[2]
1,00	6	17.5	50	3	3	114.90	01000[2]
1,01	6	17.5	50	3	3	114.90	01010[2]
1,02	6	17.5	50	3	3	114.90	01020[2]
1,03	6	17.5	50	3	3	114.90	01030[2]
1,04 - 1,06	6	17.5	50	3	3	132.15	xxxxx[2]
1,07 - 1,18	9	17.5	50	3	3	132.15	xxxxx[2]
1,19 - 1,32	9	17.5	50	3	3	132.15	xxxxx[2]
1,33 - 1,50	9	18.0	50	3	3	132.15	xxxxx[2]
1,51 - 1,70	10	18.0	50	3	3	132.15	xxxxx[2]
1,71 - 1,90	11	18.5	50	3	4	149.37	xxxxx[2]
1,91 - 1,97	12	18.5	50	3	4	149.37	xxxxx[2]
1,98	12	18.5	50	3	4	149.37	01980
1,99	12	18.5	50	3	4	149.37	01990
2,00	12	18.5	50	3	4	149.37	02000
2,01	12	18.5	50	3	4	149.37	02010
2,02	12	18.5	50	3	4	149.37	02020
2,03	12	18.5	50	3	4	149.37	02030
2,04 - 2,12	12	18.5	50	3	4	131.64	xxxxx[2]
2,13 - 2,36	12	18.5	50	3	4	131.64	xxxxx[2]
2,37 - 2,47	16	29.0	60	3	4	114.90	xxxxx[2]
2,48	16	29.0	60	3	4	114.90	02480
2,49	16	29.0	60	3	4	114.90	02490
2,50	16	29.0	60	3	4	114.90	02500
2,51	16	29.0	60	3	4	114.90	02510
2,52	16	29.0	60	3	4	114.90	02520
2,53	16	29.0	60	3	4	114.90	02530
2,54 - 2,65	16	29.0	60	3	4	114.90	xxxxx[2]
2,66 - 2,80	17	33.0	65	4	6	114.90	xxxxx[2]
2,81 - 2,96	17	33.0	65	4	6	114.90	xxxxx[2]
2,97	17	33.0	65	4	6	98.86	02970
2,98	17	33.0	65	4	6	98.86	02980
2,99	17	33.0	65	4	6	98.86	02990
3,00	17	33.0	65	4	6	86.35	03000
3,01	17	33.0	65	4	6	98.86	03010
3,02	17	33.0	65	4	6	98.86	03020
3,03	17	33.0	65	4	6	98.86	03030
3,04 - 3,35	18	33.0	65	4	6	132.15	xxxxx[2]
3,36 - 3,75	18	43.0	75	4	6	132.15	xxxxx[2]
3,76 - 3,96	19	43.0	75	4	6	132.15	xxxxx[2]
3,97	19	43.0	75	4	6	115.88	03970
3,98	19	43.0	75	4	6	115.88	03980
3,99	19	43.0	75	4	6	115.88	03990
4,00	19	43.0	75	4	6	103.40	04000
4,01	19	43.0	75	4	6	115.88	04010
4,02	19	43.0	75	4	6	115.88	04020
4,03	19	43.0	75	4	6	115.88	04030
4,04 - 4,25	19	43.0	75	4	6	143.61	xxxxx[2]
4,26 - 4,75	21	39.0	80	6	6	143.61	xxxxx[2]

40 430 ...

DC +0,004 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	£ U4	
4,76 - 4,96	23	52.0	93	6	6	143.61	xxxxx[2]
4,97	23	52.0	93	6	6	127.25	04970
4,98	23	52.0	93	6	6	127.25	04980
4,99	23	52.0	93	6	6	127.25	04990
5,00	23	52.0	93	6	6	115.88	05000
5,01	23	52.0	93	6	6	127.25	05010
5,02	23	52.0	93	6	6	127.25	05020
5,03	23	52.0	93	6	6	127.25	05030
5,04 - 5,30	23	52.0	93	6	6	155.07	xxxxx[2]
5,31 - 5,96	26	53.0	93	6	6	155.07	xxxxx[2]
5,97	26	53.0	93	6	6	138.56	05970
5,98	26	53.0	93	6	6	138.56	05980
5,99	26	53.0	93	6	6	138.56	05990
6,00	26	53.0	93	6	6	124.94	06000
6,01	26	53.0	93	6	6	138.56	06010
6,02	26	53.0	93	6	6	138.56	06020
6,03	26	53.0	93	6	6	138.56	06030
6,04 - 6,70	28	61.0	101	6	6	189.59	xxxxx[2]
6,71 - 7,50	31	68.0	109	8	6	189.59	xxxxx[2]
7,51 - 7,96	33	77.0	117	8	6	189.59	xxxxx[2]
7,97	33	77.0	117	8	6	172.67	07970
7,98	33	77.0	117	8	6	172.67	07980
7,99	33	77.0	117	8	6	172.67	07990
8,00	33	77.0	117	8	6	161.36	08000
8,01	33	77.0	117	8	6	172.67	08010
8,02	33	77.0	117	8	6	172.67	08020
8,03	33	77.0	117	8	6	172.67	08030
8,04	33	77.0	117	8	6	172.67	08040
8,05 - 8,50	33	77.0	117	8	6	212.57	xxxxx[2]
8,51 - 9,04	36	80.0	125	10	6	212.57	xxxxx[2]
9,05 - 9,50	36	80.0	125	10	6	212.57	xxxxx[2]
9,51 - 9,96	38	88.0	133	10	6	212.57	xxxxx[2]
9,97	38	88.0	133	10	6	202.24	09970
9,98	38	88.0	133	10	6	202.24	09980
9,99	38	88.0	133	10	6	202.24	09990
10,00	38	88.0	133	10	6	188.61	10000
10,01	38	88.0	133	10	6	202.24	10010
10,02	38	88.0	133	10	6	202.24	10020
10,03	38	88.0	133	10	6	202.24	10030
10,04	38	88.0	133	10	6	202.24	10040
10,05	38	88.0	133	10	6	202.24	10050
10,06 - 10,60	38	88.0	133	10	6	252.77	xxxxx[2]
10,61 - 11,80	41	97.0	142	10	6	252.77	xxxxx[2]
11,81 - 11,96	44	100.0	151	12	6	252.77	xxxxx[2]
11,97	44	100.0	151	12	6	243.13	11970
11,98	44	100.0	151	12	6	243.13	11980
11,99	44	100.0	151	12	6	243.13	11990
12,00	44	100.0	151	12	6	229.57	12000
12,01	44	100.0	151	12	6	243.13	12010
12,02	44	100.0	151	12	6	243.13	12020
12,03	44	100.0	151	12	6	243.13	12030
12,04	44	100.0	151	12	6	243.13	12040
12,05	44	100.0	151	12	6	243.13	12050

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→ v_c Page 84

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days / Minimum order 3 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 10 working days

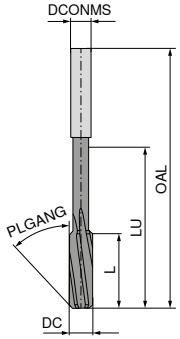
→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.05 mm → Article no. 40 430 08050)!

NC machine reamers, DIN 8093-2B

- ▲ 0.01 mm steps
- ▲ extremely irregular pitch
- ▲ PLGANG ≤ Ø 3.75 = 30° / > Ø 3.75 = 45°
- ▲ Ø 0.6–0.94 mm similar to DIN 8093-B
- ▲ Ø 0.95–3.75 mm with centres both ends
- ▲ Ø 3.76–12.05 mm with protected centres

NC 100

TiAlN





Left Hand Helix
Solid carbide
Through hole

40 431 ...

DC +0,004 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	£ U4	
1,00	6	17.5	50	3	3	175.03	01000[1]
1,01	6	17.5	50	3	3	175.03	01010[1]
1,02	6	17.5	50	3	3	175.03	01020[1]
1,03	6	17.5	50	3	3	175.03	01030[1]
1,04 - 1,06	6	17.5	50	3	3	175.03	xxxxx[1]
1,07 - 1,18	9	17.5	50	3	3	175.03	xxxxx[1]
1,19 - 1,32	9	17.5	50	3	3	175.03	xxxxx[1]
1,33 - 1,50	9	18.0	50	3	3	175.03	xxxxx[1]
1,51 - 1,70	10	18.0	50	3	3	175.03	xxxxx[1]
1,71 - 1,90	11	18.5	50	3	4	175.03	xxxxx[1]
1,91 - 1,97	12	18.5	50	3	4	175.03	xxxxx[1]
1,98	12	18.5	50	3	4	197.99	01980
1,99	12	18.5	50	3	4	197.99	01990
2,00	12	18.5	50	3	4	197.99	02000
2,01	12	18.5	50	3	4	197.99	02010
2,02	12	18.5	50	3	4	197.99	02020
2,03	12	18.5	50	3	4	197.99	02030
2,04 - 2,12	12	18.5	50	3	4	175.03	xxxxx[1]
2,13 - 2,36	12	18.5	50	3	4	175.03	xxxxx[1]
2,37 - 2,47	16	29.0	60	3	4	175.03	xxxxx[1]
2,48	16	29.0	60	3	4	152.29	02480
2,49	16	29.0	60	3	4	152.29	02490
2,50	16	29.0	60	3	4	152.29	02500
2,51	16	29.0	60	3	4	152.29	02510
2,52	16	29.0	60	3	4	152.29	02520
2,53	16	29.0	60	3	4	152.29	02530
2,54 - 2,65	16	29.0	60	3	4	152.29	xxxxx[1]
2,66 - 2,80	17	33.0	65	4	6	152.29	xxxxx[1]
2,81 - 2,96	17	33.0	65	4	6	152.29	xxxxx[1]
2,97	17	33.0	65	4	6	131.03	02970
2,98	17	33.0	65	4	6	131.03	02980
2,99	17	33.0	65	4	6	131.03	02990
3,00	17	33.0	65	4	6	114.46	03000
3,01	17	33.0	65	4	6	131.03	03010
3,02	17	33.0	65	4	6	131.03	03020
3,03	17	33.0	65	4	6	131.03	03030
3,04 - 3,35	18	33.0	65	4	6	175.03	xxxxx[1]
3,36 - 3,75	18	43.0	75	4	6	175.03	xxxxx[1]
3,76 - 3,96	19	43.0	75	4	6	175.03	xxxxx[1]
3,97	19	43.0	75	4	6	153.51	03970
3,98	19	43.0	75	4	6	153.51	03980
3,99	19	43.0	75	4	6	153.51	03990
4,00	19	43.0	75	4	6	136.95	04000
4,01	19	43.0	75	4	6	153.51	04010
4,02	19	43.0	75	4	6	153.51	04020
4,03	19	43.0	75	4	6	153.51	04030
4,04 - 4,25	19	43.0	75	4	6	190.36	xxxxx[1]
4,26 - 4,75	21	39.0	80	6	6	190.36	xxxxx[1]
4,76 - 4,96	23	52.0	93	6	6	190.36	xxxxx[1]
4,97	23	52.0	93	6	6	168.58	04970
4,98	23	52.0	93	6	6	168.58	04980

40 431 ...

DC +0,004 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	£ U4	
4,99	23	52.0	93	6	6	168.58	04990
5,00	23	52.0	93	6	6	153.51	05000
5,01	23	52.0	93	6	6	168.58	05010
5,02	23	52.0	93	6	6	168.58	05020
5,03	23	52.0	93	6	6	168.58	05030
5,04 - 5,30	23	52.0	93	6	6	205.43	xxxxx[1]
5,31 - 5,96	26	53.0	93	6	6	205.43	xxxxx[1]
5,97	26	53.0	93	6	6	183.67	05970
5,98	26	53.0	93	6	6	183.67	05980
5,99	26	53.0	93	6	6	183.67	05990
6,00	26	53.0	93	6	6	165.65	06000
6,01	26	53.0	93	6	6	183.67	06010
6,02	26	53.0	93	6	6	183.67	06020
6,03	26	53.0	93	6	6	183.67	06030
6,04 - 6,70	28	61.0	101	6	6	251.16	xxxxx[1]
6,71 - 7,50	31	68.0	109	8	6	251.16	xxxxx[1]
7,51 - 7,96	33	77.0	117	8	6	251.16	xxxxx[1]
7,97	33	77.0	117	8	6	228.90	07970
7,98	33	77.0	117	8	6	228.90	07980
7,99	33	77.0	117	8	6	228.90	07990
8,00	33	77.0	117	8	6	213.58	08000
8,01	33	77.0	117	8	6	228.90	08010
8,02	33	77.0	117	8	6	228.90	08020
8,03	33	77.0	117	8	6	228.90	08030
8,04	33	77.0	117	8	6	228.90	08040
8,05 - 8,50	33	77.0	117	8	6	281.57	xxxxx[1]
8,51 - 9,04	36	80.0	125	10	6	281.57	xxxxx[1]
9,05 - 9,50	36	80.0	125	10	6	281.57	xxxxx[1]
9,51 - 9,96	38	88.0	133	10	6	281.57	xxxxx[1]
9,97	38	88.0	133	10	6	266.99	09970
9,98	38	88.0	133	10	6	266.99	09980
9,99	38	88.0	133	10	6	266.99	09990
10,00	38	88.0	133	10	6	249.67	10000
10,01	38	88.0	133	10	6	266.99	10010
10,02	38	88.0	133	10	6	266.99	10020
10,03	38	88.0	133	10	6	266.99	10030
10,04	38	88.0	133	10	6	266.99	10040
10,05	38	88.0	133	10	6	266.99	10050
10,06 - 10,60	38	88.0	133	10	6	334.96	xxxxx[1]
10,61 - 11,80	41	97.0	142	10	6	334.96	xxxxx[1]
11,81 - 11,96	44	100.0	151	12	6	334.96	xxxxx[1]
11,97	44	100.0	151	12	6	321.35	11970
11,98	44	100.0	151	12	6	321.35	11980
11,99	44	100.0	151	12	6	321.35	11990
12,00	44	100.0	151	12	6	304.05	12000
12,01	44	100.0	151	12	6	321.35	12010
12,02	44	100.0	151	12	6	321.35	12020
12,03	44	100.0	151	12	6	321.35	12030
12,04	44	100.0	151	12	6	321.35	12040
12,05	44	100.0	151	12	6	321.35	12050

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→ v_c Page 84

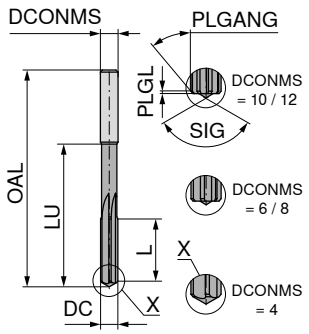
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 15 working days

→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.05 mm → Article no. 40 431 08050)!

4

NC machine reamers, sim. DIN 8093-A

NC100 H



TiAlSiN



straight flute
PLGANG 45°
SIG 120°
Solid carbide
Through hole + blind hole

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h5 mm	PLGL mm	40 435 ... £ U4/4R	
0.98	6	16	50	4	0.12	115.61	00980
0.99	6	16	50	4	0.12	115.61	00990
1.00	6	16	50	4	0.12	115.61	01000
1.01	6	16	50	4	0.12	115.61	01010
1.02	6	16	50	4	0.12	115.61	01020
1.03	6	16	50	4	0.12	115.61	01030
1.48	9	16	50	4	0.12	126.16	01480
1.49	9	16	50	4	0.12	126.16	01490
1.50	9	16	50	4	0.12	126.16	01500
1.51	9	16	50	4	0.12	126.16	01510
1.52	9	16	50	4	0.12	126.16	01520
1.60	10	16	50	4	0.12	126.16	01600
1.70	10	16	50	4	0.12	126.16	01700
1.80	11	16	50	4	0.12	126.16	01800
1.90	11	16	50	4	0.12	126.16	01900
1.97	12	16	50	4	0.30	126.16	01970
1.98	12	16	50	4	0.30	126.16	01980
1.99	12	16	50	4	0.30	126.16	01990
2.00	12	16	50	4	0.30	126.16	02000
2.01	12	16	50	4	0.30	126.16	02010
2.02	12	16	50	4	0.30	126.16	02020
2.03	12	16	50	4	0.30	126.16	02030
2.05	12	16	50	4	0.30	126.16	02050
2.10	12	16	50	4	0.30	126.16	02100
2.20	13	16	50	4	0.30	126.16	02200
2.30	13	16	50	4	0.30	126.16	02300
2.40	16	26	60	4	0.30	126.16	02400
2.50	16	26	60	4	0.30	126.16	02500
2.60	16	26	60	4	0.30	126.16	02600
2.70	17	30	64	4	0.30	126.16	02700
2.80	17	30	64	4	0.30	126.16	02800
2.90	17	30	64	4	0.30	126.16	02900
2.97	17	30	64	4	0.30	126.16	02970
2.98	17	30	64	4	0.30	126.16	02980
2.99	17	30	64	4	0.30	126.16	02990
3.00	17	30	64	4	0.30	126.16	03000
3.01	17	30	64	4	0.30	126.16	03010
3.02	17	30	64	4	0.30	126.16	03020
3.03	17	30	64	4	0.30	126.16	03030
3.05	18	34	68	4	0.30	126.16	03050
3.10	18	34	68	4	0.30	126.16	03100
3.20	18	34	68	4	0.30	126.16	03200
3.30	18	34	68	4	0.30	126.16	03300
3.40	20	40	74	4	0.30	126.16	03400
3.50	20	40	74	4	0.30	126.16	03500
3.60	20	40	74	4	0.30	126.16	03600
3.70	20	40	74	4	0.30	126.16	03700
3.80	21	43	77	4	0.40	126.16	03800
3.90	21	43	77	4	0.40	126.16	03900
3.97	21	43	77	4	0.40	126.16	03970
3.98	21	43	77	4	0.40	126.16	03980
3.99	21	43	77	4	0.40	126.16	03990
4.00	21	43	77	4	0.40	126.16	04000
4.01	21	43	77	4	0.40	126.16	04010
4.02	21	43	77	4	0.40	126.16	04020
4.03	21	43	77	4	0.40	126.16	04030
4.05	21	40	82	6	0.40	155.68	04050
4.10	21	40	82	6	0.40	155.68	04100
4.20	21	40	82	6	0.40	155.68	04200
4.30	23	40	82	6	0.40	155.68	04300
4.40	23	40	82	6	0.40	155.68	04400
4.50	23	40	82	6	0.40	155.68	04500
4.60	23	40	82	6	0.40	155.68	04600
4.70	23	40	82	6	0.40	155.68	04700
4.80	26	51	93	6	0.50	155.68	04800
4.90	26	51	93	6	0.50	155.68	04900
4.97	26	51	93	6	0.50	155.68	04970
4.98	26	51	93	6	0.50	155.68	04980
4.99	26	51	93	6	0.50	155.68	04990
5.00	26	51	93	6	0.50	155.68	05000
5.01	26	51	93	6	0.50	155.68	05010
5.02	26	51	93	6	0.50	155.68	05020
5.03	26	51	93	6	0.50	155.68	05030
5.05	26	51	93	6	0.50	155.68	05050
5.10	26	51	93	6	0.50	155.68	05100
5.20	26	51	93	6	0.50	155.68	05200
5.30	26	51	93	6	0.50	155.68	05300
5.40	26	51	93	6	0.50	155.68	05400
5.50	26	51	93	6	0.50	155.68	05500
5.60	26	51	93	6	0.50	155.68	05600
5.70	26	51	93	6	0.50	155.68	05700
5.80	26	51	93	6	0.50	155.68	05800
5.90	26	51	93	6	0.50	155.68	05900
5.97	26	51	93	6	0.50	155.68	05970
5.98	26	51	93	6	0.50	155.68	05980
5.99	26	51	93	6	0.50	155.68	05990
6.00	26	51	93	6	0.50	155.68	06000

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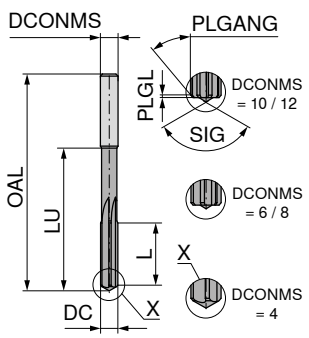
→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
Intermediate dimensions available on request.

Continued on next page

NC machine reamers, sim. DIN 8093-A

NC100 H



TiAlSiN



straight flute
PLGANG 45°
SIG 120°
Solid carbide
Through hole + blind hole

40 435 ...

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h5 mm	PLGL mm	£ U4/4R	
6.01	26	51	93	6	0.5	155.68	**06010**
6.02	26	51	93	6	0.5	155.68	**06020**
6.03	26	51	93	6	0.5	155.68	**06030**
6.05	26	59	101	8	0.5	194.25	**06050**
6.10	26	59	101	8	0.5	194.25	**06100**
6.20	26	59	101	8	0.5	194.25	**06200**
6.30	26	59	101	8	0.5	194.25	**06300**
6.40	26	59	101	8	0.5	194.25	**06400**
6.50	26	59	101	8	0.5	194.25	**06500**
6.60	26	59	101	8	0.5	194.25	**06600**
6.70	26	59	101	8	0.5	194.25	**06700**
6.80	31	67	109	8	0.6	194.25	**06800**
6.85	31	67	109	8	0.6	194.25	**06850**
6.90	31	67	109	8	0.6	194.25	**06900**
7.00	31	67	109	8	0.6	194.25	**07000**
7.10	31	67	109	8	0.6	194.25	**07100**
7.20	31	67	109	8	0.6	194.25	**07200**
7.30	31	67	109	8	0.6	194.25	**07300**
7.40	31	67	109	8	0.6	194.25	**07400**
7.50	31	67	109	8	0.6	194.25	**07500**
7.60	31	67	109	8	0.6	194.25	**07600**
7.70	33	75	117	8	0.6	194.25	**07700**
7.80	33	75	117	8	0.6	194.25	**07800**
7.90	33	75	117	8	0.6	194.25	**07900**
7.97	33	75	117	8	0.6	194.25	**07970**
7.98	33	75	117	8	0.6	194.25	**07980**
7.99	33	75	117	8	0.6	194.25	**07990**
8.00	33	75	117	8	0.6	194.25	**08000**
8.01	33	75	117	8	0.7	194.25	**08010**
8.02	33	75	117	8	0.7	194.25	**08020**
8.03	33	75	117	8	0.7	194.25	**08030**
8.05	33	71	117	10	0.7	237.78	**08050**
8.10	33	71	117	10	0.7	237.78	**08100**
8.20	33	71	117	10	0.7	237.78	**08200**
8.30	33	71	117	10	0.7	237.78	**08300**
8.40	33	71	117	10	0.7	237.78	**08400**
8.50	33	71	117	10	0.7	237.78	**08500**
8.60	33	71	117	10	0.7	237.78	**08600**
8.70	36	79	125	10	0.7	237.78	**08700**
8.80	36	79	125	10	0.7	237.78	**08800**
8.90	36	79	125	10	0.7	237.78	**08900**
9.00	36	79	125	10	0.7	237.78	**09000**
9.10	36	79	125	10	0.7	237.78	**09100**
9.20	36	79	125	10	0.7	237.78	**09200**
9.30	36	79	125	10	0.7	237.78	**09300**
9.40	36	79	125	10	0.7	237.78	**09400**
9.50	36	79	125	10	0.7	237.78	**09500**
9.60	36	79	125	10	0.7	237.78	**09600**
9.70	38	87	133	10	0.7	237.78	**09700**
9.80	38	87	133	10	0.7	237.78	**09800**
9.90	38	87	133	10	0.7	237.78	**09900**

40 435 ...

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h5 mm	PLGL mm	£ U4/4R	
9.97	41	87	133	10	0.7	237.78	**09970**
9.98	41	87	133	10	0.7	237.78	**09980**
9.99	41	87	133	10	0.7	237.78	**09990**
10.00	41	87	133	10	0.7	237.78	**10000**
10.01	41	87	133	10	0.7	237.78	**10010**
10.02	41	87	133	10	0.8	237.78	**10020**
10.03	41	87	133	10	0.8	237.78	**10030**
10.04	41	87	133	10	0.8	237.78	**10040**
10.05	41	87	133	10	0.8	237.78	**10050**
11.17	44	99	150	12	0.8	311.50	**11170**
11.97	44	99	150	12	0.8	311.50	**11970**
11.98	44	99	150	12	0.8	311.50	**11980**
11.99	44	99	150	12	0.8	311.50	**11990**
12.00	44	99	150	12	0.8	311.50	**12000**
12.01	44	99	150	12	0.8	311.50	**12010**
12.02	44	99	150	12	0.8	311.50	**12020**
12.03	44	99	150	12	0.8	311.50	**12030**
12.04	44	99	150	12	0.8	311.50	**12040**
12.05	44	99	150	12	0.8	311.50	**12050**

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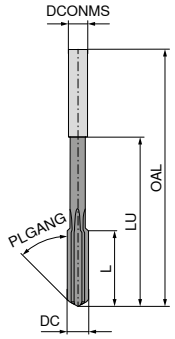
→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
Intermediate dimensions available on request.

4

Machine reamers, similar to DIN 8093-A / -B

▲ extremely irregular pitch

N



NEW



Left Hand Helix
PLGANG 45°
Solid carbide
Through hole

NEW



straight flute
PLGANG 45°
Solid carbide
Blind hole

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h7 mm	ZEFP	40 415 ... £ U4/4R		40 405 ... £ U4/4R	
2.0	11	31	49	2.0	4	59.03	02000	59.03	02000
2.1	11	31	49	2.0	4	70.59	02100	70.59	02100
2.2	12	35	53	2.2	4	70.59	02200	70.59	02200
2.3	12	35	53	2.2	4	70.59	02300	70.59	02300
2.4	14	34	57	2.5	4	70.59	02400	70.59	02400
2.5	14	34	57	2.5	4	63.40	02500	63.40	02500
2.6	14	34	57	2.5	4	75.83	02600	75.83	02600
2.7	15	36	61	3.0	4	75.83	02700	75.83	02700
2.8	15	36	61	3.0	4	75.83	02800	75.83	02800
2.9	15	36	61	3.0	4	75.83	02900	75.83	02900
3.0	15	36	61	3.0	4	68.31	03000	68.31	03000
3.1	15	36	61	3.0	4	81.92	03100	81.92	03100
3.2	18	40	70	3.5	4	81.92	03200	81.92	03200
3.3	18	40	70	3.5	4	81.92	03300	81.92	03300
3.4	18	40	70	3.5	4	81.92	03400	81.92	03400
3.5	18	40	70	3.5	4	77.86	03500	77.86	03500
3.6	18	40	70	3.5	4	93.49	03600	93.49	03600
3.7	18	40	70	3.5	4	93.49	03700	93.49	03700
3.8	19	43	75	4.0	4	93.49	03800	93.49	03800
3.9	19	43	75	4.0	4	93.49	03900	93.49	03900
4.0	19	43	75	4.0	4	83.66	04000	83.66	04000
4.1	19	43	75	4.0	4	100.75	04100	100.75	04100
4.2	19	43	75	4.0	4	100.75	04200	100.75	04200
4.3	21	42	75	4.5	4	100.75	04300	100.75	04300
4.4	21	42	75	4.5	4	100.75	04400	100.75	04400
4.5	21	42	75	4.5	4	91.20	04500	91.20	04500
4.6	21	42	75	4.5	4	109.40	04600	109.40	04600
4.7	21	42	75	4.5	4	109.40	04700	109.40	04700
4.8	23	52	86	5.0	6	109.40	04800	109.40	04800
4.9	23	52	86	5.0	6	109.40	04900	109.40	04900
5.0	23	52	86	5.0	6	102.75	05000	102.75	05000
5.1	23	52	86	5.0	6	118.38	05100	118.38	05100
5.2	23	52	86	5.0	6	118.38	05200	118.38	05200
5.3	23	52	86	5.0	6	118.38	05300	118.38	05300
5.4	26	57	93	5.6	6	118.38	05400	118.38	05400
5.5	26	57	93	5.6	6	108.79	05500	108.79	05500
5.6	26	57	93	5.6	6	125.31	05600	125.31	05600
5.7	26	57	93	5.6	6	125.31	05700	125.31	05700
5.8	26	57	93	5.6	6	125.31	05800	125.31	05800
5.9	26	57	93	5.6	6	125.31	05900	125.31	05900
6.0	26	57	93	5.6	6	130.24	06000	130.24	06000
6.1	26	57	93	5.6	6	149.92	06100	149.92	06100
6.2	26	57	93	5.6	6	149.92	06200	149.92	06200
6.3	28	63	101	6.3	6	149.92	06300	149.92	06300
6.4	28	63	101	6.3	6	149.92	06400	149.92	06400
6.5	28	63	101	6.3	6	145.88	06500	145.88	06500
6.6	28	63	101	6.3	6	168.14	06600	168.14	06600
6.7	28	63	101	6.3	6	168.14	06700	168.14	06700
6.8	31	69	109	7.1	6	168.14	06800	168.14	06800
6.9	31	69	109	7.1	6	168.14	06900	168.14	06900
7.0	31	69	109	7.1	6	163.23	07000	163.23	07000
7.1	31	69	109	7.1	6	187.55	07100	187.55	07100
7.2	31	69	109	7.1	6	187.55	07200	187.55	07200
7.3	31	69	109	7.1	6	187.55	07300	187.55	07300
7.4	31	69	109	7.1	6	187.55	07400	187.55	07400
7.5	31	69	109	7.1	6	176.57	07500	176.57	07500
7.6	33	75	117	8.0	6	203.18	07600	203.18	07600
7.7	33	75	117	8.0	6	203.18	07700	203.18	07700
7.8	33	75	117	8.0	6	203.18	07800	203.18	07800
7.9	33	75	117	8.0	6	203.18	07900	203.18	07900
8.0	33	75	117	8.0	6	187.55	08000	187.55	08000
8.1	33	75	117	8.0	6	206.68	08100	206.68	08100
8.2	33	75	117	8.0	6	206.68	08200	206.68	08200
8.3	33	75	117	8.0	6	206.68	08300	206.68	08300
8.4	33	75	117	8.0	6	206.68	08400	206.68	08400
8.5	33	75	117	8.0	6	203.76	08500	203.76	08500
8.6	36	81	125	9.0	6	223.74	08600	223.74	08600
8.7	36	81	125	9.0	6	223.74	08700	223.74	08700
8.8	36	81	125	9.0	6	223.74	08800	223.74	08800
8.9	36	81	125	9.0	6	223.74	08900	223.74	08900
9.0	36	81	125	9.0	6	218.23	09000	218.23	09000
9.1	36	81	125	9.0	6	239.96	09100	239.96	09100
9.2	36	81	125	9.0	6	239.96	09200	239.96	09200
9.3	36	81	125	9.0	6	239.96	09300	239.96	09300
9.4	36	81	125	9.0	6	239.96	09400	239.96	09400
9.5	36	81	125	9.0	6	233.86	09500	233.86	09500
9.6	38	87	133	10.0	6	257.36	09600	257.36	09600
9.7	38	87	133	10.0	6	257.36	09700	257.36	09700
9.8	38	87	133	10.0	6	257.36	09800	257.36	09800
9.9	38	87	133	10.0	6	257.36	09900	257.36	09900
10.0	38	87	133	10.0	6	251.84	10000	251.84	10000
10.1	38	87	133	10.0	6	277.37	10100	277.37	10100
10.2	38	87	133	10.0	6	277.37	10200	277.37	10200
10.3	38	87	133	10.0	6	277.37	10300	277.37	10300
10.4	38	87	133	10.0	6	277.37	10400	277.37	10400
10.5	38	87	133	10.0	6	263.61	10500	263.61	10500
10.6	38	87	133	10.0	6	289.38	10600	289.38	10600
10.7	41	96	142	10.0	6	289.38	10700	289.38	10700
10.8	41	96	142	10.0	6	289.38	10800	289.38	10800
10.9	41	96	142	10.0	6	289.38	10900	289.38	10900
11.0	41	96	142	10.0	6	285.12	11000	285.12	11000
11.1	41	96	142	10.0	6	315.37	11100	315.37	11100
11.2	41	96	142	10.0	6	315.37	11200	315.37	11200
11.3	41	96	142	10.0	6	315.37	11300	315.37	11300
11.4	41	96	142	10.0	6	315.37	11400	315.37	11400
11.5	41	96	142	10.0	6	304.14	11500	304.14	11500
11.6	41	96	142	10.0	6	332.89	11600	332.89	11600
11.7	41	96	142	10.0	6	332.89	11700	332.89	11700
11.8	41	96	142	10.0	6	332.89	11800	332.89	11800
11.9	44	100	151	10.0	6	332.89	11900	332.89	11900
12.0	44	100	151	10.0	6	327.14	12000	327.14	12000

	40 415 ...	40 405 ...
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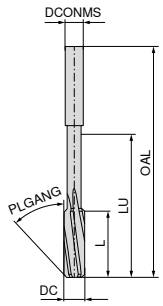
NC machine reamers, DIN 212-3-B

▲ maximum radial run-out accuracy
▲ PLGANG ≤ Ø 3,75 = 30° / > Ø 3,75 = 45°

NC





Left Hand Helix
HSS-E
Through hole

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	40 110 ... £ U2	
1.5	8	15.5	40	2	3	22.72	015
1.6	9	16.0	43	2	3	25.46	016
1.7	9	16.0	43	2	3	25.46	017
1.8	10	19.0	46	2	4	25.46	018
1.9	10	19.0	46	2	4	25.46	019
2.0	11	21.0	49	2	4	22.11	020
2.1	11	21.0	49	2	4	26.84	021
2.2	12	22.0	53	3	4	26.84	022
2.3	12	22.0	53	3	4	26.84	023
2.4	14	26.0	57	3	4	26.84	024
2.5	14	26.0	57	3	4	22.11	025
2.6	14	26.0	57	3	4	28.40	026
2.7	15	30.0	61	3	6	28.40	027
2.8	15	30.0	61	3	6	28.40	028
2.9	15	30.0	61	3	6	28.40	029
3.0	15	30.0	61	3	6	20.30	030
3.1	16	34.0	65	4	6	26.84	031
3.2	16	34.0	65	4	6	26.84	032
3.3	16	34.0	65	4	6	26.84	033
3.4	18	39.0	70	4	6	26.84	034
3.5	18	39.0	70	4	6	23.85	035
3.6	18	39.0	70	4	6	29.76	036
3.7	18	39.0	70	4	6	29.76	037
3.8	19	44.0	75	4	6	29.76	038
3.9	19	44.0	75	4	6	21.56	039
4.0	19	44.0	75	4	6	22.11	040
4.1	19	44.0	75	4	6	27.95	041
4.2	19	44.0	75	4	6	27.95	042
4.3	21	48.0	80	5	6	27.95	043
4.4	21	48.0	80	5	6	27.95	044
4.5	21	48.0	80	5	6	23.85	045
4.6	21	48.0	80	5	6	30.25	046
4.7	21	48.0	80	5	6	30.25	047
4.8	23	54.0	86	5	6	30.25	048
4.9	23	54.0	86	5	6	30.25	049
5.0	23	54.0	86	5	6	22.72	050
5.1	23	54.0	86	5	6	30.25	051
5.2	23	54.0	86	5	6	30.25	052
5.3	23	54.0	86	5	6	30.25	053
5.4	26	53.0	93	6	6	30.25	054
5.5	26	53.0	93	6	6	27.95	055
5.6	26	53.0	93	6	6	30.25	056
5.7	26	53.0	93	6	6	30.25	057
5.8	26	53.0	93	6	6	30.25	058
5.9	26	53.0	93	6	6	30.25	059
6.0	26	53.0	93	6	6	24.31	060
6.1	28	61.0	101	6	6	30.25	061
6.2	28	61.0	101	6	6	30.25	062
6.3	28	61.0	101	6	6	30.25	063
6.4	28	61.0	101	6	6	30.25	064
6.5	28	61.0	101	6	6	29.11	065
6.6	28	61.0	101	6	6	30.25	066
6.7	28	61.0	101	6	6	30.25	067
6.8	31	69.0	109	8	6	30.25	068
6.9	31	69.0	109	8	6	30.25	069
7.0	31	69.0	109	8	6	29.11	070
7.1	31	69.0	109	8	6	33.85	071
7.2	31	69.0	109	8	6	33.85	072
7.3	31	69.0	109	8	6	33.85	073
7.4	31	69.0	109	8	6	33.85	074
7.5	31	69.0	109	8	6	33.13	075
7.6	33	77.0	117	8	6	35.73	076
7.7	33	77.0	117	8	6	35.73	077
7.8	33	77.0	117	8	6	35.73	078
7.9	33	77.0	117	8	6	35.73	079
8.0	33	77.0	117	8	6	30.25	080
8.1	33	77.0	117	8	6	41.65	081
8.2	33	77.0	117	8	6	41.65	082
8.3	33	77.0	117	8	6	41.65	083
8.4	33	77.0	117	8	6	41.65	084
8.5	33	77.0	117	8	6	37.94	085
8.6	36	81.0	125	10	6	38.57	086
8.7	36	81.0	125	10	6	38.57	087
8.8	36	81.0	125	10	6	38.57	088
8.9	36	81.0	125	10	6	38.57	089
9.0	36	81.0	125	10	6	34.98	090
9.1	36	81.0	125	10	6	39.81	091
9.2	36	81.0	125	10	6	39.81	092
9.3	36	81.0	125	10	6	39.81	093
9.4	36	81.0	125	10	6	39.81	094
9.5	36	81.0	125	10	6	39.04	095
9.6	38	89.0	133	10	6	40.88	096
9.7	38	89.0	133	10	6	40.88	097
9.8	38	89.0	133	10	6	40.88	098
9.9	38	89.0	133	10	6	40.88	099
10.0	38	89.0	133	10	6	35.73	100
11.0	41	98.0	142	10	6	50.00	110
12.0	44	106.0	151	10	6	52.26	120
13.0	44	106.0	151	10	6	58.02	130
14.0	47	110.0	160	14	8	60.16	140
15.0	50	112.0	162	14	8	61.39	150
16.0	52	120.0	170	14	8	63.59	160
17.0	54	125.0	175	14	8	76.16	170
18.0	56	132.0	182	14	8	78.37	180
19.0	58	136.0	189	16	8	90.82	190
20.0	60	142.0	195	16	8	87.53	200

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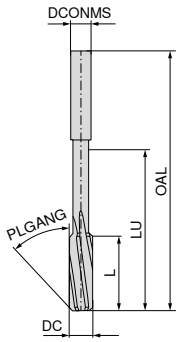
→ v_c Page 87

4

NC machine reamers, DIN 212-3-B

▲ 0.01 mm steps
▲ tolerance: Ø 1.00 – Ø 5.50 mm = +0.004 mm
▲ tolerance: Ø 5.51 – Ø 12.00 mm = +0.005 mm
▲ PLGANG ≤ Ø 3,75 = 30° / > Ø 3,75 = 45°

NC 100





Left Hand Helix
HSS-E
Through hole

40 115 ...

DC mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	£ U2	
0,95 - 0,99	5.5	12.5	34	1	3	32.80	xxxxx[1]
1,00	5.5	12.5	34	1	3	33.13	01000
1,01	5.5	12.5	34	1	3	33.13	01010
1,02	5.5	12.5	34	1	3	33.13	01020
1,03 - 1,06	5.5	12.5	34	1	3	34.52	xxxxx[1]
1,07 - 1,18	6.5	13.0	36	1	3	34.52	xxxxx[1]
1,19 - 1,32	7.5	14.0	38	2	3	34.52	xxxxx[1]
1,33 - 1,41	8.0	15.5	40	2	3	32.80	xxxxx[1]
1,42 - 1,49	8.0	15.5	40	2	3	34.52	xxxxx[1]
1,50	8.0	15.5	40	2	3	29.11	01500
1,51	9.0	16.0	43	2	3	29.11	01510
1,52	9.0	16.0	43	2	3	29.11	01520
1,53 - 1,70	9.0	16.0	43	2	3	34.52	xxxxx[1]
1,71 - 1,90	10.0	19.0	46	2	4	34.52	xxxxx[1]
1,91 - 1,96	11.0	21.0	49	2	4	34.52	xxxxx[1]
1,97	11.0	21.0	49	2	4	29.11	01970
1,98	11.0	21.0	49	2	4	29.11	01980
1,99	11.0	21.0	49	2	4	29.11	01990
2,00	11.0	21.0	49	2	4	27.34	02000
2,01	11.0	21.0	49	2	4	27.34	02010
2,02	11.0	21.0	49	2	4	27.34	02020
2,03 - 2,12	11.0	21.0	49	2	4	34.52	xxxxx[1]
2,13 - 2,36	12.0	22.0	53	3	4	34.52	xxxxx[1]
2,37 - 2,47	14.0	26.0	57	3	4	34.52	xxxxx[1]
2,48	14.0	26.0	57	3	4	31.31	02480
2,49	14.0	26.0	57	3	4	31.31	02490
2,50	14.0	26.0	57	3	4	26.84	02500
2,51	14.0	26.0	57	3	4	26.84	02510
2,52	14.0	26.0	57	3	4	26.84	02520
2,53 - 2,65	14.0	26.0	57	3	4	34.52	xxxxx[1]
2,66 - 2,96	15.0	30.0	61	3	6	32.80	xxxxx[1]
2,97	15.0	30.0	61	3	6	32.06	02970
2,98	15.0	30.0	61	3	6	32.06	02980
2,99	15.0	30.0	61	3	6	32.06	02990
3,00	15.0	30.0	61	3	6	23.85	03000
3,01	15.0	30.0	61	3	6	23.85	03010
3,02	15.0	30.0	61	3	6	23.85	03020
3,03	15.0	30.0	61	3	6	34.52	03030[1]
3,04 - 3,35	16.0	34.0	65	4	6	34.52	xxxxx[1]
3,36 - 3,75	18.0	39.0	70	4	6	34.52	xxxxx[1]
3,76 - 3,96	19.0	44.0	75	4	6	34.52	xxxxx[1]
3,97	19.0	44.0	75	4	6	26.14	03970
3,98	19.0	44.0	75	4	6	26.14	03980
3,99	19.0	44.0	75	4	6	26.14	03990
4,00	19.0	44.0	75	4	6	26.14	04000
4,01	19.0	44.0	75	4	6	26.14	04010
4,02	19.0	44.0	75	4	6	26.14	04020
4,03 - 4,25	19.0	44.0	75	4	6	34.52	xxxxx[1]
4,26 - 4,75	21.0	48.0	80	5	6	32.80	xxxxx[1]
4,76 - 4,96	23.0	54.0	86	5	6	34.52	xxxxx[1]
4,97	23.0	54.0	86	5	6	28.40	04970
4,98	23.0	54.0	86	5	6	28.40	04980
4,99	23.0	54.0	86	5	6	28.40	04990
5,00	23.0	54.0	86	5	6	28.40	05000
5,01	23.0	54.0	86	5	6	28.40	05010

40 115 ...

DC mm	L mm	LU mm	OAL mm	DCONMS h6 mm	ZEFP	£ U2	
5,02	23.0	54.0	86	5	6	28.40	05020
5,03 - 5,30	23.0	54.0	86	5	6	34.52	xxxxx[1]
5,31 - 5,60	26.0	53.0	93	6	6	34.52	xxxxx[1]
5,61 - 5,96	26.0	53.0	93	6	6	32.80	xxxxx[1]
5,97	26.0	53.0	93	6	6	31.31	05970
5,98	26.0	53.0	93	6	6	31.31	05980
5,99	26.0	53.0	93	6	6	31.31	05990
6,00	26.0	53.0	93	6	6	31.31	06000
6,01	26.0	53.0	93	6	6	31.31	06010
6,02	26.0	53.0	93	6	6	31.31	06020
6,03	26.0	53.0	93	6	6	34.52	06030[1]
6,04 - 6,70	28.0	61.0	101	6	6	34.52	xxxxx[1]
6,71 - 7,20	31.0	69.0	109	8	6	34.52	xxxxx[1]
7,21 - 7,50	31.0	69.0	109	8	6	32.80	xxxxx[1]
7,51 - 7,96	33.0	77.0	117	8	6	38.53	xxxxx[1]
7,97	33.0	77.0	117	8	6	33.85	07970
7,98	33.0	77.0	117	8	6	33.85	07980
7,99	33.0	77.0	117	8	6	33.85	07990
8,00	33.0	77.0	117	8	6	33.85	08000
8,01	33.0	77.0	117	8	6	33.85	08010
8,02	33.0	77.0	117	8	6	33.85	08020
8,03 - 8,20	33.0	77.0	117	8	6	45.97	xxxxx[1]
8,21 - 8,50	33.0	77.0	117	8	6	45.97	xxxxx[1]
8,51 - 8,99	36.0	81.0	125	10	6	45.97	xxxxx[1]
9,00	36.0	81.0	125	10	6	42.74	09000
9,01	36.0	81.0	125	10	6	42.74	09010
9,02	36.0	81.0	125	10	6	42.74	09020
9,03 - 9,20	36.0	81.0	125	10	6	45.97	xxxxx[1]
9,21 - 9,50	36.0	81.0	125	10	6	44.12	xxxxx[1]
9,51 - 9,96	38.0	89.0	133	10	6	66.93	xxxxx[1]
9,97	38.0	89.0	133	10	6	42.74	09970
9,98	38.0	89.0	133	10	6	42.74	09980
9,99	38.0	89.0	133	10	6	42.74	09990
10,00	38.0	89.0	133	10	6	42.74	10000
10,01	38.0	89.0	133	10	6	42.74	10010
10,02	38.0	89.0	133	10	6	42.74	10020
10,03 - 10,20	38.0	89.0	133	10	6	68.89	xxxxx[1]
10,21 - 10,60	38.0	89.0	133	10	6	68.89	xxxxx[1]
10,61 - 11,20	41.0	98.0	142	10	6	65.15	xxxxx[1]
11,21 - 11,80	41.0	98.0	142	10	6	68.89	xxxxx[1]
11,81 - 11,96	44.0	106.0	151	10	6	65.15	xxxxx[1]
11,97	44.0	106.0	151	10	6	61.39	11970
11,98	44.0	106.0	151	10	6	61.39	11980
11,99	44.0	106.0	151	10	6	61.39	11990
12,00	44.0	106.0	151	10	6	61.39	12000

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1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 10 working days / Minimum order 5 pieces

→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.03 mm → Article no. 40 115 08030)!

Machine reamers, DIN 212-B

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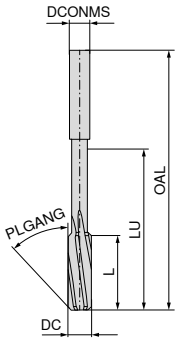



4



Left Hand Helix
PLGANG 45°
HSS-E
Through hole

DC H7 mm	L mm	LU mm	OAL mm	DCONMS h9 mm	ZEFP	£ U2	40 150 ...
1.0	5.5	13	34	1.0	3	29.14	**010**
1.5	8.0	16	40	1.5	3	24.17	**015**
2.0	11.0	22	49	2.0	4	23.70	**020**
2.5	14.0	26	57	2.5	4	23.70	**025**
3.0	15.0	29	61	3.0	6	21.36	**030**
3.5	18.0	38	70	3.5	6	24.67	**035**
4.0	19.0	46	75	4.0	6	23.70	**040**
4.5	21.0	51	80	4.5	6	24.67	**045**
5.0	23.0	57	86	5.0	6	24.17	**050**
5.5	26.0	56	93	5.6	6	29.14	**055**
6.0	26.0	56	93	5.6	6	25.31	**060**
6.5	28.0	64	101	6.3	6	30.73	**065**
7.0	31.0	72	109	7.1	6	30.73	**070**
7.5	31.0	72	109	7.1	6	34.55	**075**
8.0	33.0	80	117	8.0	6	31.78	**080**
8.5	33.0	80	117	8.0	6	40.16	**085**
9.0	36.0	84	125	9.0	6	36.72	**090**
9.5	36.0	84	125	9.0	6	41.09	**095**
10.0	38.0	92	133	10.0	6	37.28	**100**
11.0	41.0	101	142	10.0	6	52.66	**110**
12.0	44.0	110	151	10.0	6	54.77	**120**
13.0	44.0	110	151	10.0	6	61.39	**130**
14.0	47.0	114	160	12.5	8	63.70	**140**
15.0	50.0	116	162	12.5	8	65.79	**150**
16.0	52.0	124	170	12.5	8	68.14	**160**
17.0	54.0	129	175	14.0	8	80.18	**170**
18.0	56.0	136	182	14.0	8	82.26	**180**
19.0	58.0	140	189	16.0	8	96.60	**190**
20.0	60.0	146	195	16.0	8	92.22	**200**

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All other diameters, tolerance classes and chamfers also available on request.

Machine reamers, DIN 212-B

▲ 0.01 mm steps
▲ tolerance: Ø 0.95 – 5.50 mm = +0.004 mm
▲ tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

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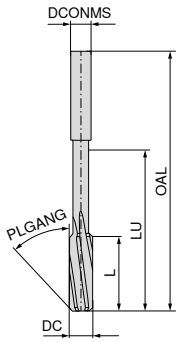



Left Hand Helix
PLGANG 45°
HSS-E
Through hole

40 140 ...

DC mm	L mm	LU mm	OAL mm	DCONMS h9 mm	ZEFP	£ U2	
0,95 - 1,06	5.5	13	34	1.0	3	31.78	xxxxx[1]
1,07 - 1,18	6.5	14	36	1.1	3	31.78	xxxxx[1]
1,19 - 1,32	7.5	15	38	1.2	3	31.78	xxxxx[1]
1,33 - 1,41	8.0	16	40	1.4	3	31.78	xxxxx[1]
1,42 - 1,47	8.0	16	40	1.5	3	29.14	xxxxx[1]
1,48	8.0	16	40	1.5	3	29.14	01480
1,49	8.0	16	40	1.5	3	29.14	01490
1,50	8.0	16	40	1.5	3	29.14	01500
1,51 - 1,70	9.0	18	43	1.6	3	27.54	xxxxx[1]
1,71 - 1,90	10.0	20	46	1.8	4	27.54	xxxxx[1]
1,91 - 1,97	11.0	22	49	2.0	4	27.54	xxxxx[1]
1,98	11.0	22	49	2.0	4	27.54	01980
1,99	11.0	22	49	2.0	4	27.54	01990
2,00	11.0	22	49	2.0	4	25.84	02000
2,01	11.0	22	49	2.0	4	25.84	02010
2,02	11.0	22	49	2.0	4	25.84	02020
2,03	11.0	22	49	2.0	4	25.84	02030
2,04	11.0	22	49	2.0	4	25.84	02040
2,05	11.0	22	49	2.0	4	25.84	02050
2,06 - 2,09	11.0	22	49	2.0	4	25.84	xxxxx[1]
2,10 - 2,12	11.0	22	49	2.0	4	29.58	xxxxx[1]
2,13 - 2,36	12.0	24	53	2.2	4	29.58	xxxxx[1]
2,37 - 2,49	14.0	26	57	2.5	4	29.58	xxxxx[1]
2,50 - 2,59	14.0	26	57	2.5	4	25.31	xxxxx[1]
2,60 - 2,65	14.0	26	57	2.5	4	30.73	xxxxx[1]
2,66 - 2,80	15.0	30	61	2.8	6	30.73	xxxxx[1]
2,81 - 2,94	15.0	29	61	3.0	6	30.73	xxxxx[1]
2,95	15.0	29	61	3.0	6	30.73	02950[1]
2,96	15.0	29	61	3.0	6	30.73	02960[1]
2,97	15.0	29	61	3.0	6	30.73	02970
2,98	15.0	29	61	3.0	6	30.73	02980
2,99	15.0	29	61	3.0	6	30.73	02990
3,00	15.0	29	61	3.0	6	30.73	03000
3,01	16.0	33	65	3.2	6	23.07	03010
3,02	16.0	33	65	3.2	6	23.07	03020
3,03	16.0	33	65	3.2	6	23.07	03030
3,04	16.0	33	65	3.2	6	23.07	03040
3,05	16.0	33	65	3.2	6	23.07	03050
3,06	16.0	33	65	3.2	6	23.07	03060
3,07	16.0	33	65	3.2	6	23.07	03070
3,08 - 3,09	16.0	33	65	3.2	6	23.07	xxxxx[1]
3,10 - 3,35	16.0	33	65	3.2	6	29.14	xxxxx[1]
3,36 - 3,49	18.0	38	70	3.5	6	29.14	xxxxx[1]
3,50 - 3,59	18.0	38	70	3.5	6	25.31	xxxxx[1]
3,60 - 3,75	18.0	38	70	3.5	6	32.41	xxxxx[1]
3,76 - 3,81	19.0	46	75	4.0	6	32.41	xxxxx[1]
3,82 - 3,94	19.0	46	75	4.0	6	24.67	xxxxx[1]
3,95	19.0	46	75	4.0	6	24.67	03950[1]
3,96	19.0	46	75	4.0	6	24.67	03960[1]
3,97	19.0	46	75	4.0	6	24.67	03970

40 140 ...

DC mm	L mm	LU mm	OAL mm	DCONMS h9 mm	ZEFP	£ U2	
3,98	19.0	46	75	4.0	6	24.67	03980
3,99	19.0	46	75	4.0	6	24.67	03990
4,00	19.0	46	75	4.0	6	24.67	04000
4,01	19.0	46	75	4.0	6	24.67	04010
4,02	19.0	46	75	4.0	6	24.67	04020
4,03	19.0	46	75	4.0	6	24.67	04030
4,04	19.0	46	75	4.0	6	24.67	04040
4,05	19.0	46	75	4.0	6	24.67	04050
4,06	19.0	46	75	4.0	6	24.67	04060
4,07	19.0	46	75	4.0	6	24.67	04070
4,08	19.0	46	75	4.0	6	24.67	04080
4,09 - 4,20	19.0	46	75	4.0	6	24.67	xxxxx[1]
4,21 - 4,25	19.0	46	75	4.0	6	30.25	xxxxx[1]
4,26 - 4,75	21.0	51	80	4.5	6	30.25	xxxxx[1]
4,76 - 4,95	23.0	57	86	5.0	6	26.89	xxxxx[1]
4,96	23.0	57	86	5.0	6	26.89	04960[1]
4,97	23.0	57	86	5.0	6	26.89	04970
4,98	23.0	57	86	5.0	6	26.89	04980
4,99	23.0	57	86	5.0	6	26.89	04990
5,00	23.0	57	86	5.0	6	26.89	05000
5,01	23.0	57	86	5.0	6	26.89	05010
5,02	23.0	57	86	5.0	6	26.89	05020
5,03	23.0	57	86	5.0	6	26.89	05030
5,04	23.0	57	86	5.0	6	26.89	05040
5,05	23.0	57	86	5.0	6	26.89	05050
5,06	23.0	57	86	5.0	6	26.89	05060
5,07	23.0	57	86	5.0	6	26.89	05070
5,08 - 5,20	23.0	57	86	5.0	6	26.89	xxxxx[1]
5,21 - 5,30	23.0	57	86	5.0	6	29.58	xxxxx[1]
5,31 - 5,94	26.0	56	93	5.6	6	29.58	xxxxx[1]
5,95	26.0	56	93	5.6	6	29.58	05950[1]
5,96	26.0	56	93	5.6	6	29.58	05960[1]
5,97	26.0	56	93	5.6	6	29.58	05970
5,98	26.0	56	93	5.6	6	29.58	05980
5,99	26.0	56	93	5.6	6	29.58	05990

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→ v_c Page 88

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 16 working days

→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 10.06 mm → Article no. 40 140 10060)!

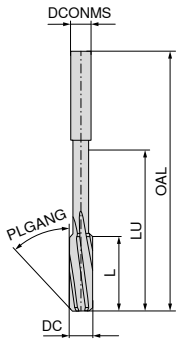
All other diameters, tolerance classes and chamfers also available on request.

Continued on next page

Machine reamers, DIN 212-B

▲ 0.01 mm steps
▲ tolerance: Ø 0.95 – 5.50 mm = +0.004 mm
▲ tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

N 100





Left Hand Helix
PLGANG 45°
HSS-E
Through hole

40 140 ...

DC mm	L mm	LU mm	OAL mm	DCONMS h9 mm	ZEFP	£ U2	
6,00	26	56	93	5.6	6	29.58	06000
6,01	28	64	101	6.3	6	32.41	06010
6,02	28	64	101	6.3	6	32.41	06020
6,03	28	64	101	6.3	6	32.41	06030
6,04	28	64	101	6.3	6	32.41	06040
6,05	28	64	101	6.3	6	32.41	06050
6,06 - 6,11	28	64	101	6.3	6	32.41	xxxxx[1]
6,12 - 6,34	28	64	101	6.3	6	32.41	xxxxx[1]
6,35	28	64	101	6.3	6	32.41	06350
6,36 - 6,70	28	64	101	6.3	6	32.41	xxxxx[1]
6,71 - 6,94	31	72	109	7.1	6	32.41	xxxxx[1]
6,95	31	72	109	7.1	6	32.41	06950[1]
6,96	31	72	109	7.1	6	32.41	06960[1]
6,97	31	72	109	7.1	6	32.41	06970[1]
6,98	31	72	109	7.1	6	32.41	06980[1]
6,99	31	72	109	7.1	6	32.41	06990[1]
7,00	31	72	109	7.1	6	32.41	07000[1]
7,01	31	72	109	7.1	6	32.41	07010[1]
7,02	31	72	109	7.1	6	32.41	07020[1]
7,03	31	72	109	7.1	6	32.41	07030[1]
7,04 - 7,50	31	72	109	7.1	6	32.41	xxxxx[1]
7,51 - 7,94	33	80	117	8.0	6	32.41	xxxxx[1]
7,95	33	80	117	8.0	6	32.41	07950[1]
7,96	33	80	117	8.0	6	32.41	07960[1]
7,97	33	80	117	8.0	6	32.41	07970
7,98	33	80	117	8.0	6	32.41	07980
7,99	33	80	117	8.0	6	32.41	07990
8,00	33	80	117	8.0	6	32.41	08000
8,01	33	80	117	8.0	6	32.41	08010
8,02	33	80	117	8.0	6	32.41	08020
8,03	33	80	117	8.0	6	32.41	08030
8,04	33	80	117	8.0	6	32.41	08040
8,05	33	80	117	8.0	6	32.41	08050
8,06 - 8,20	33	80	117	8.0	6	32.41	xxxxx[1]
8,21 - 8,50	33	80	117	8.0	6	40.60	xxxxx[1]
8,51 - 8,63	36	84	125	9.0	6	40.60	xxxxx[1]
8,64 - 8,95	36	84	125	9.0	6	40.60	xxxxx[1]
8,96	36	84	125	9.0	6	40.60	08960[1]
8,97	36	84	125	9.0	6	40.60	08970[1]
8,98	36	84	125	9.0	6	40.60	08980[1]
8,99	36	84	125	9.0	6	40.60	08990[1]
9,00	36	84	125	9.0	6	40.60	09000[1]
9,01	36	84	125	9.0	6	40.60	09010[1]
9,02	36	84	125	9.0	6	40.60	09020[1]
9,03 - 9,50	36	84	125	9.0	6	40.60	xxxxx[1]
9,51 - 9,63	38	92	133	10.0	6	40.60	xxxxx[1]
9,64 - 9,95	38	92	133	10.0	6	40.60	xxxxx[1]
9,96	38	92	133	10.0	6	40.60	09960[1]
9,97	38	92	133	10.0	6	40.60	09970
9,98	38	92	133	10.0	6	40.60	09980

40 140 ...

DC mm	L mm	LU mm	OAL mm	DCONMS h9 mm	ZEFP	£ U2	
9,99	38	92	133	10.0	6	40.60	09990
10,00	38	92	133	10.0	6	40.60	10000
10,01	38	92	133	10.0	6	40.60	10010
10,02	38	92	133	10.0	6	40.60	10020
10,03	38	92	133	10.0	6	40.60	10030
10,04	38	92	133	10.0	6	40.60	10040
10,05	38	92	133	10.0	6	40.60	10050
10,06 - 10,09	38	92	133	10.0	6	40.60	xxxxx[1]
10,10	38	92	133	10.0	6	40.60	10100
10,11 - 10,19	38	92	133	10.0	6	40.60	xxxxx[1]
10,20	38	92	133	10.0	6	40.60	10200
10,21 - 10,60	38	92	133	10.0	6	50.93	xxxxx[1]
10,61 - 11,20	41	101	142	10.0	6	50.93	xxxxx[1]
11,21 - 11,80	41	101	142	10.0	6	58.13	xxxxx[1]
11,81 - 11,95	44	110	151	10.0	6	58.13	xxxxx[1]
11,96	44	110	151	10.0	6	58.13	11960[1]
11,97	44	110	151	10.0	6	58.13	11970
11,98	44	110	151	10.0	6	58.13	11980
11,99	44	110	151	10.0	6	58.13	11990
12,00	44	110	151	10.0	6	58.13	12000
12,01 - 12,05	44	110	151	10.0	6	58.13	xxxxx[1]

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→ v_c Page 88

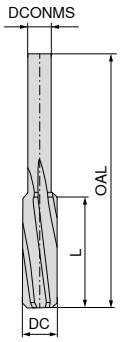
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 16 working days

→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 10.06 mm → Article no. 40 140 10060)!

All other diameters, tolerance classes and chamfers also available on request.

Stub reamers, DIN 8089-B

AR







Left Hand Helix
PLGANG 45°
HSS-E
Through hole

40 145 ...

DC $_{H7}$ mm	L mm	OAL mm	DCONMS $_{h8}$ mm	ZEFP	£ U2	
4	20	56	3.55	6	24.56	**040**
5	22	63	4.00	6	26.89	**050**
6	22	63	5.00	6	26.89	**060**
8	25	71	6.30	6	32.11	**080**
10	25	71	8.00	6	39.10	**100**
12	28	80	10.00	6	57.17	**120**
14	32	90	12.50	8	65.30	**140**
16	32	90	12.50	8	71.23	**160**
18	36	100	16.00	8	86.30	**180**
20	36	100	16.00	8	94.42	**200**

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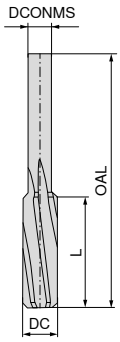
→ v_c Page 88

All other diameters, tolerance classes and chamfers also available on request.

Stub reamers, DIN 8089-B

▲ 0.01 mm steps
▲ tolerance: Ø 3.76 – 5.50 mm = +0.004 mm
▲ tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

AR 100





Left Hand Helix
PLGANG 45°
HSS-E
Through hole

DC mm	L mm	OAL mm	DCONMS h8 mm	ZEFP	40 139 ... £ U2	
3,76 - 3,81	20	56	3.55	6	35.61	xxxxx[1]
3,82 - 3,94	20	56	3.55	6	26.30	xxxxx[1]
3,95	20	56	3.55	6	26.30	03950[1]
3,96	20	56	3.55	6	26.30	03960[1]
3,97	20	56	3.55	6	26.30	03970[1]
3,98	20	56	3.55	6	26.30	03980[1]
3,99	20	56	3.55	6	26.30	03990[1]
4,00	20	56	3.55	6	26.30	04000[1]
4,01	20	56	3.55	6	26.30	04010[1]
4,02	20	56	3.55	6	26.30	04020[1]
4,03 - 4,20	20	56	3.55	6	26.30	xxxxx[1]
4,21 - 4,25	20	56	3.55	6	31.51	xxxxx[1]
4,26 - 4,75	22	63	4.00	6	31.51	xxxxx[1]
4,76 - 4,94	22	63	4.00	6	27.98	xxxxx[1]
4,95	22	63	4.00	6	27.98	04950[1]
4,96	22	63	4.00	6	27.98	04960[1]
4,97	22	63	4.00	6	27.98	04970[1]
4,98	22	63	4.00	6	27.98	04980[1]
4,99	22	63	4.00	6	27.98	04990[1]
5,00	22	63	4.00	6	27.98	05000[1]
5,01	22	63	4.00	6	27.98	05010[1]
5,02	22	63	4.00	6	27.98	05020[1]
5,03	22	63	4.00	6	27.98	05030[1]
5,04	22	63	4.00	6	27.98	05040[1]
5,05	22	63	4.00	6	27.98	05050[1]
5,06 - 5,20	22	63	4.00	6	27.98	xxxxx[1]
5,21 - 5,30	22	63	4.00	6	31.51	xxxxx[1]
5,31 - 5,70	22	63	5.00	6	31.51	xxxxx[1]
5,71 - 5,94	22	63	5.00	6	31.51	xxxxx[1]
5,95	22	63	5.00	6	31.51	05950[1]
5,96	22	63	5.00	6	31.51	05960[1]
5,97	22	63	5.00	6	31.51	05970[1]
5,98	22	63	5.00	6	31.51	05980[1]
5,99	22	63	5.00	6	31.51	05990[1]
6,00	22	63	5.00	6	31.51	06000[1]
6,01	22	63	5.00	6	31.51	06010[1]
6,02	22	63	5.00	6	31.51	06020[1]
6,03 - 6,11	22	63	5.00	6	31.51	xxxxx[1]
6,12 - 6,70	22	63	5.00	6	33.85	xxxxx[1]
6,71 - 6,94	25	71	6.30	6	33.85	xxxxx[1]
6,95	25	71	6.30	6	33.85	06950[1]
6,96	25	71	6.30	6	33.85	06960[1]
6,97	25	71	6.30	6	33.85	06970[1]
6,98	25	71	6.30	6	33.85	06980[1]
6,99	25	71	6.30	6	33.85	06990[1]
7,00	25	71	6.30	6	33.85	07000[1]
7,01	25	71	6.30	6	33.85	07010[1]
7,02	25	71	6.30	6	33.85	07020[1]
7,03 - 7,25	25	71	6.30	6	33.85	xxxxx[1]
7,26 - 7,94	25	71	6.30	6	33.85	xxxxx[1]
7,95	25	71	6.30	6	33.85	07950[1]
7,96	25	71	6.30	6	33.85	07960[1]
7,97	25	71	6.30	6	33.85	07970[1]
7,98	25	71	6.30	6	33.85	07980[1]
7,99	25	71	6.30	6	33.85	07990[1]
8,00	25	71	6.30	6	33.85	08000[1]
8,01	25	71	6.30	6	33.85	08010[1]
8,02	25	71	6.30	6	33.85	08020[1]
8,03	25	71	6.30	6	33.85	08030[1]
8,04	25	71	6.30	6	33.85	08040[1]
8,05 - 8,20	25	71	6.30	6	33.85	xxxxx[1]
8,21 - 8,50	25	71	6.30	6	42.64	xxxxx[1]
8,51 - 8,94	25	71	8.00	6	42.64	xxxxx[1]
8,95	25	71	8.00	6	42.64	08950[1]
8,96	25	71	8.00	6	42.64	08960[1]
8,97	25	71	8.00	6	42.64	08970[1]
8,98	25	71	8.00	6	42.64	08980[1]
8,99	25	71	8.00	6	42.64	08990[1]
9,00	25	71	8.00	6	42.64	09000[1]
9,01	25	71	8.00	6	42.64	09010[1]
9,02	25	71	8.00	6	42.64	09020[1]
9,03 - 9,25	25	71	8.00	6	42.64	xxxxx[1]
9,26 - 9,94	25	71	8.00	6	42.64	xxxxx[1]
9,95	25	71	8.00	6	42.64	09950[1]
9,96	25	71	8.00	6	42.64	09960[1]
9,97	25	71	8.00	6	42.64	09970[1]
9,98	25	71	8.00	6	42.64	09980[1]
9,99	25	71	8.00	6	42.64	09990[1]
10,00	25	71	8.00	6	42.64	10000[1]
10,01	25	71	8.00	6	42.64	10010[1]
10,02	25	71	8.00	6	42.64	10020[1]
10,03 - 10,20	25	71	8.00	6	42.64	xxxxx[1]
10,21 - 10,60	25	71	8.00	6	54.25	xxxxx[1]
10,61 - 11,20	28	80	10.00	6	54.25	xxxxx[1]
11,21 - 11,25	28	80	10.00	6	62.97	xxxxx[1]
11,26 - 11,94	28	80	10.00	6	62.97	xxxxx[1]
11,95	28	80	10.00	6	62.97	11950[1]
11,96	28	80	10.00	6	62.97	11960[1]
11,97	28	80	10.00	6	62.97	11970[1]
11,98	28	80	10.00	6	62.97	11980[1]
11,99	28	80	10.00	6	62.97	11990[1]
12,00	28	80	10.00	6	62.97	12000[1]

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→ v_c Page 88

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 16 working days

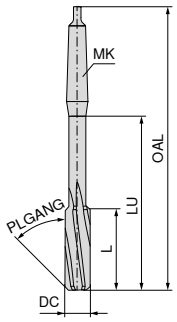
→ **Page 101**
Here you will find the fit dimensions that can be covered with this tool concept.
For xxxxx please indicate required Ø in the order (e.g. Ø 10.06 mm → Article no. 40 139 10060)!

All other diameters, tolerance classes and chamfers also available on request.

Machine reamers HSS-E DIN 208

▲ the circular land on the cutting edge burnishes the hole and guides the reamer

N





Left Hand Helix
PLGANG 45°
HSS-E
Through hole

40 160 ...

DC H7 mm	L mm	LU mm	OAL mm	MK	ZEFP	£ U2	
16	52	127	210	2	8	81.53	**160**
17	54	132	214	2	8	87.53	**170**
18	56	137	219	2	8	90.97	**180**
19	58	142	223	2	8	95.67	**190**
20	60	147	228	2	8	95.67	**200**
21	62	151	232	2	8	108.46	**210**
22	64	156	237	2	8	108.46	**220**
23	66	160	241	2	8	124.73	**230**
24	68	167	268	3	8	128.38	**240**
25	68	167	268	3	8	131.89	**250**
26	70	172	273	3	8	141.27	**260**
27	71	177	277	3	10	156.32	**270**
28	71	177	277	3	10	156.32	**280**
29	73	181	281	3	10	175.05	**290**
30	73	181	281	3	10	162.22	**300**
32	77	190	317	4	10	212.27	**320**
34	78	194	321	4	10	236.74	**340**
35	78	195	321	4	10	236.74	**350**
36	79	200	325	4	10	257.71	**360**
38	81	204	329	4	10	283.36	**380**
40	81	204	329	4	10	285.75	**400**
42	82	211	333	4	12	312.59	**420**
44	83	215	336	4	12	368.53	**440**
50	86	224	344	4	12	467.61	**500**

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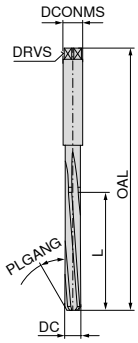
→ v_c Page 88

Hand reamers, DIN 206-B

▲ PLGANG ≤ Ø 3,5 = 30°; > Ø 3,5 = 45°/30°

H





Left Hand Helix
HSS
Through hole

40 100 ...

DC H7 mm	L mm	OAL mm	DRVS mm	DCONMS mm	ZEFP	£ U2	
3.0	31	62	2.24	3.0	6	34.46	**030**
3.2	33	66	2.50	3.2	6	42.64	**032**
3.5	35	71	2.80	3.5	6	40.26	**035**
4.0	38	76	3.15	4.0	6	29.26	**040**
4.5	41	81	3.55	4.5	6	35.61	**045**
5.0	44	87	4.00	5.0	6	34.46	**050**
5.5	47	93	4.50	5.5	6	36.72	**055**
6.0	47	93	4.50	6.0	6	33.28	**060**
7.0	54	107	5.60	7.0	6	36.22	**070**
8.0	58	115	6.30	8.0	6	37.94	**080**
9.0	62	124	7.10	9.0	6	42.64	**090**
10.0	66	133	8.00	10.0	6	42.64	**100**
11.0	71	142	9.00	11.0	6	47.27	**110**
12.0	76	152	10.00	12.0	6	50.76	**120**
13.0	76	152	10.00	13.0	6	74.70	**130**
14.0	81	163	11.20	14.0	8	81.53	**140**
15.0	81	163	11.20	15.0	8	86.30	**150**
16.0	87	175	12.50	16.0	8	90.01	**160**
17.0	87	175	14.00	17.0	8	94.42	**170**
18.0	93	188	14.00	18.0	8	105.00	**180**
19.0	93	188	14.00	19.0	8	113.19	**190**
20.0	100	201	16.00	20.0	8	110.91	**200**
22.0	107	215	18.00	22.0	8	128.38	**220**
24.0	115	231	20.00	24.0	8	148.16	**240**
25.0	115	231	20.00	25.0	8	151.61	**250**
26.0	115	231	20.00	26.0	8	162.22	**260**
28.0	124	247	22.40	28.0	10	207.58	**280**
30.0	124	247	22.40	30.0	10	218.22	**300**

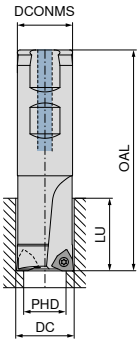
P	●
M	○
K	●
N	●
S	○
H	
O	●

All other diameters, tolerance classes and chamfers also available on request.

Insert countersink 180°

Scope of supply:
Indexable insert countersink including clamping screws

WPS



NEW



4


SIG 180°

DC mm	PHD mm	ZEFP	ZNF	DCONMS mm	LU mm	OAL mm	Insert	30 198 ... £ U1/4D	
10	5.3	1	1	16	10	80	WOEX 030204	322.22	**01000** [1]
11	6.4	1	1	16	11	80	WOEX 030204	322.22	**01100** [1]
15	8.4	1	1	16	15	80	WOEX 05T304	322.22	**01500**
18	10.4	1	1	16	18	80	WOEX 05T304	186.72	**01800**
20	13.0	1	1	25	20	100	WOEX 05T304	367.94	**02000**
24	15.0	2	2	25	24	100	WOEX 05T304	521.13	**02400**
26	17.0	2	2	25	26	100	WOEX 05T304	521.13	**02600**
30	19.0	2	2	25	30	100	WOEX 06T304	532.57	**03000**
33	21.0	2	2	25	33	100	WOEX 080404	534.98	**03300**
36	21.0	2	2	25	36	100	WOEX 080404	544.00	**03600**
40	25.0	2	2	25	40	100	WOEX 080404	557.84	**04000**
48	28.0	2	2	32	48	120	WOEX 100504	607.96	**04800**

1) Without Through Coolant

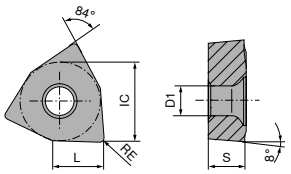

Key D


Clamping screw

Spare parts DC		80 950 ... £ Y7			10 950 ... £ W7/6B	
10 - 11	T06 - IP	18.22	**123**	M2,0x4,3 - 06IP	2.86	**10000**
15 - 26	T08 - IP	17.97	**125**	M2,5x7,2 - 08IP	2.86	**10500**
30	T10 - IP	20.40	**127**	M3,5x7,3 - 10IP	2.86	**10600**
33 - 48	T15 - IP	21.01	**128**	M4,5x9 - 15IP	3.07	**12700**

WOEX

Designation	L	IC	S	D1
	mm	mm	mm	mm
WOEX 0302..	3.2	5	2.30	2.30
WOEX 05T3..	5.3	8	3.80	2.85
WOEX 06T3..	6.6	10	3.80	4.05
WOEX 0804..	7.9	12	4.80	4.90
WOEX 1005..	9.9	15	5.30	4.90



WOEX

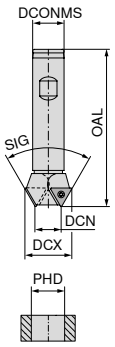
		-01 K10		-01 BK8425	
					
		WOEX		WOEX	
		10 821 ...		10 821 ...	
ISO	RE mm	£ 1A/3#		£ 1A/3#	
030204	0.4	10.19	35301	13.74	30301
05T304	0.4	11.20	35501	14.98	30501
06T304	0.4	12.46	35601	16.74	30601
080404	0.4	16.88	35801	21.15	30801
100504	0.4	22.92	36001	28.84	31001
P				●	
M				●	
K				●	
N		●		○	
S		●		●	
H				○	
O		●			

→ v_c Page 89

Indexable chamfer milling 90°

Scope of supply:
Indexable insert countersink including clamping screws

WPS






SIG 90°

4

DCX mm	DCN mm	PHD mm	ZEFP	ZNF	DCONMS mm	OAL mm	Insert	30 196 ... £ U1/4D	
19	7	9.5	2	2	16	100	TOHX 090204	489.25	**19000**
23	11	12.0	2	2	16	100	TOHX 090204	496.08	**23000**
26	11	12.0	1	2	16	100	TOHX 090204	500.69	**26000**
30	12	13.0	2	2	20	100	TOHX 140305	523.53	**30000**
34	16	17.0	2	2	20	100	TOHX 140305	532.57	**34000**
37	19	20.0	2	2	20	100	TOHX 140305	532.57	**37000**


TORX® Screws

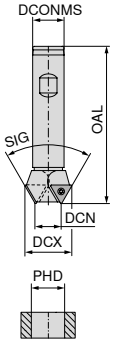

Key D

Spare parts DCX		62 950 ... £ W7/6B			80 950 ... £ Y7	
19 - 26	M2,6x6,2 - 08IP	3.13	**09900**	T08 - IP	17.97	**125**
30 - 37	M3,5x7,3 - 10IP	2.97	**12600**	T10 - IP	20.40	**127**

Indexable chamfer milling 60°

Scope of supply:
Indexable insert countersink including clamping screws

WPS






SIG 60°

DCX mm	DCN mm	PHD mm	ZEFP	ZNF	DCONMS mm	OAL mm	Insert	30 197 ... £ U1/4D	
16.5	8.1	8.5	1	1	16	100	TOHX 090204	496.08	**16500**
20.0	11.6	12.0	2	2	16	100	TOHX 090204	500.69	**20000**
22.0	13.6	14.0	2	2	16	100	TOHX 090204	523.53	**22000**
23.5	15.1	15.5	2	2	16	100	TOHX 090204	532.57	**23500**
25.5	17.1	17.5	2	2	16	100	TOHX 090204	532.57	**25500**

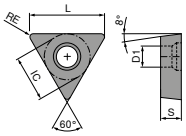

TORX® Screws


Key D

Spare parts DCX		62 950 ... £ W7/6B			80 950 ... £ Y7	
16,5 - 22	M2,6x5,2 - 08IP	3.13	**12000**	T08 - IP	17.97	**125**
23,5 - 25,5	M2,6x6,2 - 08IP	3.13	**09900**	T08 - IP	17.97	**125**

TOHX

Designation	L	IC	S	D1
	mm	mm	mm	mm
TOHX 0902..	9.12	5.6	2.50	2.8
TOHX 1403..	13.62	8.2	3.00	3.8



TOHX

4

		-G06 BK8425	-U877 BK8425	-G12 BK8425
				
		F TOHX	F TOHX	F TOHX
		62 602 ...	62 604 ...	62 603 ...
ISO	RE mm	£ 1A/3#	£ 1A/3#	£ 1A/3#
090204EN	0.4		25.93 31400	26.70 31400
140305EN	0.5	29.98 33000		
P		●	●	●
M		●	●	●
K		●	●	●
N		○	○	○
S		●	●	●
H		○	○	○
O				

→ v_c Page 89

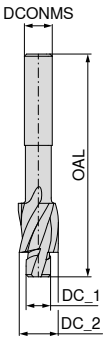
TOHX

		-U877 K10	-G12 K10
			
		F TOHX	F TOHX
		62 604 ...	62 603 ...
ISO	RE mm	£ 1A/3#	£ 1A/3#
090204EN	0.4	22.92 51400	
090204FN	0.4		21.90 51600
140305FN	0.5		25.57 52800
P			
M			
K			
N		●	●
S		●	●
H			
O		●	●

→ v_c Page 89

Counterbore, DIN 373

▲ with fixed pilot
▲ with 3 cutting edges, right-hand flutes for counterbores according to DIN 74
▲ for countersinking to suit hexagon socket screws according to DIN 912, DIN 6912, DIN 7984 and cap screws according to DIN 84




fine
SIG 180°
HSS


medium
SIG 180°
HSS

Thread	DC_2 z9 mm	DCONMS h9 mm	OAL mm	DC_1 e8 mm	30 190 ... £ U1		30 191 ... £ U1	
M3	6	5.0	71	3.2	27.69	030 1)		
M3	6	5.0	71	3.4			27.69	030 1)
M4	8	5.0	71	4.3	24.32	040 1)		
M4	8	5.0	71	4.5			24.32	040 1)
M5	10	8.0	80	5.3	26.54	050 1)		
M5	10	8.0	80	5.5			26.54	050 1)
M6	11	8.0	80	6.4	28.31	060 1)		
M6	11	8.0	80	6.6			28.31	060 1)
M8	15	12.5	100	8.4	45.86	080 1)		
M8	15	12.5	100	9.0			45.86	080 1)
M10	18	12.5	100	10.5	54.79	100 1)		
M10	18	12.5	100	11.0			54.79	100 1)
M12	20	12.5	100	13.0	59.61	120		
M12	20	12.5	100	13.5			59.61	120
P					●		●	
M					●		●	
K					●		●	
N					●		●	
S					○		○	
H								
O					●		●	

1) Included in the set

→ v_c Page 94

Counterbore, DIN 373 – Set

Scope of supply:
Counterbores M3; M4; M5; M6; M8; M10 in case

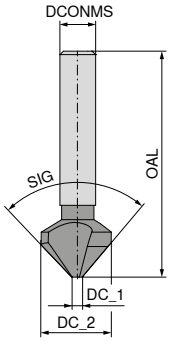


30 190 ... £ U1		30 191 ... £ U1	
243.41	999	243.41	999

Countersink 90° with irregular pitch, DIN 335-C

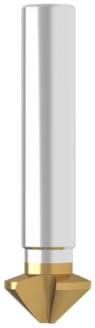
▲ all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
▲ special HPC-TiN coating
▲ for very high tool life in almost all materials
▲ greatly reduced axial and radial forces
▲ for countersinking to DIN 7991

N



NEW

HPC-TiN



SIG 90°
Solid carbide

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	DIN 7991	30 117 ... £ U1	
6.3	1.5	5	45	M3	324.55	**06300**
8.3	2.0	6	50	M4	348.68	**08300**
10.4	2.5	6	50	M5	363.98	**10400** 1)
12.4	2.8	8	56	M6	381.95	**12400**
16.5	3.2	10	60	M8	467.44	**16500** 1)
20.5	3.5	10	60	M10	536.99	**20500**
25.0	3.8	10	67	M12	619.16	**25000** 1)
31.0	4.2	12	71	M16	733.95	**31000**

P	●
M	○
K	●
N	●
S	○
H	○
O	○

1) Included in the set

→ v_c Page 91

Countersink 90° with irregular pitch, DIN 335-C – Set

Scope of supply:
Countersinks Ø 10.4 / 16.5 / 25.0 mm in storage case

N



NEW

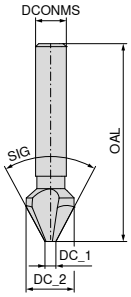
HPC-TiN

30 117 ... £ U1	
1,574.36	**99900**

Countersink 60°, factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, aluminium alloys containing silicon and corrosion resistant steels.

N





SIG 60°
Solid carbide

30 160 ...

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	£ U1	
12.5	3.2	8	56	318.15	**125**
16.0	4.0	10	63	433.02	**160**
20.0	5.0	10	67	502.23	**200**
25.0	6.3	10	71	560.19	**250**

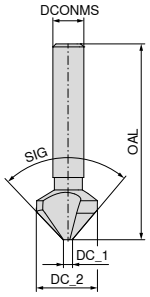
P	●
M	○
K	●
N	●
S	○
H	○
O	

→ v_c Page 90

Countersink 90°, factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, alumínium alloys containing silicon and corrosion resistant steels.

N





SIG 90°
Solid carbide

30 115 ...

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	DIN ISO 7721	DIN 7991	£ U1	
10.4	2.5	8	46	M5		220.79	**100**
12.4	2.8	8	56		M6	220.79	**124**
15.0	3.2	10	60	M8		272.07	**150**
16.5	3.2	10	60		M8	288.33	**165**
20.5	3.5	10	63		M10	344.04	**205**
25.0	3.8	10	67		M12	395.13	**250**
31.0	4.2	12	71		M16	527.48	**310**

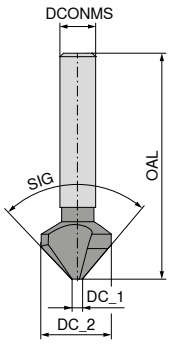
P	●
M	○
K	●
N	●
S	○
H	○
O	

→ v_c Page 90

Countersink 90° with irregular pitch, DIN 335-C

▲ all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
▲ for very high tool life in almost all materials
▲ greatly reduced axial and radial forces
▲ for countersinking to DIN ISO 7721 and DIN 7991

N



NEW

TiN



SIG 90°
HSS

4

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	DIN ISO 7721	DIN 7991	30 141 ... £ U1	
4.3	1.3	4	40	M2		51.47	**04300**
6.0	1.5	5	45	M3		52.15	**06000**
6.3	1.5	5	45		M3	52.15	**06300**
8.0	2.0	6	50	M4		60.30	**08000**
8.3	2.0	6	50		M4	60.30	**08300**
10.0	2.5	6	50	M5		66.57	**10000**
10.4	2.5	6	50		M5	72.00	**10400** 1)
11.5	2.8	8	56	M6		73.93	**11500**
12.4	2.8	8	56		M6	79.15	**12400**
15.0	3.2	10	60	M8		91.56	**15000**
16.5	3.2	10	60		M8	96.65	**16500** 1)
19.0	3.5	10	63	M10		119.12	**19000**
20.5	3.5	10	63		M10	123.90	**20500**
23.0	3.8	10	67	M12		158.07	**23000**
25.0	3.8	10	67		M12	161.83	**25000** 1)
31.0	4.2	12	71		M16	201.46	**31000**

P	●
M	○
K	●
N	●
S	○
H	○
O	○

1) Included in the set

→ v_c Page 91

Countersink 90° with irregular pitch, DIN 335-C – Set

Scope of supply:
Countersinks Ø 10.4 / 16.5 / 25.0 mm in storage case

N



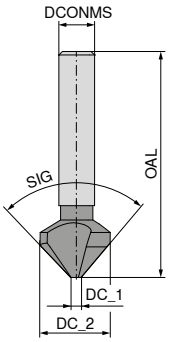
NEW

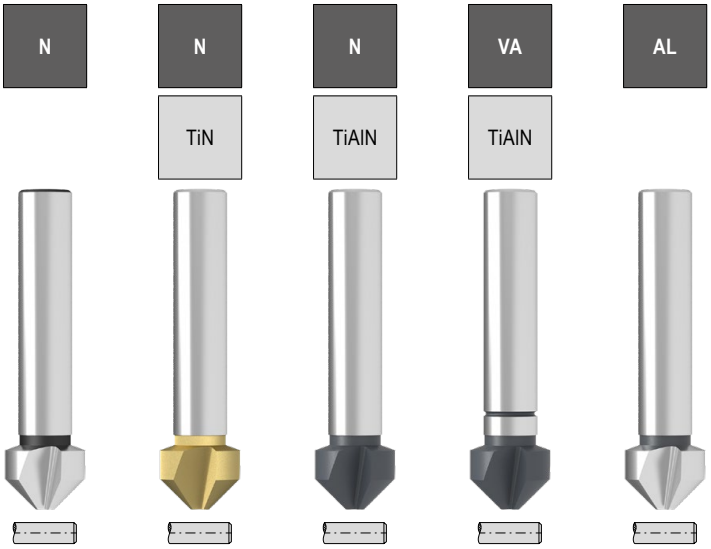
TiN

30 141 ... £ U1	
343.02	**99900**

Countersink 90°, DIN 335-C

▲ 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials. Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.
▲ the TiN version makes high cutting rates possible; very long tool life and very good friction resistance properties in order to avoid material sticking.
▲ TiAlN version shows considerably improved performance compared to TiN version. Particularly suitable for all abrasive materials (cast iron, AlSi) and/or at high temperature.





SIG 90° HSS | SIG 90° HSS | SIG 90° HSS | SIG 90° HSS | SIG 90° HSS

DC_2 z9 mm	DC_1 mm	DCONMS mm	OAL mm	DIN ISO 7721	DIN 7991	30 100 ... £ U1		30 110 ... £ U1		30 130 ... £ U1		30 132 ... £ U1		30 102 ... £ U1	
4.3	1.3	4	40	M2		16.27	**043**								
5.0	1.5	4	40	M2,5		16.27	**050**	30.94	**050**	42.16	**050**				
6.0	1.5	5	45	M3		16.27	**060**								
6.3	1.5	5	45		M3	16.27	**063** 1)	30.94	**063** 1)	43.17	**063**	27.07	**063**	18.56	**063**
7.0	1.8	6	50	M3,5		17.51	**070**								
8.0	2.0	6	50	M4		18.05	**080**	36.98	**080**	45.11	**080**				
8.3	2.0	6	50		M4	19.34	**083** 1)	36.98	**083** 1)	44.65	**083**	32.06	**083**	19.60	**083**
9.4	2.2	6	50			19.95	**094**								
10.0	2.5	6	50	M5		21.39	**100**	40.26	**100**	47.27	**100**				
10.4	2.5	6	50		M5	22.03	**104** 1)	42.89	**104** 1)	49.12	**104**	45.26	**104**	22.71	**104**
11.5	2.8	8	56	M6		22.58	**115**								
12.4	2.8	8	56		M6	23.37	**124** 1)	47.27	**124** 1)	62.53	**124**	39.42	**124**	24.17	**124**
13.4	2.9	8	56			25.16	**134**								
15.0	3.2	10	60	M8		27.87	**150**	50.54	**150**	79.95	**150**	48.74	**150**	27.29	**150**
16.5	3.2	10	60		M8	30.37	**165** 1)	58.66	**165** 1)	82.47	**165**	52.79	**165**	29.36	**165**
19.0	3.5	10	63	M10		38.38	**190**								
20.5	3.5	10	63		M10	40.26	**205** 1)	82.05	**205** 1)	107.61	**205**	62.74	**205**	40.42	**205**
23.0	3.8	10	67	M12		50.91	**230**								
25.0	3.8	10	67		M12	53.80	**250**	112.44	**250**	153.66	**250**	81.79	**250**	53.73	**250**
31.0	4.2	12	71		M16	82.05	**310**	145.71	**310**	209.60	**310**	121.47	**310**		
31.0	4.2	12	67		M16									86.28	**310**
P						●		●		●		○		○	
M						○		○		○		●		○	
K						●		●		●		○		○	
N						●		●		●		○		●	
S						○		○		○		○		○	
H								○		○		○			
O						●		●		●		●		●	

1) Included in the set

→ v_c Page 92+93

Countersink 90°, DIN 335-C – set

Scope of supply:
Countersinks Ø 6,3; 8,3; 10,4; 12,4; 16,5; 20,5 in case

N

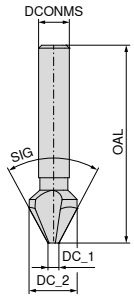


TiN

30 100 ... £ U1		30 110 ... £ U1	
156.74	**999**	313.32	**999**

Countersink 60°, DIN 334-C

▲ 3 cutting edges for countersinking and deburring in virtually all materials





SIG 60°
HSS

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	30 150 ... £ U1	
6.3	1.6	5	45	18.79	**063** 1)
8.0	2.0	6	50	18.79	**080** 1)
10.0	2.5	6	52	23.15	**100** 1)
12.5	3.2	8	56	23.71	**125** 1)
16.0	4.0	10	63	29.63	**160** 1)
20.0	5.0	10	67	42.79	**200** 1)
25.0	6.3	10	71	56.18	**250**

P	●
M	○
K	●
N	●
S	○
H	
O	●

1) Included in the set

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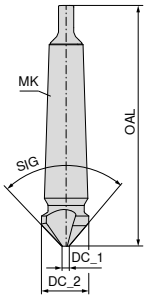
Countersink 90°, DIN 335-C

▲ 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials. Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.

N





SIG 90°
HSS

DC_2 z9 mm	DC_1 mm	OAL mm	MK	30 105 ... £ U1	
30	4.2	112	2	87.13	**300**
31	4.2	112	2	93.12	**310**
34	4.5	118	2	93.12	**340**
37	4.8	118	2	120.96	**370**
40	10.0	140	3	138.29	**400**
50	14.0	150	3	171.60	**500**
63	16.0	180	4	271.66	**630**
80	22.0	190	4	460.57	**800**

P	●
M	○
K	●
N	●
S	○
H	
O	●

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Countersink 60°, DIN 334-C – set

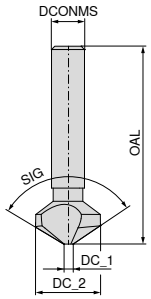
Scope of supply:
Countersinks Ø 6,3; 8,0; 10,0; 12,5; 16,0; 20,0 in case



30 150 ... £ U1	
173.98	**999**

Countersink 120°, factory standard-C

▲ 3 cutting edges for countersinking and deburring in virtually all materials





SIG 120°
HSS

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	30 170 ... £ U1	
6.3	1.5	5	45	22.64	**063**
8.3	2.0	6	50	22.64	**083**
10.4	2.5	6	50	25.16	**104**
12.4	2.8	8	56	26.40	**124**
16.5	3.2	10	60	38.38	**165**
20.5	3.5	10	60	52.82	**205**
25.0	3.8	10	63	65.79	**250**

P	●
M	○
K	●
N	●
S	○
H	
O	●

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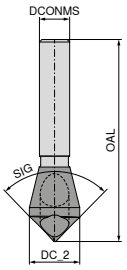
Deburring countersink 90°, factory standard-A

▲ with angled hole to avoid burrs and chattermarks when countersinking and deburring in soft long-chipping materials, e.g. aluminium, plastics etc.

TiN





SIG 90°
HSS-E



SIG 90°
HSS-E

DC_2 mm	PHD mm	DCONMS h9 mm	OAL mm	30 120 ... £ U1		30 121 ... £ U1	
6.3	1 - 4	6.3	45	36.04	**040** 1)	52.29	**040** 1)
10.0	2 - 5	6.0	45	22.57	**050**	34.00	**050**
14.0	5 - 10	8.0	48	27.41	**101**	49.12	**101**
21.0	10 - 15	10.0	65	47.12	**150**	79.95	**150**
28.0	15 - 20	12.0	85	98.94	**200**	162.35	**200**

P	●	●
M	○	○
K	●	●
N	●	●
S	○	○
H		○
O	●	●

1) can be used in both directions

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Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

* Tensile strength

Cutting data standard values for REAMAX TS

Index	40 577 ..., 40 585 ... 75J.65, 75H.65 – ASG3000 / HM-DBG-P						40 521 ..., 40 571 ... 75J.65, 75H.65 – ASG0106 / HM-DBG-P					
	Nominal Ø in mm ▸		18–21,999	22–31,799	31,8–51,999	52–65	Nominal Ø in mm ▸		18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø ▸		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50	Reaming allowance Ø ▸		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes ▸		6	6	8	10	Number of flutes ▸		6	6	8	10
	3xD	5xD					3xD	5xD				
	v_c (m/min)		f (mm/rev)				v_c (m/min)		f (mm/rev)			
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.3.1							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.3.2							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.3.3							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.4.1							**45** (35–60)	**40** (35–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.4.2							**45** (35–60)	**40** (35–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.1.1							**45** (35–60)	**40** (30–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.2.1							**45** (35–60)	**40** (30–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.3.1							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
K.1.1	**150** (130–220)	**120** (100–150)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.1.2	**150** (130–220)	**120** (100–150)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX TS

Index	40 526 …, 40 580 … 75J.17, 75H.17 – ASG0706 / HM-DBC						40 539 … 75H.93 – ASG3000 / DST					
	Nominal Ø in mm ▸		18–21,999	22–31,799	31,8–51,999	52–65	Nominal Ø in mm ▸		18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø ▸		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50	Reaming allowance Ø ▸		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes ▸		6	6	8	10	Number of flutes ▸		6	6	8	10
	3xD	5xD					3xD	5xD				
	v_c (m/min)		f (mm/rev)				v_c (m/min)		f (mm/rev)			
P.1.1							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.2							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.3							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.4							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.5							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.1							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.2							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.3							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.4							**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1							**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
K.2.2							**120** (100–150)	**100** (80–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.1							**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.2							**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
N.1.1	**150** (130–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
N.1.2	**150** (130–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
N.2.1	**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
N.2.2	**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
N.2.3	**200** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
N.3.1							150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.2							150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.3												
N.4.1	**150** (180–300)	**150** (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1	250 (220–270)	250 (220–270)	0,90–1,30	1,10–1,70	1,50–2,30	2,20–3,40						

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX TS

Index	40 544 … 75J.93 – ASG3000 / DST						40 597 … 75J.93 – ASG4000 / DST					
Nominal Ø in mm ▸			18–21,999	22–31,799	31,8–51,999	52–65			18–21,999	22–31,799	31,8–51,999	52–65
Reaming allowance Ø ▸			0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50			0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
Number of flutes ▸			6	6	8	10			6	6	8	10
	3xD	5xD					3xD	5xD				
	v_c (m/min)		f (mm/rev)				v_c (m/min)		f (mm/rev)			
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40	**225** (200–300)	**180** (160–240)	1,20–1,60	1,50–2,00	2,00–2,70	2,90–4,10
K.2.2	**120** (100–150)	**100** (80–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**120** (100–150)	**100** (80–120)	1,20–1,60	1,50–2,00	2,00–2,70	2,90–4,10
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80	**120** (100–180)	**120** (100–150)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
N.3.2	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10						
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX

Index	40 560 … 640.65 – ASG3000 / HM-DBG-P					40 551 … 640.65 – ASG0106 / HM-DBG-P				
Nominal Ø in mm ▸			12–21,999	22–32,000	32,001–40			12–21,999	22–32,000	32,001–40
Reaming allowance Ø ▸			0,10–0,30	0,20–0,40	0,20–0,40			0,10–0,30	0,20–0,40	0,20–0,40
Number of flutes ▸			6	8	8			6	8	8
	3xD	5xD				3xD	5xD			
	v_c (m/min)		f (mm/rev)			v_c (m/min)		f (mm/rev)		
P.1.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.5	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00
P.3.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.3.2						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.3.3						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.4.1						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
P.4.2						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
M.1.1						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
M.2.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
M.3.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
K.1.1	**200** (180–250)	**160** (140–200)	1,00–1,40	1,30–1,90	1,30–1,90					
K.1.2	**200** (180–250)	**160** (140–200)	1,00–1,40	1,30–1,90	1,30–1,90					
K.2.1	**225** (200–300)	**180** (160–240)	1,00–1,40	1,30–1,90	1,30–1,90					
K.2.2	**120** (100–150)	**100** (80–120)	0,90–1,20	1,20–1,60	1,20–1,60					
K.3.1	**150** (130–250)	**120** (100–200)	0,90–1,20	1,20–1,60	1,20–1,60					
K.3.2	**120** (100–150)	**100** (80–120)	0,90–1,20	1,20–1,60	1,20–1,60					
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.2						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.3						**30** (25–50)	**30** (25–50)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.4										
H.2.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.3.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX

Index	40 505 … 640.71 – ASG3000 / HM-TiN					40 570 … 640.27 – ASG0706 / HM-DBC				
Nominal Ø in mm ▸			12–21,999	22–32,000	32,001–40			12–21,999	22–32,000	32,001–40
Reaming allowance Ø ▸			0,10–0,30	0,20–0,40	0,20–0,40			0,10–0,30	0,20–0,40	0,20–0,40
Number of flutes ▸			6	8	8			6	8	8
	3xD	5xD				3xD	5xD			
	v_c (m/min)		f (mm/rev)			v_c (m/min)		f (mm/rev)		
P.1.1	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.2	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.3	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.4	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.5	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.1	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.2	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.3	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.4	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1	80 (60–130)	80 (60–120)	1,00–1,40	1,80–2,40	1,80–2,40					
K.1.2	80 (60–130)	80 (60–120)	1,00–1,40	1,80–2,40	1,80–2,40					
K.2.1										
K.2.2										
K.3.1										
K.3.2										
N.1.1						**150** (130–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.1.2						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.1						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.2						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.3										
N.3.1	**120** (100–200)	**120** (100–150)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.2	**120** (100–200)	**120** (100–150)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.3	**80** (60–150)	**80** (60–120)	0,80–1,20	1,40–2,00	1,40–2,00					
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1						250 (220–270)	250 (220–270)	1,00–1,40	1,70–2,40	1,70–2,40

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX

Index	40 525 … 640.93 – ASG3000 / DST					40 536 … 640.93 – ASG4000 / DST				
Nominal Ø in mm ▸			12–21,999	22–32,000	32,001–40			12–21,999	22–32,000	32,001–40
Reaming allowance Ø ▸			0,10–0,30	0,20–0,40	0,20–0,40			0,10–0,30	0,20–0,40	0,20–0,40
Number of flutes ▸			6	8	8			6	8	8
	3xD	5xD				3xD	5xD			
	v_c (m/min)		f (mm/rev)			v_c (m/min)		f (mm/rev)		
P.1.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.5	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1	**175** (150–300)	**150** (130–180)	1,00–1,40	1,80–2,40	1,80–2,40	175 (150–300)	150 (130–180)	1,20–1,60	1,50–2,00	2,00–2,70
K.2.2	**150** (130–250)	**120** (100–160)	1,00–1,40	1,80–2,40	1,80–2,40	120 (100–180)	120 (100–150)	1,20–1,60	1,50–2,00	2,00–2,70
K.3.1	**150** (130–250)	**120** (100–160)	1,00–1,40	1,80–2,40	1,80–2,40					
K.3.2	**120** (100–180)	**120** (100–150)	0,90–1,20	1,50–2,00	1,50–2,00	120 (100–180)	120 (100–150)	1,00–1,30	1,20–1,70	1,70–2,30
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1	150 (130–300)	150 (130–200)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.2	150 (130–300)	150 (130–200)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data for MultiChange exchange head reamers

Index	40 210 ..., 40 211 ... CWC10				40 220 ..., 40 221 ... TiAlN				40 240 ..., 40 241 ... K10			
	Nominal Ø in mm ▸	8,0–12,59	12,6–29,99	30,0–32,00	Nominal Ø in mm ▸	8,0–12,59	12,6–29,99	30,0–32,00	Nominal Ø in mm ▸	8,0–12,59	12,6–29,99	30,0–32,00
	Reaming allowance Ø ▸	0,15–0,3	0,2–0,4	0,2–0,4	Reaming allowance Ø ▸	0,15–0,3	0,15–0,3	0,15–0,3	Reaming allowance Ø ▸	0,15–0,5	0,15–0,5	0,15–0,5
	Number of flutes ▸	4 / 6	6	8	Number of flutes ▸	4 / 6	6	8	Number of flutes ▸	4 / 6	6	8
	v_c (m/min)	f (mm/rev)			v_c (m/min)	f (mm/rev)			v_c (m/min)	f (mm/rev)		
P.1.1	140	0,6	0,8	1,0								
P.1.2	140	0,6	0,8	1,0								
P.1.3	90	0,6	0,8	1,0								
P.1.4	90	0,6	0,8	1,0								
P.1.5	90	0,6	0,8	1,0								
P.2.1	140	0,6	0,8	1,0								
P.2.2	140	0,6	0,8	1,0								
P.2.3	90	0,6	0,8	1,0								
P.2.4	90	0,6	0,8	1,0								
P.3.1	120	0,6	0,8	1,0								
P.3.2	90	0,6	0,8	1,0								
P.3.3	90	0,6	0,8	1,0								
P.4.1					40	0,3	0,4	0,5				
P.4.2					40	0,3	0,4	0,5				
M.1.1					40	0,3	0,4	0,5				
M.2.1					40	0,3	0,4	0,5				
M.3.1					30	0,3	0,4	0,5				
K.1.1												
K.1.2												
K.2.1	120	0,7	1,2	1,6								
K.2.2	90	0,7	1,2	1,6								
K.3.1	90	0,7	1,2	1,6								
K.3.2	90	0,7	1,2	1,6								
N.1.1									30	0,4	0,5	0,6
N.1.2									30	0,4	0,5	0,6
N.2.1									30	0,4	0,5	0,6
N.2.2									30	0,4	0,5	0,6
N.2.3									30	0,4	0,5	0,6
N.3.1									30	0,4	0,5	0,6
N.3.2									30	0,4	0,5	0,6
N.3.3									30	0,4	0,5	0,6
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for Monomax

Index	40 656 …, 40 666 …, 40 657 …, 40 665 … 56J.65, 56R.65, 56H.65, 56Q.65 – ASG3000 / HM-DBG-P						40 652 …, 40 653 … 56J.65, 56R.65 – ASG0106 / HM-DBG-P					
	Nominal Ø in mm ▸		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899	Nominal Ø in mm ▸		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	Reaming allowance Ø ▸		0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	Reaming allowance Ø ▸		0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of flutes ▸		4	6	6	6	Number of flutes ▸		4	6	6	6
	3xD	5xD					3xD	5xD				
	v_c (m/min)		f (mm/rev)				v_c (m/min)		f (mm/rev)			
P.1.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.4	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.5	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.4	**60** (50–100)	**60** (50–100)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	**60** (50–100)	**60** (50–100)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.1							**40** (35–60)	**40** (35–60)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.2							**40** (35–60)	**40** (35–60)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.3							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
P.4.1							**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
P.4.2							**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.1.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.2.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.3.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
K.1.1	**150** (130–220)	**120** (100–150)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.1.2	**150** (130–220)	**120** (100–150)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.2.1	**175** (150–300)	**150** (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.2.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
K.3.1	**150** (130–250)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.3.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Monomax

Index	40 644 ..., 40 645 ...						40 605 ..., 40 606 ...					
	56H.65, 56Q.65 – ASG0106 / HM-DBG-P						56J.71, 56R.71 – ASG3000 / HM-TiN					
	Nominal Ø in mm ▸		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899	Nominal Ø in mm ▸		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	Reaming allowance Ø ▸		0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40	Reaming allowance Ø ▸		0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of flutes ▸		4	6	6	6	Number of flutes ▸		4	6	6	6
	3xD	5xD					3xD	5xD				
	v_c (m/min)		f (mm/rev)				v_c (m/min)		f (mm/rev)			
P.1.1							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.2							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.3							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.4							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.5							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.1							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.2							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.3							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.4							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.3.1	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.3.2	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.3.3	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.4.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.4.2	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.1.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.2.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.3.1	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
K.1.1							80 (60–130)	80 (60–120)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.1.2							80 (60–130)	80 (60–120)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1							**120** (–200)	**120** (–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.3.2							**120** (–200)	**120** (–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.3.3							**80** (–150)	**80** (–120)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Monomax

Index	40 625 ..., 40 626 ... 56J.93, 56R.93 – ASG3000 / DST						40 635 ... , 40 636 ... 56J.93, 56R.93 – ASG4000 / DST					
Nominal Ø in mm ▸			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
Reaming allowance Ø ▸			0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40			0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
Number of flutes ▸			4	6	6	6			4	6	6	6
	3xD	5xD					3xD	5xD				
	v_c (m/min)		f (mm/rev)				v_c (m/min)		f (mm/rev)			
P.1.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.4	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.5	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1	**175** (150–300)	**150** (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	175 (150–300)	150 (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.2.2	**120** (100–150)	**100** (80–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
K.3.1	**150** (130–250)	**120** (100–200)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
K.3.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	150 (130–300)	150 (130–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50						
N.3.2	150 (130–300)	150 (130–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50						
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Monomax

Index	40 648 …, 40 649 … 56J.17, 56R.17 – ASG0706 / DBC						40 640 …, 40 641 … 56H.17, 56Q.17 – ASG0706 / DBC					
Nominal Ø in mm ▸			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
Reaming allowance Ø ▸			0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40			0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
Number of flutes ▸			4	6	6	6			4	6	6	6
	3xD	5xD					3xD	5xD				
	v_c (m/min)		f (mm/rev)				v_c (m/min)		f (mm/rev)			
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.1.2	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.1	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.2	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.3	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1	250 (220–270)	250 (220–270)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50	250 (220–270)	250 (220–270)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Fullmax, long

Index	UNI	40 484 ..., 40 485 ..., 40 486 ..., 40 487 ... Type UNI											
	Ø range (mm) ▸	Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes ▸	4		4		6		6		6		6	
	v_c (m/min)	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø
P.1.1	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.2	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.3	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.4	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.5	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.1	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.2	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.3	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.4	**80** (70–120)	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
P.3.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.2	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.3	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.2	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.1.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.2.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.3.1	**15** (10–30)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
K.1.1	**120** (100–180)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.1.2	**120** (100–180)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.2.1	**200** (180–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.2.2	**120** (100–150)	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
K.3.1	**200** (180–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.3.2	**120** (100–150)	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	150 (130–250)	0,50–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,40	0,20	1,40–1,70	0,20	1,60–1,90	0,20–0,30	1,90–2,20	0,30
N.3.2	100 (80–150)	0,40–0,60	0,10–0,20	0,60–0,80	0,10–0,20	1,00–1,30	0,20	1,20–1,40	0,20	1,30–1,60	0,20–0,30	1,60–1,80	0,30
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.2	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.3													
S.3.1	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.2	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.3													
H.1.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20	1,20–1,80	0,20
H.1.2	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20	1,20–1,80	0,20
H.1.3	30 (25–50)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20	1,30–2,00	0,20
H.1.4													
H.2.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.3.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Fullmax, long

Index	K	40 477 …, 40 478 …					
		Type K					
	Ø range (mm) ▸	Ø 2,97 – 4,05	Ø 4,06 – 6,05	Ø 6,06 – 7,55	Ø 7,56 – 12,05	Ø 12,06 – 16,05	Ø 16,06 – 20,05
	Reaming allowance Ø ▸	0,10–0,20	0,10–0,20	0,20	0,20	0,20–0,30	0,30
	Number of flutes ▸	6	6	8	8	8	8
	v_c (m/min)	f (mm/rev)					
K.1.1	**200** (180–250)	0,80–1,00	0,90–1,20	1,50–1,90	1,50–1,90	1,80–2,30	2,20–2,60
K.1.2	**200** (180–250)	0,80–1,00	0,90–1,20	1,50–1,90	1,50–1,90	1,80–2,30	2,20–2,60
K.2.1	**225** (200–300)	0,80–1,00	0,90–1,20	1,50–1,90	1,50–1,90	1,80–2,30	2,20–2,60
K.2.2	**120** (100–150)	0,60–0,90	0,70–1,00	1,20–1,60	1,20–1,60	1,50–1,90	1,80–2,20
K.3.1	**225** (200–300)	0,80–1,00	0,90–1,20	1,50–1,90	1,50–1,90	1,80–2,30	2,20–2,60
K.3.2	**120** (100–150)	0,60–0,90	0,70–1,00	1,20–1,60	1,20–1,60	1,50–1,90	1,80–2,20

Index	VA	40 401 …, 40 402 …, 40 403 …, 40 404 …					
		Type VA					
	Ø range (mm) ▸	Ø 2,97 – 4,05	Ø 4,06 – 6,05	Ø 6,06 – 7,55	Ø 7,56 – 12,05	Ø 12,06 – 16,05	Ø 16,06 – 20,05
	Reaming allowance Ø ▸	0,10–0,20	0,10–0,20	0,20	0,20	0,20–0,30	0,30
	Number of flutes ▸	4	4	6	6	6	6
	v_c (m/min)	f (mm/rev)					
P.3.1	20 (15–40)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
P.3.2	20 (15–40)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
P.3.3	20 (15–40)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
P.4.1	**20** (15–40)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
P.4.2	**20** (15–40)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
M.1.1	**20** (15–40)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
M.2.1	**15** (10–30)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72
M.3.1	**15** (10–30)	0,32–0,50	0,32–0,50	0,48–0,60	0,48–0,60	0,60–0,72	0,60–0,72

Index	ALU	40 471 …, 40 472 …, 40 473 …, 40 474 …					
		Type ALU					
	Ø range (mm) ▸	Ø 2,97 – 4,05	Ø 4,06 – 6,05	Ø 6,06 – 7,55	Ø 7,56 – 12,05	Ø 12,06 – 16,05	Ø 16,06 – 20,05
	Reaming allowance Ø ▸	0,10–0,20	0,10–0,20	0,20	0,20	0,20–0,30	0,30
	Number of flutes ▸	4	4	6	6	6	6
	v_c (m/min)	f (mm/rev)					
N.1.1	**200** (180–300)	0,50–0,60	0,60–0,90	1,10–1,60	1,20–1,60	1,20–1,80	1,20–1,80
N.1.2	**200** (180–300)	0,50–0,60	0,60–0,90	1,10–1,60	1,20–1,60	1,20–1,80	1,20–1,80
N.2.1	**200** (180–250)	0,50–0,70	0,70–1,00	1,20–1,70	1,30–1,70	1,30–2,00	1,30–2,00
N.2.2	**200** (180–300)	0,50–0,70	0,70–1,00	1,20–1,70	1,30–1,70	1,30–2,00	1,30–2,00
N.2.3	**200** (180–250)	0,50–0,70	0,70–1,00	1,20–1,70	1,30–1,70	1,30–2,00	1,30–2,00
O.3.1	250 (220–270)	0,50–0,70	0,70–1,00	1,20–1,70	1,30–1,70	1,30–2,00	1,30–2,00

Index	H	40 475 …, 40 476 …					
		Type H					
	Ø range (mm) ▸	Ø 2,97 – 4,05	Ø 4,06 – 6,05	Ø 6,06 – 7,55	Ø 7,56 – 12,05	Ø 12,06 – 16,05	Ø 16,06 – 20,05
	Reaming allowance Ø ▸	0,10–0,20	0,10–0,20	0,20	0,20	0,20	0,20
	Number of flutes ▸	4	4	6	6	6	6
	v_c (m/min)	f (mm/rev)					
H.1.1	**40** (35–60)	0,20–0,30	0,20–0,30	0,40–0,60	0,50–0,60	0,50–0,70	0,60–0,80
H.1.2	**30** (25–50)	0,20–0,30	0,20–0,30	0,40–0,60	0,50–0,60	0,50–0,70	0,60–0,80
H.1.3	**30** (25–50)	0,20–0,30	0,20–0,30	0,40–0,60	0,50–0,60	0,50–0,70	0,60–0,80
H.1.4	**30** (25–50)	0,20–0,30	0,20–0,30	0,40–0,60	0,50–0,60	0,50–0,70	0,60–0,80
H.2.1	**40** (35–60)	0,20–0,30	0,20–0,30	0,40–0,60	0,50–0,60	0,50–0,70	0,60–0,80
H.3.1	**40** (35–60)	0,20–0,30	0,20–0,30	0,40–0,60	0,50–0,60	0,50–0,70	0,60–0,80

* Wet machining recommended

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Fullmax, short

Index	UNI	40 481 …, 40 483 …, 40 488 …, 40 489 … Type UNI											
	Ø range (mm) ▸	Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 15,97		Ø 15,98 – 20,05	
	Number of flutes ▸	4		4		6		6		6		6	
	v_c (m/min)	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø
P.1.1	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.2	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.3	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.4	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.5	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.1	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.2	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.3	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.4	**65** (55–110)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
P.3.1	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.3.2	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.3.3	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.4.1	**45** (40–65)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
P.4.2	**45** (40–65)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
M.1.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
M.2.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
M.3.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
K.1.1	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.1.2	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.2.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.2.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	2,00–2,40	0,30
K.3.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,00–2,40	0,30
K.3.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	2,00–2,40	0,30
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	150 (120–250)	0,50–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,40	0,20	1,40–1,70	0,20	1,60–1,90	0,20–0,30	2,50–2,90	0,30
N.3.2	100 (80–150)	0,40–0,60	0,10–0,20	0,60–0,80	0,10–0,20	1,00–1,30	0,20	1,20–1,40	0,20	1,30–1,60	0,20–0,30	2,10–2,40	0,30
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.2	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.3													
S.3.1	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.2	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.3													
H.1.1	40 (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.2	30 (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.3	30 (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.4													
H.2.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.3.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for solid carbide reamers

Index	40 420 ..., 40 421 ..., 40 430 ..., 40 431 ...																			
			≤ Ø 0,94		Ø 0,95–5		Ø 5,01–8		Ø 8,01–10		Ø 10,01–12		Ø 12,01–15		Ø 15,01–20		Ø 20,01–25		Ø 25,01–30	
	uncoated	TiAlN																		
	v_c (m/min)		f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø
P.1.1	**20**	**30**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.2	**20**	**30**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.3	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.4	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.5	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.1	**15**	**25**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.2	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.3	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.4	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.1	**15**	**25**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.2	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.3	**12**	**15**	0,10	0,10	0,10	0,10	0,15	0,15	0,20	0,20	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.4.1																				
P.4.2																				
M.1.1		**15**			0,08	0,08	0,10	0,10	0,15	0,10	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
M.2.1		**15**			0,08	0,08	0,10	0,10	0,15	0,10	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
M.3.1		**10**			0,08	0,08	0,10	0,10	0,15	0,10	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
K.1.1	18	**30**	0,10	0,10	0,10	0,10	0,20	0,15	0,30	0,20	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.1.2	18	**30**	0,10	0,10	0,10	0,10	0,20	0,15	0,30	0,20	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.2.1	15	**25**	0,10	0,10	0,10	0,10	0,20	0,15	0,30	0,20	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.2.2	10	**20**	0,10	0,10	0,10	0,10	0,20	0,15	0,30	0,20	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.3.1	15	**25**	0,10	0,10	0,10	0,10	0,20	0,15	0,30	0,20	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.3.2	10	**20**	0,10	0,10	0,10	0,10	0,20	0,15	0,30	0,20	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.1.1	**40**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.1.2	**40**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.1	**25**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.2	**25**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.3																				
N.3.1	**30**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.3.2	**30**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.3.3	**30**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.4.1																				
S.1.1		**10**			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.1.2		**10**			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.1		**10**			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.2		**10**			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.3		**10**			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.1		**10**			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.2		**10**			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.3		**10**			0,06	0,05	0,10	0,10	0,12	0,10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
H.1.1		**8**			0,05	0,05	0,08	0,05	0,10	0,10	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.1.2		**8**			0,05	0,05	0,08	0,05	0,10	0,10	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.1.3																				
H.1.4																				
H.2.1		**8**			0,05	0,05	0,08	0,05	0,10	0,10	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.3.1																				
O.1.1	**40**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
O.1.2	**40**		0,15	0,10	0,15	0,10	0,20	0,15	0,25	0,20	0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
O.2.1																				
O.2.2																				
O.3.1																				

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for solid carbide reamers – Type H

Index	H	40 435 …							
		Ø 0,98 – 3,99		Ø 4,00 – 8,00		Ø 8,01 – 16,00		Ø 16,01 – 20,00	
	v_c (m/min)	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø
P.1.1	16	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
P.1.2	13	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.1.3	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.1.4	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.1.5	19	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.1	15	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.2	14	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.3	13	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.4	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.3.1									
P.3.2	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.3.3	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.4.1	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.4.2	8	0,05	0,20	0,10	0,20	0,113	0,30	0,125	0,30
M.1.1									
M.2.1	9	0,063	0,10	0,125	0,10	0,15	0,20	0,175	0,20
M.3.1	9	0,063	0,10	0,125	0,10	0,15	0,20	0,175	0,20
K.1.1	17	0,125	0,20	0,25	0,20	0,325	0,30	0,40	0,30
K.1.2	14	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.2.1	17	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.2.2	14	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
K.3.1	17	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.3.2	14	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1									
N.3.2									
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1	8	0,075	0,10	0,15	0,20	0,175	0,30	0,20	0,30
H.1.2	7	0,063	0,10	0,125	0,20	0,15	0,30	0,175	0,30
H.1.3	5	0,05	0,10	0,10	0,20	0,113	0,30	0,125	0,30
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

* Wet machining preferred/dry machining possible

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for solid carbide reamers

Index	40 405 …, 40 415 …						
	uncoated	≤ Ø 4,80		Ø 4,81 – 8,00		Ø 8,01 – 12,00	
	v_c (m/min)	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø
P.1.1	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.1.2	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.1.3	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.1.4	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.1.5	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.2.1	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.2.2	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.2.3	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.2.4	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.3.1	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.3.2	**15** (10–20)	0,1	0,05–0,1	0,15	0,1–0,15	0,175–0,2	0,1–0,2
P.3.3							
P.4.1							
P.4.2							
M.1.1							
M.2.1							
M.3.1							
K.1.1	15 (10–15)	0,1	0,05–0,1	0,2	0,1–0,15	0,25–0,3	0,1–0,2
K.1.2	15 (10–20)	0,1	0,05–0,1	0,2	0,1–0,15	0,25–0,3	0,1–0,2
K.2.1	15 (10–15)	0,1	0,05–0,1	0,2	0,1–0,15	0,25–0,3	0,1–0,2
K.2.2	10 (5–15)	0,1	0,05–0,1	0,2	0,1–0,15	0,25–0,3	0,1–0,2
K.3.1	15 (10–20)	0,1	0,05–0,1	0,2	0,1–0,15	0,25–0,3	0,1–0,2
K.3.2	10 (5–15)	0,1	0,05–0,1	0,2	0,1–0,15	0,25–0,3	0,1–0,2
N.1.1	**30** (20–40)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.1.2	**30** (20–40)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.2.1	**15** (10–20)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.2.2	**15** (10–20)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.2.3							
N.3.1	**20** (15–25)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.3.2	**20** (15–25)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.3.3	**20** (15–25)	0,1–0,15	0,05–0,1	0,15–0,2	0,1–0,15	0,175–0,25	0,1–0,2
N.4.1							
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1							
S.3.2							
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1							
O.1.2							
O.2.1							
O.2.2							
O.3.1							

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data for HSS-E reamers

Index	40 110 …, 40 115 …								
Nominal Ø in mm ▸		≤ Ø 5	Ø 5,01–8	Ø 8,01–12	Ø 12,01–15	Ø 15,01–20	Ø 20,01–25	Ø 25,01–30	Ø 30,01–40	Ø 40,01–50
Reaming allowance Ø ▸		0,10	0,15	0,20	0,20	0,30	0,30	0,30	0,30	0,30
	v_c (m/min)	f (mm/rev)								
P.1.1	12	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.1.2	12	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.1.3	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.1.4	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.1.5	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.2.1	12	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.2.2	12	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.2.3	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.2.4	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.3.1	12	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.3.2	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.3.3	10	0,10	0,15	0,20	0,25	0,30	0,30	0,30	0,40	0,40
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1	12	0,15	0,20	0,25	0,30	0,35	0,35	0,35	0,40	0,40
K.1.2	12	0,15	0,20	0,25	0,30	0,35	0,35	0,35	0,40	0,40
K.2.1	10	0,15	0,20	0,25	0,30	0,35	0,35	0,35	0,40	0,40
K.2.2	10	0,15	0,20	0,25	0,30	0,35	0,35	0,35	0,40	0,40
K.3.1	10	0,15	0,20	0,25	0,30	0,35	0,35	0,35	0,40	0,40
K.3.2	10	0,15	0,20	0,25	0,30	0,35	0,35	0,35	0,40	0,40
N.1.1	15	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
N.1.2	15	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
N.2.1										
N.2.2										
N.2.3										
N.3.1	20	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
N.3.2	20	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
N.3.3	20	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1	25	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
O.1.2	25	0,15	0,20	0,20	0,25	0,30	0,30	0,30	0,40	0,40
O.2.1										
O.2.2										
O.3.1										

4

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data for HSS-E reamers

Index	40 139 ..., 40 140 ..., 40 145 ..., 40 150 ..., 40 160 ...																			
		≤ Ø 5		Ø 5,01–8		Ø 8,01–12		Ø 12,01–15		Ø 15,01–20		Ø 20,01–25		Ø 25,01–30		Ø 30,01–40		Ø 40,01–50	
	v_c (m/min)	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø	f (mm/rev)	Reaming allowance Ø
P.1.1	15	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.2	12	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.3	10	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.4	10	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.5	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.1	10	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,25	0,25	0,35	0,30	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.2	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.3	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.4	8	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.3.1	8	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.3.2	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.3.3	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.4.1	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.4.2	6	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
M.1.1	6	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
M.2.1	4	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
M.3.1	4	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
K.1.1	14	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.1.2	12	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.2.1	12	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,35	0,30	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.2.2	10	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,35	0,35	0,35	0,40	0,40	0,40	0,40
K.3.1	12	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.3.2	10	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30	0,30	0,35	0,35	0,35	0,40	0,40	0,40	0,40
N.1.1	20	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.1.2	20	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.2.1	18	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.2.2	18	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30	0,40	0,35	0,50	0,40	0,50	0,45	0,80	0,50
N.2.3																			
N.3.1	18	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.3.2	15	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.3.3	15	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.4.1	18	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
S.1.1																			
S.1.2																			
S.2.1	4	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.2.2	4	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.2.3																			
S.3.1	6	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.3.2	4	0,08	0,10	0,10	0,15	0,125	0,20	0,20	0,20	0,25	0,20	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1	15	0,15	0,15	0,20	0,20	0,25	0,20	0,25	0,25	0,30	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,40	0,50
O.1.2	12	0,12	0,15	0,16	0,20	0,20	0,20	0,20	0,25	0,25	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35	0,50
O.2.1																			
O.2.2																			
O.3.1																			

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values indexable insert countersink

Index	30 196 ..., 30 197 ...			30 198 ...					
	Insert		Tool diameter	Insert		Tool diameter			
	BK8425	K10	Ø 16,5–37	BK8425	K10	Ø 10–15	Ø 15–20	Ø 20–30	Ø 30–48
	v_c (m/min)		f (mm/rev)	v_c (m/min)		f (mm/rev)			
P.1.1	200		0,12–0,16	260		0,06–0,12	0,12–0,20	0,15–0,25	0,20–0,30
P.1.2	200		0,20–0,30	260		0,06–0,12	0,12–0,20	0,15–0,25	0,20–0,30
P.1.3	200		0,20–0,30	270		0,06–0,12	0,12–0,20	0,25–0,40	0,25–0,40
P.1.4	180		0,20–0,30	240		0,06–0,12	0,12–0,20	0,25–0,40	0,25–0,40
P.1.5	180		0,17–0,27	230		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.2.1	160		0,20–0,30	270		0,06–0,12	0,12–0,20	0,25–0,40	0,25–0,40
P.2.2	160		0,20–0,30	260		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.2.3	160		0,15–0,20	180		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.2.4	160		0,10–0,16	150		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.3.1	140		0,10–0,15	160		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.3.2	140		0,08–0,13	130		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.3.3	140		0,06–0,12	120		0,04–0,08	0,15	0,20–0,30	0,20–0,35
P.4.1	120		0,10–0,16	180		0,08	0,15	0,16	0,18
P.4.2	120		0,06–0,12	130		0,08	0,15	0,16	0,18
M.1.1	160		0,10–0,15	150		0,08	0,15	0,16	0,18
M.2.1	140		0,10–0,15	150		0,08	0,15	0,16	0,18
M.3.1	100		0,07–0,13	130		0,08	0,15	0,16	0,18
K.1.1	180		0,40	160		0,15	0,30	0,40	0,60
K.1.2	160		0,32	120		0,15	0,30	0,40	0,60
K.2.1	140		0,30	160		0,15	0,25	0,30	0,35
K.2.2	140		0,18	100		0,12	0,20	0,25	0,35
K.3.1	120		0,20	120		0,10	0,18	0,25	0,30
K.3.2	120		0,18	100		0,10	0,18	0,25	0,30
N.1.1		250	0,20	400	250	0,05	0,12	0,15	0,20
N.1.2		250	0,20	400	250	0,05	0,12	0,15	0,20
N.2.1		250	0,30	250	250	0,06	0,16	0,20	0,25
N.2.2		250	0,30	250	250	0,06	0,16	0,20	0,25
N.2.3		250	0,25	230	250	0,10	0,20	0,25	0,30
N.3.1		230	0,30	200	230	0,05	0,10	0,12	0,15
N.3.2		230	0,32	220	230	0,05	0,10	0,12	0,15
N.3.3		230	0,22	330	230	0,05	0,10	0,12	0,15
N.4.1		230	0,30	200	230	0,05	0,10	0,12	0,15
S.1.1	60	20	0,12		20	0,05	0,10	0,12	0,15
S.1.2	50	20	0,10		20	0,05	0,10	0,12	0,15
S.2.1	60	20	0,12		20	0,05	0,10	0,12	0,15
S.2.2	50	20	0,10		20	0,05	0,10	0,12	0,15
S.2.3	30	20	0,06		20	0,05	0,10	0,12	0,15
S.3.1	100	60	0,22		60	0,05	0,10	0,12	0,15
S.3.2	80	30	0,20		30	0,05	0,10	0,12	0,15
S.3.3	50	30	0,12		30	0,05	0,10	0,12	0,15
H.1.1	100		0,10	100		0,05	0,10	0,15	0,20
H.1.2	80		0,08	80		0,05	0,10	0,15	0,20
H.1.3	50		0,05	50		0,05	0,10	0,15	0,20
H.1.4									
H.2.1	100		0,10	100		0,05	0,10	0,15	0,20
H.3.1	80		0,08	80		0,05	0,10	0,15	0,20
O.1.1		100	0,10		100	0,05	0,12	0,15	0,20
O.1.2		100	0,10		100	0,05	0,12	0,15	0,20
O.2.1									
O.2.2		100	0,03		100	0,05	0,12	0,15	0,20
O.3.1		100	0,08		100	0,05	0,12	0,15	0,20

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data for solid carbide countersinks

Index	30 115 … Solid carbide 90°						30 160 … Solid carbide 60°			
	v_c (m/min)	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0	v_c (m/min)	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0
		f (mm/rev)						f (mm/rev)		
P.1.1	**40**	0,10	0,12	0,14	0,18	0,22	**40**	0,12	0,14	0,18
P.1.2	**40**	0,10	0,12	0,14	0,18	0,22	**40**	0,12	0,14	0,18
P.1.3	**30**	0,08	0,10	0,10	0,14	0,18	**30**	0,10	0,10	0,14
P.1.4	**30**	0,08	0,10	0,12	0,14	0,18	**30**	0,10	0,12	0,14
P.1.5	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.2.1	**30**	0,08	0,10	0,12	0,14	0,18	**30**	0,10	0,12	0,14
P.2.2	**20**	0,05	0,06	0,08	0,10	0,12	**20**	0,06	0,08	0,10
P.2.3	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.2.4	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.1	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.2	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.3	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.4.1										
P.4.2										
M.1.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
M.2.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
M.3.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
K.1.1	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.1.2	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.2.1	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
K.2.2	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
K.3.1	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.3.2	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
N.1.1	**58**	0,12	0,14	0,18	0,22	0,26	**58**	0,14	0,18	0,22
N.1.2	**58**	0,12	0,14	0,18	0,22	0,26	**58**	0,14	0,18	0,22
N.2.1	**45**	0,12	0,14	0,18	0,22	0,26	**45**	0,14	0,18	0,22
N.2.2	**45**	0,12	0,14	0,18	0,22	0,26	**45**	0,14	0,18	0,22
N.2.3	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.1	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.2	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.3	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.4.1	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
S.1.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.1.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.3	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.3	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
H.1.1	8	0,06	0,08	0,08	0,10	0,12	8	0,08	0,08	0,10
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for countersinks with irregular pitch

Index	30 117 ... HPC-TiN / Solid carbide							30 141 ... TiN / HSS						
	N	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0	N	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0
	v_c (m/min)	f (mm/rev)						v_c (m/min)	f (mm/rev)					
P.1.1	58	0,08	0,10	0,12	0,14	0,18	0,22	38	0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	58	0,08	0,10	0,12	0,14	0,18	0,22	38	0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	50	0,06	0,08	0,10	0,10	0,14	0,18	30	0,06	0,08	0,10	0,10	0,14	0,18
P.1.4	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.1.5	50	0,06	0,05	0,06	0,08	0,10	0,12	30	0,06	0,05	0,06	0,08	0,10	0,12
P.2.1	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	50	0,06	0,05	0,06	0,08	0,10	0,12	12	0,06	0,05	0,06	0,08	0,10	0,12
P.2.3	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	50	0,06	0,05	0,06	0,08	0,10	0,12	30	0,06	0,05	0,06	0,08	0,10	0,12
P.3.2	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.4.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
P.4.2	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.1.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	25	0,05	0,06	0,07	0,08	0,09	0,12							
K.1.1	50	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	50	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	45	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	45	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	35	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	35	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	80	0,10	0,12	0,14	0,18	0,22	0,26	48	0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	80	0,10	0,12	0,14	0,18	0,22	0,26	48	0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	60	0,10	0,12	0,14	0,18	0,22	0,26	40	0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	60	0,10	0,12	0,14	0,18	0,22	0,26	40	0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	60	0,10	0,14	0,18	0,20	0,24	0,30	40	0,10	0,14	0,18	0,20	0,24	0,30
N.3.1	68	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	68	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	68	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.4.1														
S.1.1	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.1.2	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.2.1	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.2.2	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.2.3	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.3.1	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.3.2	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.3.3	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
H.1.1	12	0,05	0,06	0,07	0,07	0,08		6	0,05	0,06	0,07	0,07	0,08	
H.1.2	8	0,05	0,06	0,07	0,07	0,08								
H.1.3														
H.1.4														
H.2.1	12	0,05	0,06	0,07	0,07	0,08								
H.3.1														
O.1.1	68	0,12	0,14	0,18	0,20	0,24	0,30	38	0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	68	0,12	0,14	0,18	0,20	0,24	0,30	38	0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.2.2	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.3.1	25	0,10	0,12	0,14	0,18	0,20	0,25							

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for HSS countersink

Index	30 100 ... Type N							30 102 ... Type AL						
	N	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0	AL	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0
	v_c (m/min)	f (mm/rev)						v_c (m/min)	f (mm/rev)					
P.1.1	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1														
P.4.2														
M.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	39	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	39	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	28	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	28	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	28	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	39	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	39	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	39	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	60	0,10–0,13	0,16	0,20	0,23	0,26	0,30	66	0,10–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1														

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for HSS countersink

Index	30 110 ..., 30 130 ... Type N – TiN / TiAlN							30 132 ... Type VA – TiAlN						
	N	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0	VA	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0
	v_c (m/min)	f (mm/rev)						v_c (m/min)	f (mm/rev)					
P.1.1	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	14	0,03–0,04	0,05	0,06	0,08	0,10	0,12	14	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	29	0,04–0,06	0,08	0,10	0,12	0,14	0,18	29	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1														
P.4.2														
M.1.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	69	0,10–0,13	0,16	0,20	0,23	0,26	0,30	69	0,10–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12
O.1.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1														

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for HSS countersink and counterbore

Index	30 105 ..., 30 150 ..., 30 170 .... HSS – 60° / 90° / 120°									30 190 ..., 30 191 ... HSS			
		Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0	Ø 31,0–55,0	Ø 55,0–80,0		DC_2 Ø 6,3	DC_2 Ø 10,0	DC_2 Ø 14,0
	v_c (m/min)	f (mm/rev)								v_c (m/min)	f (mm/rev)		
P.1.1	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	0,22–0,26	0,26–0,36	30	0,07	0,10	0,12
P.1.2	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	0,22–0,26	0,26–0,36	30	0,07	0,10	0,12
P.1.3	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	0,14–0,22	0,22–0,28	25	0,05	0,07	0,09
P.1.4	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	0,14–0,22	0,22–0,28	25	0,05	0,07	0,09
P.1.5	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,14	0,14–0,18	12	0,04	0,05	0,07
P.2.1	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18	0,18–0,24	0,24–0,30	25	0,05	0,07	0,09
P.2.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,16	0,16–0,18	10	0,04	0,05	0,06
P.2.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,16	0,16–0,18	10	0,04	0,05	0,06
P.2.4	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,16	0,16–0,18	10	0,04	0,05	0,06
P.3.1	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,16	0,16–0,18	10	0,04	0,05	0,06
P.3.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,16	0,16–0,18	10	0,04	0,05	0,06
P.3.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	0,12–0,16	0,16–0,18	10	0,04	0,05	0,06
P.4.1													
P.4.2													
M.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12–0,16	0,16–0,18	8	0,04	0,06	0,07
M.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12–0,16	0,16–0,18	8	0,04	0,06	0,07
M.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12–0,16	0,16–0,18	8	0,04	0,06	0,07
K.1.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	0,25–0,27	0,27–0,36	12	0,08	0,13	0,16
K.1.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	0,25–0,27	0,27–0,36	12	0,08	0,13	0,16
K.2.1	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	0,25–0,27	0,27–0,36	10	0,08	0,13	0,16
K.2.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	0,25–0,27	0,27–0,36	10	0,08	0,13	0,16
K.3.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	0,25–0,27	0,27–0,36	12	0,08	0,13	0,16
K.3.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	0,25–0,27	0,27–0,36	10	0,08	0,13	0,16
N.1.1	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	0,26–0,34	0,34–0,40	35	0,09	0,13	0,16
N.1.2	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	0,26–0,34	0,34–0,40	35	0,09	0,13	0,16
N.2.1	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	0,26–0,34	0,34–0,40	25	0,09	0,13	0,16
N.2.2	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	0,26–0,34	0,34–0,40	25	0,09	0,13	0,16
N.2.3	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	0,26–0,34	0,34–0,40	25	0,09	0,13	0,16
N.3.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30–0,42	0,42–0,46	35	0,11	0,16	0,18
N.3.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30–0,42	0,42–0,46	35	0,11	0,16	0,18
N.3.3	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30–0,42	0,42–0,46	35	0,11	0,16	0,18
N.4.1	60	0,10–0,13	0,16	0,20	0,23	0,26	0,30	0,30–0,42	0,42–0,46	60	0,12	0,18	0,21
S.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.1.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.2.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.2.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.3.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
S.3.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	0,12	0,12	8	0,04	0,06	0,07
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30	0,30	35	0,11	0,16	0,18
O.1.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30	0,30	35	0,11	0,16	0,18
O.2.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30	0,30	35	0,11	0,16	0,18
O.2.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	0,30	0,30	35	0,11	0,16	0,18
O.3.1													

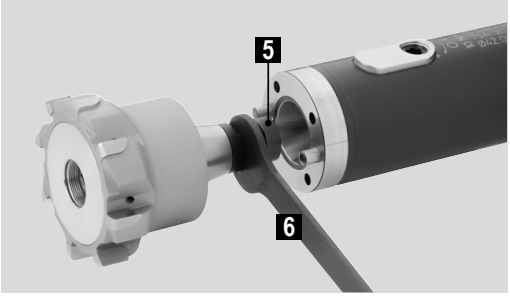
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for HSS-E deburring countersink

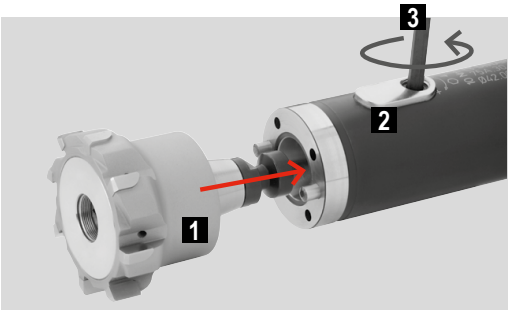
Index	30 120 ..., 30 121 ... HSS-E – 90°						
	TiN	uncoated	Ø 6,3	Ø 10,0	Ø 14,0	Ø 21,0	Ø 28,0
	v_c (m/min)		f (mm/rev)				
P.1.1	35	30	0,06–0,08	0,10	0,12	0,14	0,18
P.1.2	35	30	0,06–0,08	0,10	0,12	0,14	0,18
P.1.3	29	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12
P.1.4	29	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12
P.1.5	14	12	0,03–0,04	0,05	0,06	0,08	0,10
P.2.1	29	25	0,04–0,06	0,08	0,10	0,12	0,14
P.2.2	12	10	0,03–0,04	0,05	0,06	0,08	0,10
P.2.3	12	10	0,03–0,04	0,05	0,06	0,08	0,10
P.2.4	12	10	0,03–0,04	0,05	0,06	0,08	0,10
P.3.1	12	10	0,03–0,04	0,05	0,06	0,08	0,10
P.3.2	12	10	0,03–0,04	0,05	0,06	0,08	0,10
P.3.3	12	10	0,03–0,04	0,05	0,06	0,08	0,10
P.4.1							
P.4.2							
M.1.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09
M.2.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09
M.3.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09
K.1.1	9	12	0,06–0,10	0,12	0,14	0,18	0,20
K.1.2	9	12	0,06–0,10	0,12	0,14	0,18	0,20
K.2.1	9	10	0,06–0,10	0,12	0,14	0,18	0,20
K.2.2	14	10	0,06–0,10	0,12	0,14	0,18	0,20
K.3.1	14	12	0,06–0,10	0,12	0,14	0,18	0,20
K.3.2	12	10	0,06–0,10	0,12	0,14	0,18	0,20
N.1.1	40	35	0,08–0,1	0,12	0,14	0,18	0,22
N.1.2	40	35	0,08–0,1	0,12	0,14	0,18	0,22
N.2.1	29	25	0,08–0,1	0,12	0,14	0,18	0,22
N.2.2	29	25	0,08–0,1	0,12	0,14	0,18	0,22
N.2.3	29	25	0,08–0,1	0,12	0,14	0,18	0,22
N.3.1	40	35	0,1–0,12	0,14	0,18	0,20	0,24
N.3.2	40	35	0,1–0,12	0,14	0,18	0,20	0,24
N.3.3	40	35	0,1–0,12	0,14	0,18	0,20	0,24
N.4.1	69	60	0,1–0,13	0,16	0,20	0,23	0,26
S.1.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.1.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.2.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.2.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.2.3	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.3.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.3.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09
S.3.3	9	8	0,04–0,05	0,06	0,07	0,08	0,09
H.1.1	4		0,04–0,05	0,06	0,07	0,08	0,10
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1	4		0,04–0,05	0,06	0,07	0,08	0,10
O.1.1	40	35	0,1–0,12	0,14	0,18	0,20	0,24
O.1.2	40	35	0,1–0,12	0,14	0,18	0,20	0,24
O.2.1	40	35	0,1–0,12	0,14	0,18	0,20	0,24
O.2.2	40	35	0,1–0,12	0,14	0,18	0,20	0,24
O.3.1							

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

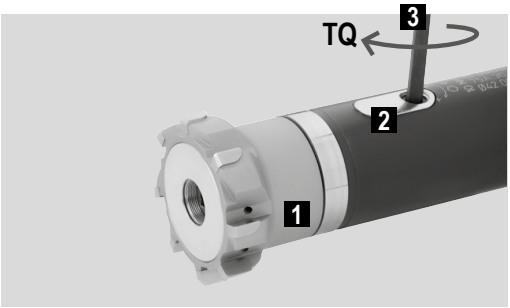
REAMAX TS – Assembly instructions



Clean the Morse taper adapter/face contact → grease-free.
Screw the pull stud (5) into the reaming head and tighten using the open-ended spanner (6).

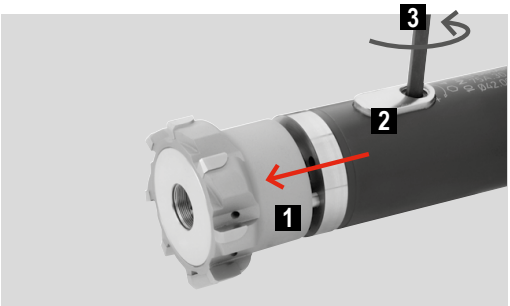


Use key (3) to open jaws (2), but do not fully release, and insert reaming head (1).

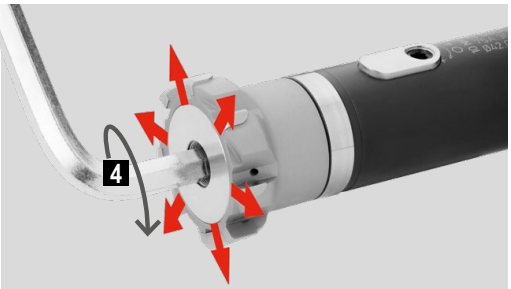


Use the key (3) to close the jaws (2), observe the recommended tightening torque.
When inserting the reaming head (1), this is pulled into its final position when the jaws (2) are closed.

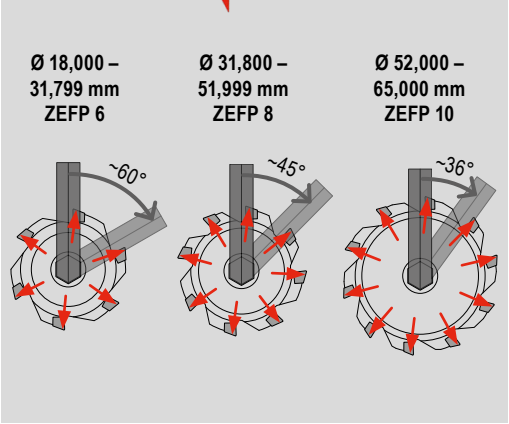
Ø Range	Tightening torque (TQ)
18,000 – 19,999	1,5 Nm
20,000 – 21,999	2,5 Nm
22,000 – 26,999	4 Nm
27,000 – 34,999	5 Nm
35,000 – 41,999	6 Nm
42,000 – 51,999	10 Nm
52,000 – 65,000	13 Nm



When removing the reamer head (1), this is pressed out of its position by the jaws (2) and can thus be easily removed from the holder:
Use key (3) to open the jaws (2) but do not fully release, and remove reamer head (1).



Adjustment for wear compensation:
The smallest drilling tolerances up to IT4 can be achieved through adjustment with the hex key (4).



ZEFP = Number of effective cutting edges, around the periphery	ZEFP 6		ZEFP 8		ZEFP 10	
Pitch	~ 60°		~ 45°		~ 36°	
Turning the hex key by ~ ...°, results in an adjustment of ~ ... mm in diameter	~ 15°	~ 0,006 mm in the Ø	~ 15°	~ 0,003 mm in the Ø	~ 18°	~ 0,005 mm in the Ø
	~ 30°	~ 0,012 mm in the Ø	~ 30°	~ 0,006 mm in the Ø	~ 36°	~ 0,010 mm in the Ø
	~ 45°	~ 0,018 mm in the Ø	~ 45°	~ 0,009 mm in the Ø		
	~ 60°	~ 0,024 mm in the Ø				

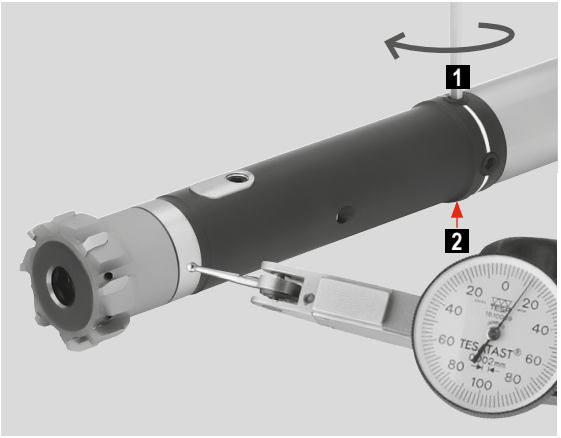
Caution: For technical reasons, all REAMAX TS reaming heads and Monomax reamers have an irregular cutting edge pitch. For this reason, the angles specified above are approximate values, to make handling easier.
If the required diameter is over turned, turning back the adjustment screw is not enough! If this occurs, the reaming head/reamer must be fully released and re-set again.
This adjustment facility is only intended to compensate for wear. Therefore, an adjustment of 0.015 mm in diameter should not normally be exceeded!
The adjustment values given above are recommended values based on empirical values and test results. However, these may vary slightly from case to case.

REAMAX TS – Operating instructions

Aligning the DAH Zero holder

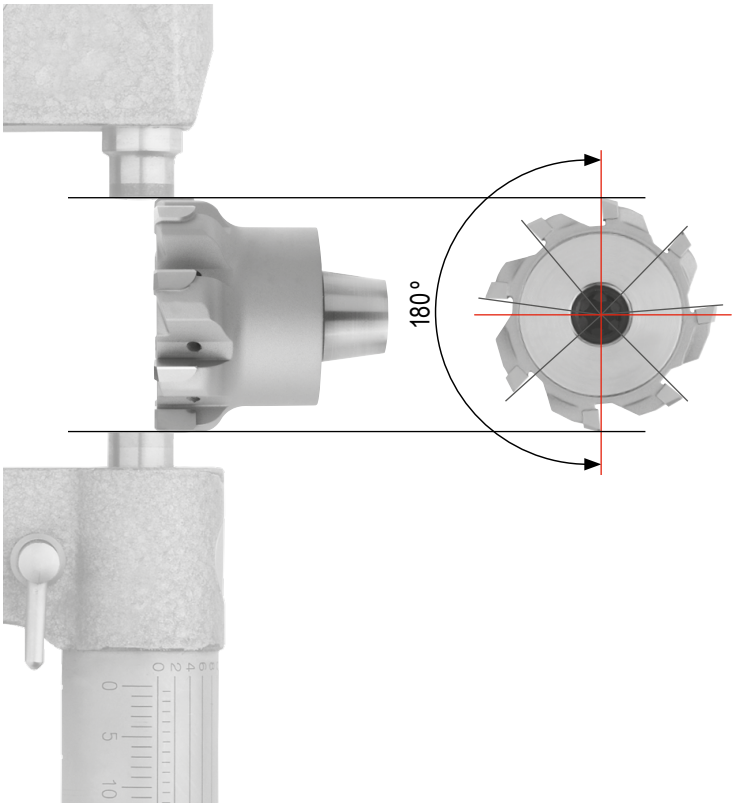
The tool is recommended for radial alignment of max. 20 µm.

1. Loosen all adjustment screws and pre-load with 1 Nm (new tools are already supplied like this).
2. Place dial gauge with µm display on the ground bezel diameter.
3. Turn the tool to determine the point with the largest runout error using the dial gauge.
4. Adjust the corresponding adjustment screw with the hex key clockwise (1) until half the runout error has been corrected. In doing so, over-tighten by approx. 5 µm.
5. Release the opposite adjustment screw (2) by the over-tightened amount.
6. Adjust all 4 adjustment screws until the runout is < 2 µm.

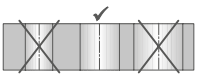


Please note:
- ▲ The runout must be checked and if necessary re-aligned after an adapter changeover, change of application, after any adjustment for wear compensation and before every re-commissioning, using adjustment steps 1 to 6
- ▲ Adjustment screws must always be tightened during usage with at least 1 Nm
- ▲ The max. re-adjustment torque is 4.5 Nm

Please note:
- ▲ Both measurement cutting edges are marked on the reaming head by a dot. Please use only this pair of cutting edges for mechanical measurement. Using other pairs of cutting edges will result in measurement errors.
- ▲ Measure the diameter at the front on the cutting edge due to back taper (see diagram)
- ▲ Please also avoid damage to the cutting edges during the measurement process.

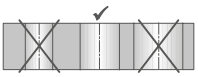


Problems / possible causes / solutions



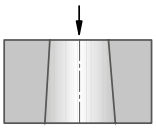
Hole too large

- ▲ Runout error for reamer in the spindle → use DAH compensation system and correct runout
- ▲ Inaccurate alignment, reamer back-cuts → correct alignment and use DPS floating holder
- ▲ Built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- ▲ Reamer too large → have reamer adapted



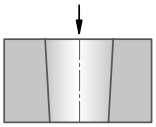
Hole too small

- ▲ Worn reamer → have reamer adjusted, replaced or repaired
- ▲ Reaming allowance too small → increase reaming allowance
- ▲ Cutting force too high → reduce feed or select other lead geometry (ASG)
- ▲ Reamer too small → have reamer adjusted, replaced or repaired



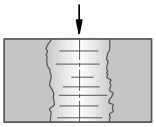
Conical hole, tapered backwards

- ▲ Inaccurate alignment → correct alignment and use DPS floating holder
- ▲ Misalignment between headstock and turret → correct turret and use DPS floating holder



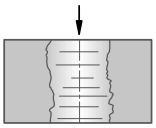
Conical hole, tapered forwards

- ▲ Poor alignment, cutting edges push initially → correct alignment and use DPS floating holder



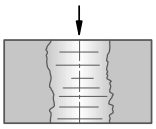
Hole is not round

- ▲ Reamer runout error too large → correct the runout with DAH compensation system
- ▲ Alignment error → correct alignment error and use DPS floating holder
- ▲ Asymmetric initial cutting through angled entry surface → countersink hole
- ▲ Workpiece tensioning → correct clamping of the workpieces
- ▲ Poor pre-machining → optimise pre-machining
- ▲ Feed too high → reduce feed



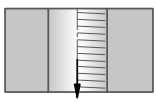
Hole exhibits chatter marks

- ▲ Cutting speed v_c too high → reduce cutting speed
- ▲ L to D ratio too high→ reduce the speed of entry, pilot the bore or select other lead geometry (ASG)



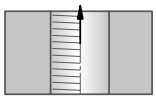
Non clean-up

- ▲ Built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- ▲ Cutting edge worn→ have cutting edge repaired or replace the tool
- ▲ Reamer runout error → correct the runout with DAH compensation system
- ▲ No or insufficient cooling, chips are getting trapped → use thro' coolant supply and increase coolant pressure
- ▲ Unsuitable coolant → increase the oil content of the coolant
- ▲ Incorrect cutting data→ use data according to catalogue recommendation



Grooves in the hole "Feed marking"

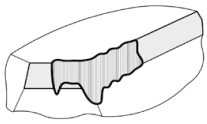
- ▲ Faulty cutting edge (edge breakage) → have reamer replaced or repaired
- ▲ Built-up edges → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant



Grooves in the hole "Retraction marking"

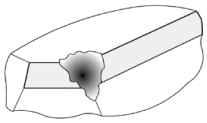
- ▲ Cutting edges moved too far out of the hole → move no more than lead length + 2 mm out of the hole
- ▲ Material springs back → do not retract at high speed but with increased (2-3 times) feed rate

Types of wear



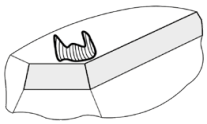
Wear on clearance face

Reduce the cutting speed and select a more wear resistant cutting material or coating.



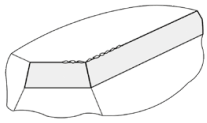
Cutting edge breakage

Reduce feed and reaming allowance. In the case of interrupted holes, use coated carbide instead of DST.



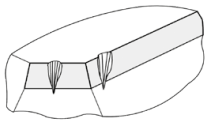
Cratering

Reduce the cutting speed and use a positive cutting edge geometry.



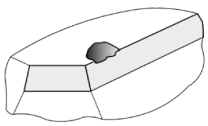
Edge breakages

Increase the cutting speed and use larger rake angle.



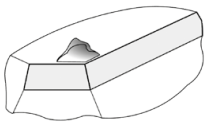
Notch wear

Reduce the cutting speed and select a more wear resistant cutting material or coating.



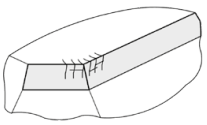
Fatigue fracture

Reduce feed, increase reamer stability.



Built-up edge

Use positive cutting edge geometry, increase the oil content of the coolant, reduce the cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material.



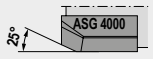
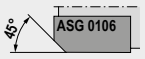
Cracks at right angles to the cutting edge

Use sufficient coolant and thro' coolant, reduce the cutting speed.

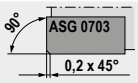
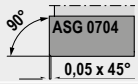
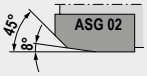
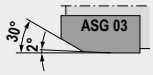
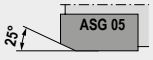
Common cutting edge geometries in the performance area

REAMAX, REAMAX TS, Monomax

Standard geometries

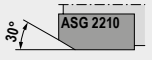
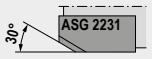
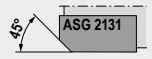
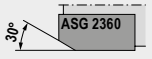
Cutting edge geometry	Flute type	Chip flow	Lead angle
Through hole			
ASG4000	straight	←	
Through hole-Blind hole			
ASG3000	straight	↔	
ASG0706	straight	↔	
ASG0106	straight	↔	

Special geometries

Cutting edge geometry	Flute type	Chip flow Comments	Lead angle
ASG0703	straight	Leading edge	
ASG0704	straight	Leading edge with increased positional accuracy	
ASG09B	straight	Swarf control < Ø 32 mm	
ASG1402	straight	Swarf control > Ø 32 mm	
ASG02	straight	↔	
ASG03	straight	↔	
ASG05	left-handed		

Fullmax

Standard geometries

Cutting edge geometry	Flute type	Chip flow	Lead angle
Through hole			
ASG2210	left-hand helix	←	
ASG2231	left-hand helix	←	
ASG2270	straight	←	
Blind hole			
ASG2110	straight	→	
ASG2131	straight	→	
ASG2170	straight	→	
Through hole-Blind hole			
ASG2350	straight	↔	
ASG2360	straight	↔	

Numerous other cutting edge geometries, especially for your application, are available on request. Simply contact our technicians or use the form „Semi standard – Solid carbide reamer“ on our homepage in the download area.

Achievable surface quality

		Roughness ▸	N11	N10	N9	N8		N7	N6		N5	N4	N3	N2	N1
		Average roughness R_a ▸	25	12,5	6,3	3,2		1,6	0,8		0,4	0,2	0,1	0,05	0,025
		Surface roughness R_z ▸	100	63	40	25	16	10	6,3	4	2,5	1,6	1	0,63	0,25
Material group	P	1.0 – 4.2													
	M	1.1 – 3.1													
	K	1.1 + 2.1 + 3.1													
		1.2 + 2.2 + 3.2													
	N	1.1 – 2.3													
		3.1 – 3.3													
	S	1.1 – 3.3													
	H	1.1 – 1.3													

reachable conditionally reachable

This information is based on experience and may vary from case to case, depending on the prevailing conditions.
(all other surface values on request)

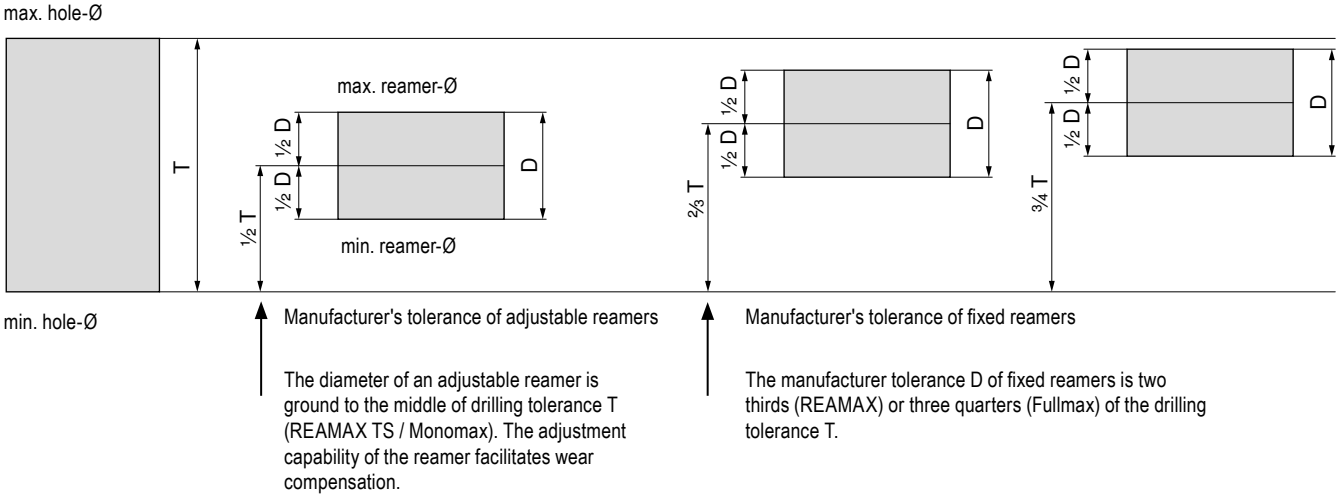
Tolerance classes covered with 1/100 reamer

The most common tolerance is H7, so most reamers configured for an H7 fit tolerance.
With the 1/100 reamers, increments of 0.01 mm can be covered, but are also suitable for various other dimensions.
For example, a 1/100 reamer diameter 8.02 mm can be used for a 8.0 fit F7.
Other fit sizes shown in the table.

Tolerance zone	Nominal Ø in mm											
	1,0	2,0	3,0	4,0	5,0	6,0	7,0	8,0	9,0	10,0	11,0	12,0
A9				4,29	5,29	6,29	7,30	8,30	9,30	10,30	11,32	12,32
A11	1,31	2,31	3,31	4,32	5,32	6,32	7,35	8,35	9,35	10,35	11,37	12,37
B8				4,15	5,15	6,15	7,16	8,16	9,16	10,16		
B9				4,16	5,16	6,16	7,17	8,17	9,17	10,17	11,18	12,18
B10	1,17	2,17	3,17	4,17	5,17	6,17	7,19	8,19	9,19	10,19	11,20	12,20
B11	1,18	2,18	3,18	4,19	5,19	6,19	7,22	8,22	9,22	10,22	11,23	12,23
C8				4,08	5,08	6,08	7,09	8,09	9,09	10,09	11,11	12,11
C9	1,07	2,07	3,07	4,09	5,09	6,09	7,10	8,10	9,10	10,10	11,12	12,12
C10	1,09	2,09	3,09	4,10	5,10	6,10	7,12	8,12	9,12	10,12	11,14	12,14
C11	1,10	2,10	3,10	4,12	5,12	6,12	7,15	8,15	9,15	10,15	11,18	12,18
D7											11,06	12,06
D8				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
D9				4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
D10	1,05	2,05	3,05	4,06	5,06	6,06	7,08	8,08	9,08	10,08	11,10	12,10
D11	1,06	2,06	3,06	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
E7							7,03	8,03	9,03	10,03	11,04	12,04
E8	1,02	2,02	3,02	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
E9	1,03	2,03	3,03	4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
F7	1,01	2,01	3,01				7,02	8,02	9,02	10,02	11,02	12,02
F8	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
F9	1,02	2,02	3,02	4,03	5,03	6,03	7,03	8,03	9,03	10,03	11,04	12,04
F10				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,07	12,07
G7				4,01	5,01	6,01	7,01	8,01	9,01	10,01		
H7										10,01	11,01	12,01
H8				4,01	5,01	6,01	7,01	8,01	9,01	10,01	11,02	12,02
H9	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
H10	1,03	2,03	3,03	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
H11	1,04	2,04	3,04	4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
H12	1,07	2,07	3,07	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
H13	1,11	2,11	3,11	4,14	5,14	6,14	7,18	8,18	9,18	10,18	11,22	12,22
J6				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS9	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,01	12,01
K8	0,99	1,99	2,99				6,99	7,99	8,99	9,99	10,99	11,99
M6							6,99	7,99	8,99	9,99	10,99	11,99
M7							6,99	7,99	8,99	9,99	10,99	11,99
M8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N6				3,99	4,99	5,99						
N7	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N9	0,98	1,98	2,98	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N10	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,98	11,98
N11	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,97	11,97
P6	0,99	1,99	2,99								10,98	11,98
P7	0,99	1,99	2,99				6,98	7,98	8,98	9,98	10,98	11,98
P8	0,99	1,99	2,99	3,98	4,98	5,98					10,97	11,97
R6							6,98	7,98	8,98	9,98		
R7				3,98	4,98	5,98	6,98	7,98	8,98	9,98	10,97	11,97
S6				3,98	4,98	5,98					10,97	11,97
S7	0,98	1,98	2,98	3,98	4,98	5,98	6,97	7,97	8,97	9,97	10,97	11,97
U6							6,97	7,97	8,97	9,97		
U7				3,97	4,97	5,97	6,97	7,97	8,97	9,97		
X7				3,97	4,97	5,97						
X8	0,97	1,97	2,97				6,96	7,96	8,96	9,96	10,95	11,95
X9	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95		
Z7	0,97	1,97	2,97	3,96	4,96	5,96	6,96	7,96	8,96	9,96	10,95	11,95
Z8	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95	10,94	11,94
Z9				3,95	4,95	5,95						
Z10	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94	10,93	11,93
ZA7	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94		
ZA8							6,94	7,94	8,94	9,94	10,93	11,93
ZB8	0,95	1,95	2,95	3,94	4,94	5,94					10,90	11,90
ZB9	0,95	1,95	2,95	3,94	4,94	5,94	6,92	7,92	8,92	9,92	10,90	11,90

Manufacturer's tolerance of the reamers

T = Hole tolerance field
D = Manufacturer's tolerance of the reamer



Manufacturer's tolerance of adjustable reamers

The diameter of an adjustable reamer is ground to the middle of drilling tolerance T (REAMAX TS / Monomax). The adjustment capability of the reamer facilitates wear compensation.

Manufacturer's tolerance of fixed reamers

The manufacturer tolerance D of fixed reamers is two thirds (REAMAX) or three quarters (Fullmax) of the drilling tolerance T.

Coatings – Reaming and Countersinking

HPC TiN

- Nanostructured TiN multilayer coating
- Friction-optimised top layer enables process-secure dry hard machining
- Extreme resistance to oxidation and elevated-temperature hardness
- Maximum application temperature: 900 °C

TiN

- TiN coating
- Maximum application temperature: 450 °C

TiAlN

- TiAlN multilayer coating
- Maximum application temperature: 900 °C

TiAlSiN

- TiAlSiN- Multilayer coating
- Maximum application temperature: 800 °C
- Specially designed for machining hardened steels: high hardness and heat resistance with low thermal conductivity.

DBC

- Diamond-like carbon coating
- Specially for machining non-ferrous metals
- Maximum application temperature: 400 °C

DBG-U

- AlTiN Multilayer coating
- Especially for universal use in a variety of materials as well as for the machining of tempered materials < 62 HRC
- For high cutting speeds and suitable for MMS application
- Maximum application temperature: 1000 °C

DBG-P

- AlTiN Multilayer coating
- Especially for universal use in a variety of materials at high cutting speeds
- Suitable for MMS application
- Maximum application temperature: 1000 °C

DBC-N

- Diamond-like ta-C-Multilayer-carbon coating
- Particularly hard and smooth coating and therefore especially for machining non-ferrous metals
- Maximum application temperature: 500 °C

DBQ

- AlCrN-Multilayer-Beschichtung
- Particularly suitable for machining stainless steels and titanium
- Low formation of built-up edges
- Maximum application temperature: > 1000 °C

DBF-A

- AlCrN Multilayer coating
- specially developed for the machining of tempered materials < 62 HRC
- maximum application temperature: > 1100 °C

Grade description – Reamers

DST

- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

CWC10

- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining of stainless and hardened steel
- Particularly wear-resistant due to high heat resistance

K10

- Carbide, uncoated
- ISO | **K10**
- Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

4

Grade description – Indexable insert countersink

BK8425

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25**
- Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating

K10

- Carbide, uncoated
- ISO | **K10**
- Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

Chip breakers

-01

- Rake angle 12°
- All-round topography chamfered, rounded
- Very smooth-cutting thanks to positive cutting edge geometry
- Also suitable for less-powerful machines and unstable workpieces
- Easily controllable chip formation also in less solid materials

-U877

- Rake angle 6°
- circumferentially ground
- Three-ground chip breaker with second clearance angle for clearance with small tool diameters

-G06

- Rake angle 6°
- For P / M / K materials
- High stability due to significant wedge angle

-G12

- Rake angle 12°
- For P / N / S materials
- Extremely smooth-cutting thanks to positive cutting edge geometry
- Extremely suitable for less-powerful machines and unstable workpieces
- Easily controllable chip formation also in less solid materials

Adapters which are ideal for reaming operations (such as the DAH compensation holder) can be found in the → **Clamping technology catalogue, Chapter 16**

New products for machining technicians

NEW Precision adjustment head hi.flex micro



▲ The continuation of the hi.flex system success story: the ultimate milestone in terms of precision, flexibility and user-friendliness is now getting a well-deserved “little brother”. With a boring range of Ø 0.5 mm – 60 mm, it covers a very wide range of all upcoming spindle machining operations.

→ Page 19–21

NEW UltraMini/EcoCut boring bar adapter



▲ The new boring bar adapter can be used in all heads with a clamping diameter of 12 mm or 16 mm such as both sizes of the hi.flex micro precision adjustment head (and BluFlex 2). Using the UltraMini and EcoCut boring bars makes particular sense here since the adapter is also suitable for boring bars with a thro' coolant supply.

DCONMS 12 → Page 20
DCONMS 16 → Page 14

NEW **MicroKom** – Precision spindle set



▲ New: the MicroKom precision adjustment heads BluFlex 2, hi.flex and hi.flex micro are also available as a set

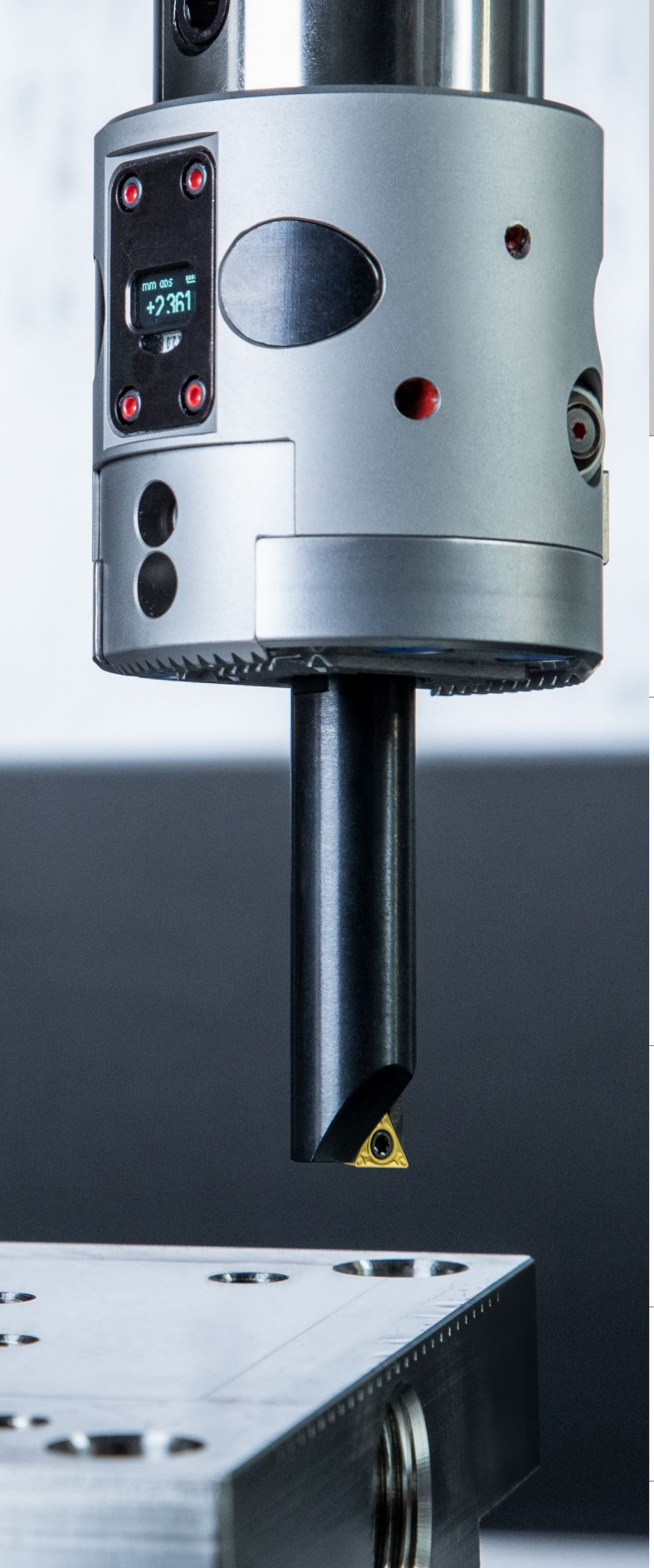
BluFlex 2 → Page 12
hi.flex → Page 13
hi.flex micro → Page 19

NEW Interface adapter



▲ Total freedom in tool selection: thanks to the new interface adapters, ABS tools in STM base holders and STM tools in ABS base holders can be accommodated reliably and precisely.

→ Page 56



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling 5

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Insert	75
Notes on drilling technology	76
Problems / possible causes / solutions	77
Types of wear	78
Chip breakers	79
Grades / coatings	80+81

KOMET \ Performance

Premium quality tools for high performance.

The premium quality tools from the **KOMET Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

KOMET \ Standard

Quality tools for standard applications.

The quality tools of the **KOMET Standard** product line are high quality, high performance, reliable and enjoy the highest level of trust among our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Symbol explanation

F Fine Machining

M Medium Machining

R Rough Machining

Smooth cut

Irregular cutting depth

Interrupted cut

ABS **KOMET ABS** – modular coupling system for rotating and stationary tools

STM Modular SpinTools interface

ER 32 System-independent ER 32 interface

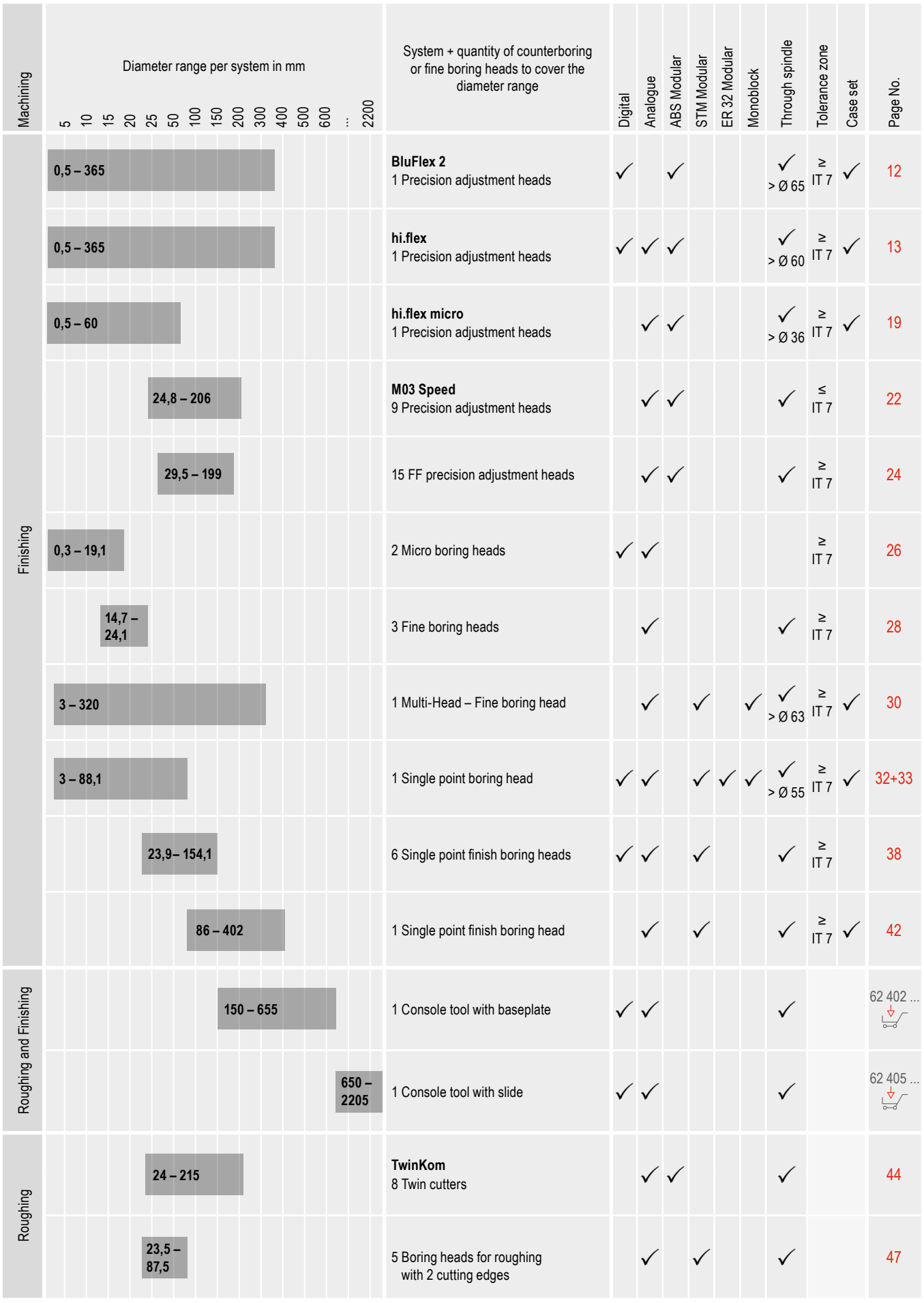
Coolant supply central
Steep taper Form AD



hi.flex / hi.flex micro

- ▲ The precision adjustment heads are characterised by their high precision, absolute reliability and enormous flexibility
- ▲ Available as analogue and digital variants (hi.flex: analogue + digital, hi.flex micro: analogue)
- ▲ Comprehensive accessories offer maximum flexibility (hi.flex: diameter range 0.5 – 365 mm, hi.flex micro: diameter range 0.5 – 60 mm)
- ▲ Higher RPMs can be reached thanks to the symmetrically balanced design (hi.flex: 17,500 rpm, hi.flex micro: 30,000 rpm)
- ▲ The sensitive adjustment for µ-precise width of cut
- ▲ With thro' coolant supply
- ▲ Universal ABS interface

Toolfinder



System + quantity of counterboring or fine boring heads to cover the diameter range	Digital	Analogue	ABS Modular	STM Modular	ER 32 Modular	Monoblock	Through spindle	Tolerance zone	Case set	Page No.
BluFlex 2 1 Precision adjustment heads	✓		✓				✓ > Ø 65	≥ IT 7	✓	12
hi.flex 1 Precision adjustment heads	✓	✓	✓				✓ > Ø 60	≥ IT 7	✓	13
hi.flex micro 1 Precision adjustment heads		✓	✓				✓ > Ø 36	≥ IT 7	✓	19
M03 Speed 9 Precision adjustment heads		✓	✓				✓	≤ IT 7		22
15 FF precision adjustment heads		✓	✓				✓	≥ IT 7		24
2 Micro boring heads	✓	✓						≥ IT 7		26
3 Fine boring heads		✓					✓	≥ IT 7		28
1 Multi-Head – Fine boring head		✓		✓		✓	✓ > Ø 63	≥ IT 7	✓	30
1 Single point boring head	✓	✓		✓	✓	✓	✓ > Ø 55	≥ IT 7	✓	32+33
6 Single point finish boring heads	✓	✓		✓			✓	≥ IT 7		38
1 Single point finish boring head		✓		✓			✓	≥ IT 7	✓	42
1 Console tool with baseplate	✓	✓					✓			62 402 ...
1 Console tool with slide	✓	✓					✓			62 405 ...
TwinKom 8 Twin cutters		✓	✓				✓			44
5 Boring heads for roughing with 2 cutting edges		✓		✓			✓			47

This article can be found in our online shop at cuttingtools.ceratizit.com

Overview – Fine boring systems

MicroKom

BluFlex 2 / hi.flex

Ø 0,5 – 365 mm

ABS



BluFlex 2 – Digital
12



hi.flex – Analogue / digital
13

Ø 0,5 – 26 mm

- Ø 0,5 – 8 mm → UltraMini + EcoCut → Chapters 10 + 12 → Adapter 14
- Ø 5,6 – 24 mm → Boring Bar 18 → Adapter 17
- Ø 5,6 – 11 mm → Boring bar, vibration-optimised 17 → Adapter 17
- Ø 13 – 26 mm → Boring bar 17
- Ø 6 – 22 mm * → Steel boring bar 14
- Ø 7,9 – 23,9 mm → ABS32 boring bar 18

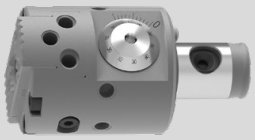
Ø 25 – 365 mm

- Ø 25 – 44 mm → Insert holder 15 → Serrated body 15
- Ø 44 – 63 mm → Insert holder 15 → Serrated body 15
- Ø 63 – 93 mm → Insert holder 15 → Filling piece 16
- Ø 90 – 365 mm → Insert holder 15 → Bridge 16 → Filling piece 16
- Ø 5 – 70 mm → Spindle tool for external machining 16

hi.flex micro

Ø 0,5 – 60 mm

ABS



Analogue
19

Ø 0,5 – 25 mm

- Ø 0,5 – 8 mm → UltraMini + EcoCut → Chapters 10 + 12 → Adapter 20
- Ø 8 – 13,8 mm → Boring Bar 20
- Ø 13,8 – 19,8 mm → Boring Bar 20
- Ø 19,8 – 25 mm → Boring Bar 20

Ø 25 – 60 mm

- Ø 25 – 44,8 mm → Insert holder 21 → Serrated body 21
- Ø 44,8 – 60 mm → Insert holder 21 → Filling piece 21



TO.X
58+59



WOHX *
57

* Used for steel boring bars Ø 6 – 8 mm

necessary
optional

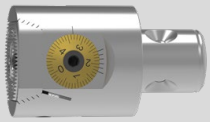
5

SpinTools

Multi-Head boring and fine boring head

Ø 3 – 320 mm

HSK-A | SK | MAS BT | STM



Analogue
30

Ø 3 – 53,1 mm

Ø 3 – 12 mm



Boring steel
35

Ø 5,8 – 13,2 mm



Boring bar
36

Reduction sleeve
36



Ø 8,75 – 40,1 mm



High-speed boring head + boring shank
37

Ø 9,75 – 53,1 mm



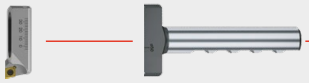
Steel boring bar
35



Boring tool extension
36

Ø 29,75 – 320 mm

Ø 29,75 – 88,1 mm



Insert holder
35

Adjustable boring bar
35

Ø 86 – 320 mm



Counterweight
31

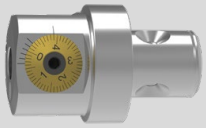
Bridge
31

Insert holder
31

Single point finish boring head

Ø 3 – 88,1 mm

HSK-A | SK | MAS BT | STM | ER 32



Analogue / digital
32+33

Ø 3 – 53,1 mm

Ø 3 – 12 mm



Boring steel
35

Ø 5,8 – 13,2 mm



Boring bar
36

Reduction sleeve
36



Ø 8,75 – 40,1 mm



High-speed boring head + boring shank
37

Ø 9,75 – 53,1 mm



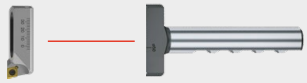
Steel boring bar
35



Boring tool extension
36

Ø 29,75 – 88,1 mm

Ø 29,75 – 88,1 mm

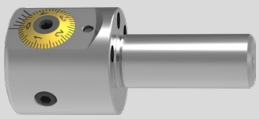


Insert holder
35

Adjustable boring bar
35

Micro Boring Head

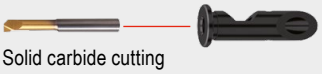
Ø 0,3 – 19,1 mm



Analogue / digital
26

Ø 0,3 – 19,1 mm

Ø 0,3 – 7,1 mm



Solid carbide cutting insert
27

Adapter
27

Ø 5,2 – 8,1 mm



Solid carbide cutting insert
27

Ø 6,9 – 19,1 mm



Solid carbide insert
27

Tool holder
27



CC..
63

Overview – Fine boring tools

MicroKom

M03 Speed
Analogue

Ø 24,8 – 206 mm

ABS

Ø 24,8 – 39 mm

Precision adjustment heads
22



Insert holder
23



Ø 38 – 103 mm

Precision adjustment heads
22

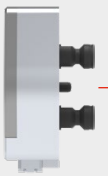


Insert holder
23

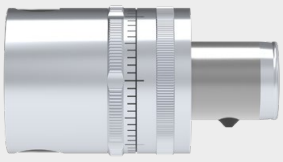


Ø 38 – 206 mm

Interchangeable bridge
23



Precision adjustment heads
22



Insert holder
23

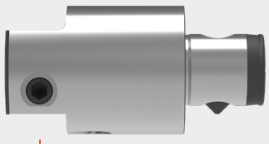


FF precision adjustment head
Analogue

Ø 29,5 –199 mm

ABS

Precision adjustment heads
24



Precision turning insert
25





TO.X
58+59

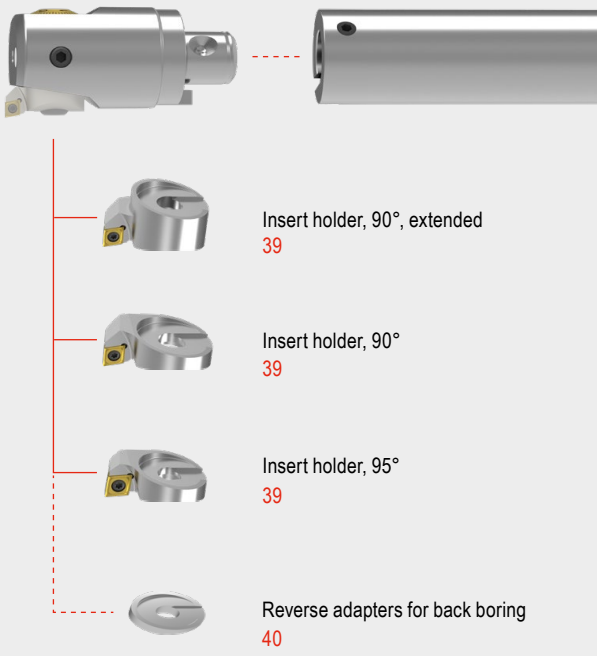
necessary
optional

SpinTools

Single point finish boring head
Analogue / digital

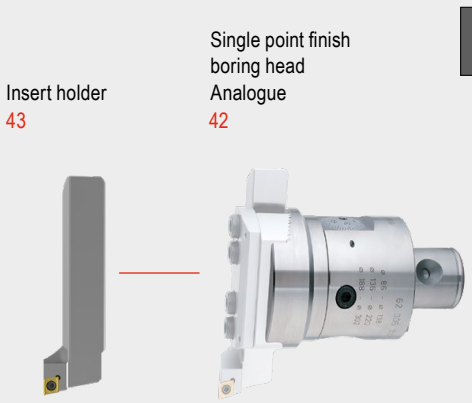
Ø 23,9 – 154,1 mm

STM



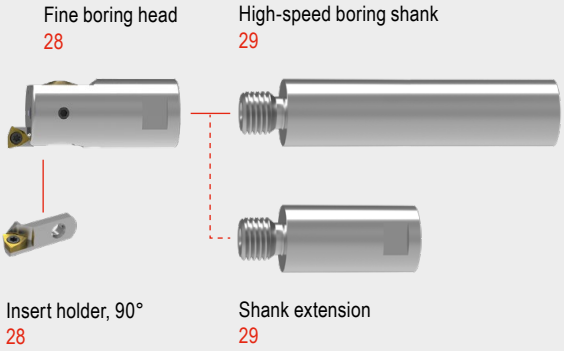
Ø 86 – 402 mm

STM



Fine boring head
Analogue

Ø 14,7 – 24,1 mm





CC..
63



WC..
62

Overview – Counterboring and console tools

necessary
optional

TwinKom

Twin cutter
Analogue

Ø 24 – 215 mm

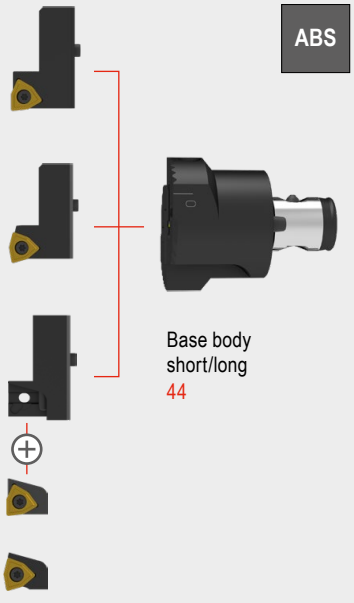
Tool holder 90° radially adjustable
45

Tool holder 80° radially adjustable
45

Basic tool holder, radially + axially adjustable
46

Indexable insert 90°
46

Indexable insert 80°
46



ABS

Base body short/long
44



WO..
60+61

SpinTools

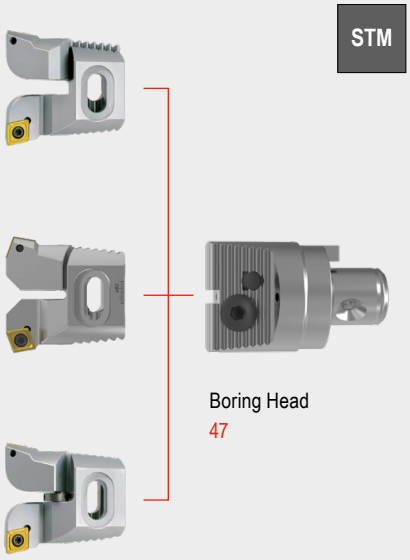
Twin rough boring head
Analogue

Ø 23,5 – 87,5 mm

Pair of insert holders, Standard 90°
48

Pair of insert holders, Standard 70°
48

Pair of insert holders, Synchro 90°
49



STM

Boring Head
47



CC.. / CN..
63

SpinTools

Console tool
Analogue / digital

Ø 150 – 2205 mm

Rough boring block 90° (CC..)
62 412 ...

Rough boring block 90° (CN..)
62 413 ...

Rough boring block 70° (CN..)
62 414 ...

Finish boring block analogue / digital
62 410 ... / 62 409 ...

Insert holder 90° / 95°
62 318 ... / 62 320 ...



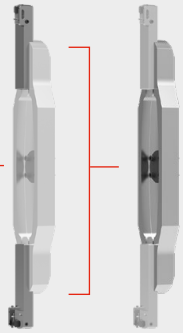
Counterweight
62 427 ...

Ø 150 – 655 mm

Base plates
62 402 ...

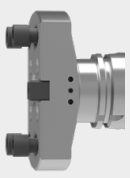


Ø 650 – 2205 mm
Elongation console



Slide
62 406 ...

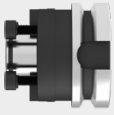
Basis
62 405 ...



Base adapter
62 392 ...

HSK-A
SK
MAS BT

Ø 60 mm
DIN 6357



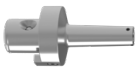
SK
MAS BT

Overview of base adapters and accessories

System			ISO 7388-1		ISO 7388-2		ISO 12164		ISO 26623-1
			SK	SK-FC	MAS-BT	MAS-BT-FC	HSK-A	HSK-E	PSC
Base adapter		ABS	→ Clamping technology catalogue, Chapter 16, Adapters and accessories						
			16|43	16|45	16|88	16|108	16|141		16|170
		STM	50		51		52		

5

Accessories

Extension		ABS	→ Clamping technology catalogue, Chapter 16, Adapters and accessories						
			16|187						
		STM	55						
Reduction		ABS	→ Clamping technology catalogue, Chapter 16, Adapters and accessories						
			16|191						
		STM	53						
Interface adapter ABS → STM		ABS	56						
Interface adapter STM → ABS		STM	56						

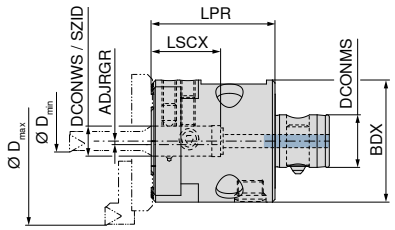
Additional accessories available on request, such as balancing rings, axial grooving holders (UltraMini) and counterboring insert holders (0.4 mm offset) for SpinTools systems.

MicroKom – BluFlex 2 – precision adjustment head

▲ Via the free app (Android/iOS), an extended display can be transferred to a standard smartphone (62 840 16097)
▲ For MicroKom boring bars with Ø 16 or with ABS 32, MicroKom bridges, and serrated body
▲ With thro' coolant supply
▲ LSCX = Recess depth of boring bar

Scope of supply:
incl. Battery

ABS





D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	SZID	DCONMS mm	BDX mm	LPR mm	LSCX mm	ADJRGR mm	WT kg	without Bluetooth 62 820 ... £ W4/6A		with Bluetooth 62 840 ... £ W4/6A	
0,5 - 365	M04 30100	ABS 50	16	ABS 32	28	65	71	38	-0,2 - 2,3	1.45	2,774.63	**16097**		
0,5 - 365	M04 30000	ABS 50	16	ABS 32	28	65	71	38	-0,2 - 2,3	1.45			2,774.63	**16097**


Clamping screw


Clamping screw


Clamping screw


Clamping sleeve


Battery cover

Spare parts for Article no.		62 950 ... £ XX		62 950 ... £ W7/6B		62 950 ... £ W7/6B		62 950 ... £ W7/6B		62 950 ... £ W7/6B	
62 820 16097	M8x1x12/SW4	12.60	**13989**	M8x1x20/SW4	1.97	**13700**	M5x14/SW4	2.86	**18600**	8.25	**18500**	10.98	**18400**
62 840 16097	M8x1x12/SW4	12.60	**13989**	M8x1x20/SW4	1.97	**13700**	M5x14/SW4	2.86	**18600**	8.25	**18500**	10.98	**18400**

A detailed operating manual is available for download in the online shop next to the product.

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

→ **Page 6**
Here you will find a detailed system overview.

MicroKom – Precision spindle set BluFlex 2

Scope of supply:

NEW

▲ **1 plastic case**
▲ **1 precision adjustment head**
▲ **5 boring bars**
– 62 850 00600 Ø 6 mm
– 62 850 01000 Ø 10 mm
– 62 850 01400 Ø 14 mm
– 62 850 01800 Ø 18 mm
– 62 850 02200 Ø 22 mm
▲ **2 insert holders**
– 62 863 04400 Ø 25 – Ø 44 mm
– 62 863 12500 Ø 44 – Ø 63 mm (– Ø 125 mm)
▲ **1 bridge**
– 62 860 12500 Ø 90 – Ø 125 mm
▲ **1 serrated body**
– 62 861 06300 Ø 25 – Ø 63 mm
▲ **1 filling piece**
– 62 862 09300 Ø 16x35 mm
▲ **10 indexable inserts**
– 2 pieces 62 600 00102 – WOHX02T001EL-G12 BK8440
– 4 pieces 62 601 90206 – TOGX06T102EN-14 BK60
– 4 pieces 62 601 70409 – TOGX090204EN-14 BK60
▲ **5 cylindrical screws**
– 62 950 00000 M5x16 mm
▲ **5 screwdrivers**
– 5IP, 6IP, 8IP, SW3, SW4

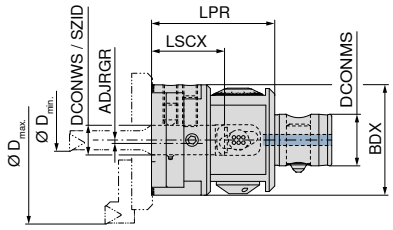


D_{min} - D_{max} mm	without Bluetooth 62 820 ... £ W4/6A		with Bluetooth 62 840 ... £ W4/6A	
6 - 125	4,031.31	**99997**	4,031.31	**99997**

MicroKom – hi.flex – precision adjustment head

- ▲ For MicroKom boring bars with Ø 16 mm or ABS 32, MicroKom bridges and serrated bodies
- ▲ With thro' coolant supply
- ▲ LSCX = Recess depth of boring bar
- ▲ Digital variant: please order the digital stick separately

ABS





5

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	SZID	DCONMS mm	BDX mm	LPR mm	LSCX mm	ADJRGR mm	WT kg	Analogue 62 800 ... £ W4/6A		Digital 62 800 ... £ W4/6A	
0,5 - 365	M05 01000	ABS 50	16	ABS 32	28	60	67	39.7	-0,25 - 5	1.23	1,397.11	**16097**		
0,5 - 365	M04 10040	ABS 50	16	ABS 32	28	60	67	39.7	-0,25 - 5	1.23			1,615.46	**16197**


Clamping screw


Clamping screw


Clamping screw

Spare parts for Article no.	62 950 ... £ W7/6B		62 950 ... £ XX		62 950 ... £ W7/6B	
62 800 16097	M8x8 - SW4	1.97 **14700**	M8x1x12/SW4	12.60 **13989**	M8x1x20/SW4	1.97 **13700**
62 800 16197	M8x8 - SW4	1.97 **14700**	M8x1x12/SW4	12.60 **13989**	M8x1x20/SW4	1.97 **13700**

A detailed operating manual is available for download in the online shop next to the product.

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

→ **Page 6**
Here you will find a detailed system overview.

→ **Page 26**
Here you will find the SpinTools – Digital Stick.

MicroKom – Precision spindle set hi.flex

Scope of supply:

NEW

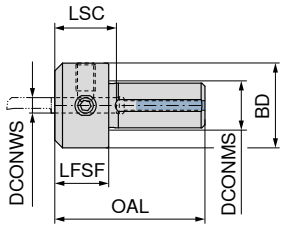
- ▲ **1 plastic case**
- ▲ **1 precision adjustment head**
- ▲ **5 boring bars**
  - – 62 850 00600 Ø 6 mm
  - – 62 850 01000 Ø 10 mm
  - – 62 850 01400 Ø 14 mm
  - – 62 850 01800 Ø 18 mm
  - – 62 850 02200 Ø 22 mm
- ▲ **2 insert holders**
  - – 62 863 04400 Ø 25 – Ø 44 mm
  - – 62 863 12500 Ø 44 – Ø 63 mm (– Ø 125 mm)
- ▲ **1 bridge**
  - – 62 860 12500 Ø 90 – Ø 125 mm
- ▲ **1 serrated body**
  - – 62 861 06300 Ø 25 – Ø 63 mm
- ▲ **1 filling piece**
  - – 62 862 09300 Ø 16x35 mm
- ▲ **10 indexable inserts**
  - – 2 pieces 62 600 00102 – WOHX02T001EL-G12 BK8440
  - – 4 pieces 62 601 90206 – TOGX06T102EN-14 BK60
  - – 4 pieces 62 601 70409 – TOGX090204EN-14 BK60
- ▲ **5 cylindrical screws**
  - – 62 950 00000 M5x16 mm
- ▲ **5 screwdrivers**
  - – 5IP, 6IP, 8IP, SW3, SW4



D_{min} - D_{max} mm	Analogue 62 800 ... £ W4/6A		Digital 62 800 ... £ W4/6A	
6 - 125	2,879.51	**99997**	3,109.87	**99897**

MicroKom – UltraMini / EcoCut boring bar adapter

▲ for **hi.flex** and **BluFlex 2**
▲ 4 clamping flats (offset by 90°) on Ø DCONMS
▲ with thro' coolant supply





NEW

62 851 ...

DCONWS mm	KOMET no.	OAL mm	BD mm	LFSF mm	LSC mm	DCONMS mm	£ W4/6A	
4	M05 90950	39	22	14	18	16	173.01	16499
5	M05 90960	39	22	14	18	16	173.01	16599
6	M05 90970	39	22	14	18	16	173.01	16699
7	M05 90980	39	25	14	18	16	173.01	16799
8	M05 90990	39	25	14	18	16	173.01	16899



Clamping screw

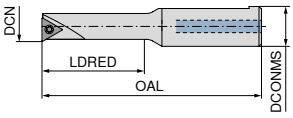
70 950 ...

Spare parts DCONWS	£ 2A/28	
4 - 5	3.79	867
6 - 8	3.79	123

Suitable UltraMini / EcoCut tools can be found in → **Chapters 10 and 12.**

MicroKom – Steel boring bar for hi.flex, BluFlex 2

▲ with thro' coolant





62 850 ...

DCN mm	KOMET no.	OAL mm	LDRED mm	DCONMS mm	Insert	£ W4/6A	
6	B05 20100	71.7	21.0	16	WO.. 02T0	150.30	00600
8	B05 20120	77.4	28.0	16	TO.. 06T1	155.27	00800
10	B05 20140	81.8	34.0	16	TO.. 0902	148.73	01000
12	B05 20160	88.2	42.0	16	TO.. 0902	161.80	01200
14	B05 20180	94.4	50.0	16	TO.. 0902	160.10	01400
18	B05 20220	100.0	60.0	16	TO.. 0902	169.92	01800
22	B05 20260	108.0	68.5	16	TO.. 1403	194.50	02200



TORX® Screws

62 950 ...

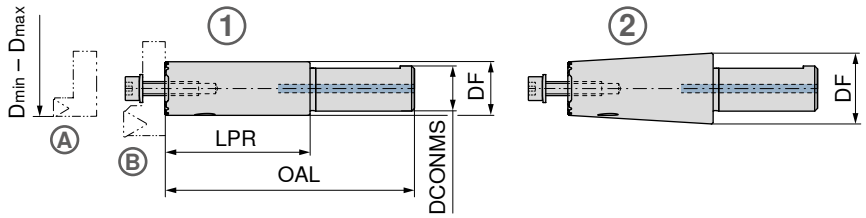
Spare parts Insert	£ W7/6B	
WO.. 02T0	2.97	11800
TO.. 06T1	3.58	12800
TO.. 0902	3.13	12000
TO.. 1403	2.97	12600

→ **Page 57–59**
Find suitable indexable inserts here.

MicroKom – Serrated body for hi.flex, BluFlex 2

▲ with thro' coolant

Scope of supply:
without insert holder





5

D_{min} - D_{max} mm	KOMET no.	DCONMS mm	OAL mm	LPR mm	DF mm	Fig.	62 861 ... £ W4/6A	
25 - 63	M05 90100	16	89.12	52.12	19	1	176.42	**06300**
25 - 63	M05 90110	16	128.39	91.93	24	2	176.42	**16300**



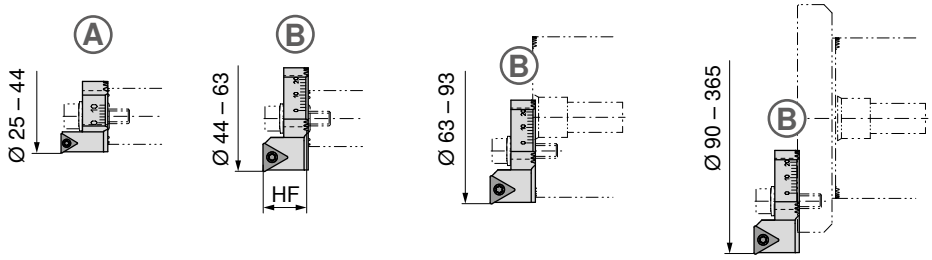
Cylindrical screw



Disk spring

Spare parts DCONMS		62 950 ... £ W7/6B			62 950 ... £ W7/6B	
16	M5x16	1.09	**00000**	10x5,2x0,3	2.07	**19100**

MicroKom – Insert holder for hi.flex, BluFlex 2





DCN mm	DCX mm	KOMET no.	HF mm	Insert	Fig.	62 863 ... £ W4/6A	
25	44	M05 20101	13.5	TO.. 06T1	A	173.17	**04400**
44	365	M05 20151	13.5	TO.. 0902	B	176.42	**12500**

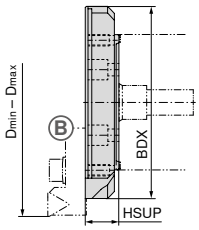


TORX® Screws

Spare parts Insert		62 950 ... £ W7/6B	
TO.. 06T1	M2x4,9/IP6	3.41	**09700**
TO.. 0902	M2,6x6,2 - 08IP	3.13	**09900**

→ **Page 58+59**
Find suitable indexable inserts here.

MicroKom –
Bridge for hi.flex, BluFlex 2





62 860 ...

D_{min} - D_{max} mm	KOMET no.	BDX mm	HSUP mm	WT kg	£ W4/6A	
90 - 125	M05 80101	85	14.89	0.147	243.48	**12500**
120 - 155	M05 80200	115	16.89	0.107	341.43	**15500**
150 - 185	M05 80300	145	18.89	0.152	387.13	**18500**
180 - 215	M05 80400	175	21.89	0.229	429.78	**21500**
210 - 245	M05 80500	205	25.00	0.309	597.40	**24500**
240 - 275	M05 80510	235	25.00	0.349	647.67	**27500**
270 - 305	M05 80520	265	25.00	0.394	670.52	**30500**
300 - 335	M05 80530	295	25.00	0.435	720.78	**33500**
330 - 365	M05 80540	325	25.00	0.478	777.19	**36500**

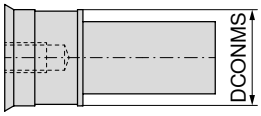

Cylindrical screw


Disk spring

Spare parts BDX		£ W7/6B		£ W7/6B	
		62 950 ...		**62 950 ...**	
85 - 325		1.09	**00000**	2.07	**19100**

MicroKom –
Filling piece for hi.flex, BluFlex 2

▲ For targeted redirecting of the thro' coolant to the cutting edge when using bridges or insert holders with diameters from 63 mm



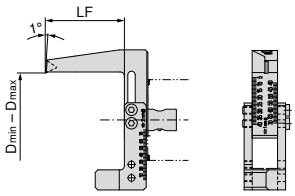


62 862 ...

DCONMS mm	KOMET no.	£ W4/6A	
16	M05 90501	23.52	**09300**

MicroKom –
Spindle tool for external machining

▲ for **hi.flex** and **BluFlex 2**





62 866 ...

D_{min} - D_{max} mm	KOMET no.	LF mm	Adapter	WT kg	Insert	£ W4/6A	
5 - 70	M05 90300	58	ABS 32	0.377	TO.X 0902..	579.08	**07000**


Cylindrical screw


TORX® Screws

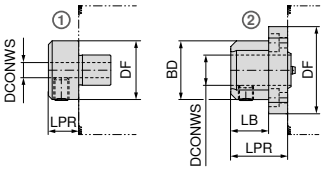
Spare parts Insert		£ W7/6B		£ W7/6B	
		62 950 ...		**62 950 ...**	
TO.X 0902..		1.28	**26800**	3.13	**12000**

→ **Page 58+59**
Find suitable indexable inserts here.

A detailed operating manual is available for download in the online shop next to the product.

MicroKom – Adapter

▲ for 62 852 ..., 62 853 ..., 62 856 ... (essential for using the boring bar)





DCONWS mm	KOMET no.	DF mm	BD mm	LPR mm	LB mm	Fig.	62 851 ... £ W4/6A	
6	M05 90200	31		16		1	156.93	00600
8	M05 90210	31		16		1	156.93	00800
10	M05 90220	46	31	25	15	2	196.64	01000
12	M05 90230	46	31	25	15	2	196.64	01200
16	M05 90240	46	31	30	20	2	196.64	01600


Cylindrical screw

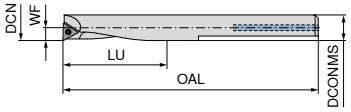

Clamping screw

Spare parts DCONWS	62 950 ... £ W7/6B		62 950 ... £ W7/6B	
6 - 8			2.31	44800
10 - 12	1.09	00000	2.31	44800
16	1.09	00000	1.97	14700

A detailed operating manual is available for download in the online shop next to the product.

MicroKom – Boring bar, vibration-optimised

▲ can only be used with adapter 62 851 ...
▲ with internal coolant supply





DCN mm	KOMET no.	WF mm	LU mm	OAL mm	DCONMS mm	Insert	62 852 ... £ W4/6A	
5.6	B00 30280	2.80	22	65	6	WOHX 02T0..	230.06	10600
6.9	B00 30290	3.45	36	80	6	WOHX 02T0..	230.06	00600[1]
9.0	B00 00680	4.45	48	90	8	TO.X 06T1..	394.76	00800[1]
11.0	B00 00690	5.45	60	95	10	TO.X 06T1..	417.62	01000[1]

1) Carbide version

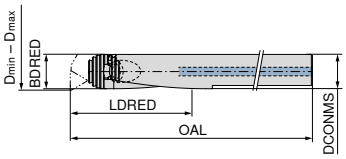

TORX® Screws

Spare parts Insert	62 950 ... £ W7/6B	
WOHX 02T0..	2.97	11800
TO.X 06T1..	3.41	09700

→ Page 57–59
Find suitable indexable inserts here.

MicroKom – Carbide boring shank

▲ for boring head 62 854 ...
▲ can only be used with adapter 62 851 ...
▲ with internal coolant supply





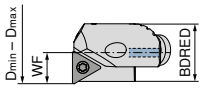
Dmin - Dmax mm	KOMET no.	OAL mm	BDRED mm	LDRED mm	DCONMS mm	62 853 ... £ W4/6A	
13 - 17	G10 12060	120	12	75	12	466.26	01300
17 - 22	G10 12070	140	16	100	16	562.38	01700
22 - 26	G10 12080	140	16	100	16	562.38	02200


Fixing screw

Spare parts DCONMS	62 950 ... £ W7/6B	
12	6.56	19700
16	6.56	19800

MicroKom – Boring head

▲ for boring shank 62 853 ...





Dmin - Dmax mm	KOMET no.	WF mm	BDRED mm	Insert	62 854 ... £ W4/6A	
13 - 15	G10 12621	6.45	12	TO.X 0902..	217.90	01300
15 - 17	G10 12841	7.45	12	TO.X 0902..	222.44	01500
17 - 19	G10 12711	8.45	16	TO.X 0902..	236.21	01700
19 - 22	G10 12861	9.45	16	TO.X 0902..	243.83	01900
22 - 26	G10 12731	10.95	16	TO.X 0902..	243.83	02200

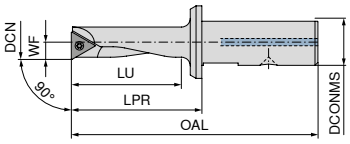

TORX® Screws

Spare parts Insert	62 950 ... £ W7/6B	
TO.X 0902..	3.13	12000

→ Page 58+59
Find suitable indexable inserts here.

MicroKom – Boring bar

▲ can only be used with adapter 62 851 ...
▲ with internal coolant supply





62 856 ...

DCN mm	KOMET no.	OAL mm	LPR mm	LU mm	DCONMS mm	WF mm	Insert	£ W4/6A	
5.6	B00 37010	48	26	20	8	2.75	WOHX 02T0..	220.96	**05600**
6.5	B00 37020	52	30	24	8	3.20	WOHX 02T0..	213.35	**06500**
8.0	B00 15510	57	35	28	8	3.95	TO.X 06T1..	208.81	**08000**
8.0	B00 15610	75	35	28	16	3.95	TO.X 06T1..	211.88	**00800**
10.0	B00 15620	80	40	33	16	4.95	TO.X 06T1..	213.35	**01000**
11.0	B00 15710	85	45	38	16	5.45	TO.X 0902..	217.90	**01100**
12.0	B00 15530	67	45	39	8	5.95	TO.X 0902..	220.96	**11200**
12.0	B00 15630	85	45	38	16	5.95	TO.X 0902..	220.96	**01200**
14.0	B00 15640	90	50	43	16	6.95	TO.X 0902..	224.05	**01400**
16.0	B00 15650	95	55	49	16	7.95	TO.X 0902..	236.21	**01600**
18.0	B00 15661	100	60	54	16	8.95	TO.X 0902..	245.30	**01800**
19.0	B00 15751	105	65	59	16	9.45	TO.X 0902..	245.30	**01900**
20.0	B00 15671	105	65	59	16	9.95	TO.X 0902..	246.90	**02000**
22.0	B00 15681	105	65	59	16	10.95	TO.X 0902..	266.69	**02200**
24.0	B00 15691	105	65	60	16	11.95	TO.X 0902..	268.17	**02400**



TORX® Screws

62 950 ...

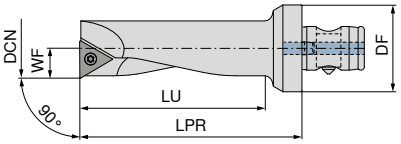
Spare parts DCN	£ W7/6B	
5,6 - 6,5	2.97	**11800**
8 - 10	3.58	**12800**
11 - 24	3.13	**12000**

→ **Page 57–59**
Find suitable indexable inserts here.

MicroKom – Boring bar

▲ with thro' coolant

ABS





62 857 ...

DCN mm	KOMET no.	WF mm	DF mm	LU mm	LPR mm	Insert	£ W4/6A	
8	B00 25610	3.95	32	26	42	TO.X 06T1..	361.20	**07989**
9	B00 25700	4.45	32	32	48	TO.X 06T1..	364.27	**21989**
10	B00 25620	4.95	32	32	48	TO.X 06T1..	364.27	**08989**
11	B00 25710	5.45	32	41	57	TO.X 0902..	374.82	**23989**
12	B00 25630	5.95	32	41	57	TO.X 0902..	373.35	**09989**
14	B00 25640	6.95	32	49	64	TO.X 0902..	376.44	**10989**
16	B00 25650	7.95	32	57	72	TO.X 0902..	387.13	**11989**
18	B00 25661	8.95	32	57	72	TO.X 0902..	397.69	**13989**
20	B00 25671	9.95	32	67	82	TO.X 0902..	403.84	**15989**
22	B00 25681	10.95	32	68	82	TO.X 0902..	412.92	**17989**
24	B00 25691	11.95	32	68	82	TO.X 0902..	420.53	**19989**



TORX® Screws

62 950 ...

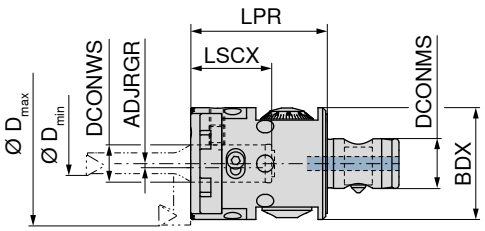
Spare parts Insert	£ W7/6B	
TO.X 06T1..	3.58	**12800**
TO.X 0902..	3.13	**12000**

→ **Page 58+59**
Find suitable indexable inserts here.

MicroKom – hi.flex micro – precision adjustment head

- ▲ for MicroKom boring bars and serrated bodies with DCONMS = 12 mm
- ▲ with thro' coolant supply
- ▲ LSCX = Recess depth of boring bar
- ▲ max. speed 30,000 rpm with slide in centre position
- ▲ UltraMini / EcoCut boring bar adapter for diameters from 0.5 mm

ABS





NEW

Analogue

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	BDX mm	LPR mm	LSCX mm	ADJRGR mm	WT kg	62 800 ... £ W4/6A
0,5 - 60	M05 03000	ABS 32	12	16	36	44	26	-0,25 - 2,5	0.3	1,334.63 **06089**



Disk spring



Grubscrew

Spare parts for Article no.		62 950 ... £ W7/6B		62 950 ... £ W7/6B
62 800 06089	Ø5,5x1,0	7.07 **53700**	M5x8 DIN913	1.33 **53500**

A detailed operating manual is available for download in the online shop next to the product.

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

→ **Page 6**
Here you will find a detailed system overview.

MicroKom – Precision spindle set hi.flex micro

NEW

Scope of supply:

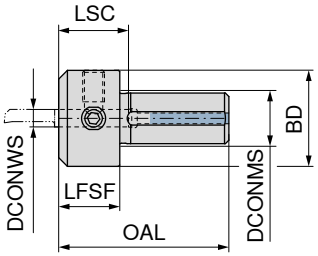
- ▲ **1 plastic case**
- ▲ **1 precision adjustment head**
- ▲ **1 insert holder**
  - – 62 863 14400 Ø 25 – Ø 44 mm
- ▲ **3 boring bars**
  - – 62 845 00800 Ø 8 mm
  - – 62 845 01400 Ø 14 mm
  - – 62 845 02000 Ø 20 mm
- ▲ **2 adapters**
  - – 62 851 12499 Ø 4 mm
  - – 62 851 12699 Ø 6 mm
- ▲ **1 serrated body**
  - – 62 861 04400 Ø 25 – Ø 44 mm
- ▲ **1 filling piece**
  - – 62 862 01200 Ø 12x24 mm
- ▲ **10 indexable inserts**
  - – 5 pieces 62 601 90206 – TOGX06T102EN-14 BK60
  - – 5 pieces 62 601 70409 – TOGX090204EN-14 BK60
- ▲ **1 cylindrical screw**
  - – 62 950 53600 M5x16 mm
- ▲ **1 screwdriver**
  - – SW2,5



D_{min} - D_{max} mm	62 800 ... £ W4/6A
8 - 60	1,958.06 **99989**

MicroKom – UltraMini / EcoCut boring bar adapter

▲ for **hi.flex micro**
▲ 4 clamping flats (offset by 90°) on Ø DCONMS
▲ with thro' coolant supply





NEW

62 851 ...

DCONWS mm	KOMET no.	OAL mm	BD mm	LFSF mm	LSC mm	DCONMS mm	£ W4/6A	
4	M05 90900	39	22	14	18	12	173.01	**12499**
5	M05 90910	39	22	14	18	12	173.01	**12599**
6	M05 90920	39	22	14	18	12	173.01	**12699**
7	M05 90930	39	25	14	18	12	173.01	**12799**
8	M05 90940	39	25	14	18	12	173.01	**12899**


Clamping screw

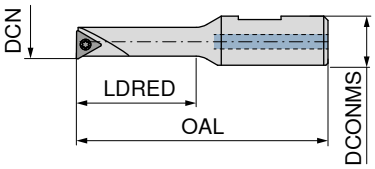
70 950 ...

Spare parts DCONWS		£ 2A/28	
4 - 5	M5x10 ISO 4026	3.79	**867**
6 - 8	M8x1x8 - SW4	3.79	**123**

Suitable UltraMini / EcoCut tools can be found in → **Chapters 10 and 12.**

MicroKom – Boring bar for hi.flex micro

▲ with thro' coolant





NEW

62 845 ...

DCN mm	KOMET no.	OAL mm	LDRED mm	DCONMS mm	Insert	£ W4/6A	
8	B05 80080	58.88	28.0	12	TO.X 06T1..	116.74	**00800**
14	B05 80140	70.00	39.5	12	TO.X 0902..	116.74	**01400**
20	B05 80200	85.00	54.4	12	TO.X 0902..	116.74	**02000**


TORX® Screws

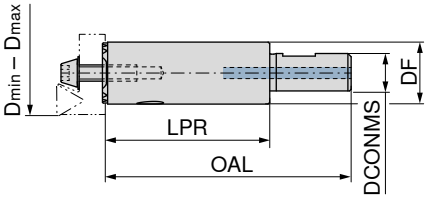
62 950 ...

Spare parts Insert		£ W7/6B	
TO.X 06T1..	M2x3,8/IP6	3.58	**12800**
TO.X 0902..	M2,6x5,2 - 08IP	3.13	**12000**

MicroKom – Serrated body for hi.flex micro

▲ with thro' coolant

Scope of supply:
without insert holder





NEW

D_{min} - D_{max} mm	KOMET no.	DCONMS mm	OAL mm	LPR mm	DF mm	62 861 ... £ W4/6A	
25 - 44	M05 90120	12	76.39	51.39	19	80.78	**04400**



Cylindrical screw

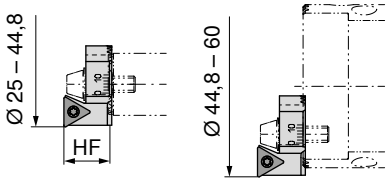


Disk spring

Spare parts

DCONMS	62 950 ... £ W7/6B		62 950 ... £ W7/6B	
12	M5x16	3.21 **53600**	10x5,2x0,3	2.07 **19100**

MicroKom – Insert holder for hi.flex micro





NEW

DCN mm	DCX mm	KOMET no.	HF mm	Insert	62 863 ... £ W4/6A	
25	60	M05 20110	14.48	TO.. 0902	191.83	**14400**



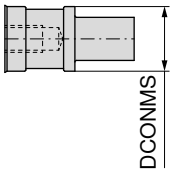
TORX® Screws

Spare parts

Insert	62 950 ... £ W7/6B	
TO.. 0902	3.13	**09900**

MicroKom – Filling piece for hi.flex micro

▲ For targeted redirecting of the thro' coolant to the cutting edge when using insert holders with diameters from 45 mm





NEW

DCONMS mm	KOMET no.	62 862 ... £ W4/6A	
12	M05 90700	12.08	**01200**

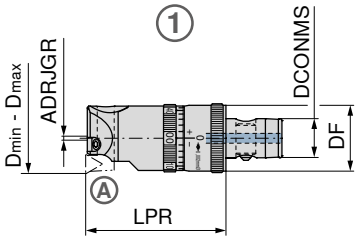
→ **Page 58+59**
Find suitable indexable inserts here.

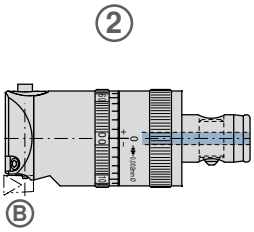
MicroKom – M03Speed – precision adjustment head

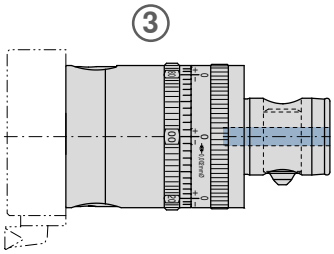
Scope of supply:

Precision adjustment head with clamping screw
Please order insert holder and indexable insert separately

ABS









D_{min} - D_{max} mm	KOMET no.	Adapter	DCONMS mm	DF mm	LPR mm	Fig.	Suitable insert holders	ADJRGR mm	WT kg	62 815 ... £ W4/6A	
24,8 - 33,0	M03 00115	ABS 25	13	25	50	1	62 864 03300	0,25 Ø	0.15	2,322.50	**03390**
29 - 39	M03 00515	ABS 25	13	25	50	1	62 864 03900	0,4 Ø	0.17	2,373.78	**03990**
38 - 50	M03 01025	ABS 32	16	32	60	2	62 864 05000	0,4 Ø	0.35	2,491.00	**05089**[1)]
49 - 63	M03 01535	ABS 40	20	40	70	2	62 864 08000	0,4 Ø	0.63	2,806.04	**06388**[1)]
62 - 80	M03 02045	ABS 50	28	50	75	2	62 864 08000	0,6 Ø	1.12	2,989.20	**08097**[1)]
79 - 103	M03 02555	ABS 63	34	63	80	2	62 864 10300	0,6 Ø	1.91	3,285.20	**10396**[1)]
38 - 63	M03 20170	ABS 32	16	32	81	3		0,4 Ø	0.35	2,476.35	**06389**[2)]
62 - 103	M03 20140	ABS 50	28	50	103	3		0,6 Ø	1.30	2,476.35	**10397**[2)]
100 - 206	M03 20090	ABS 63	34	63	106	3		0,6 Ø	1.91	2,476.35	**20696**[2)]

1) With dynamic balancing compensation
2) With dynamic balancing compensation / can only be used with interchangeable bridge (Art. No. 62 865 ...)


TORX® Screws


Clamping screw


Grub screw

Spare parts for Article no.		62 950 ... £ W7/6B			62 950 ... £ W7/6B			10 950 ... £ W7/6B	
62 815 03390							M4x0,5	2.31	**15600**
62 815 03990							M4x0,5	2.31	**15600**
62 815 05089	M3,5x7,3 - 10IP	2.97	**12600**				M4x0,5	2.31	**15600**
62 815 06388	M3,5x7,3 - 10IP	2.97	**12600**				M5x0,5	2.31	**15700**
62 815 08097	M3,5x7,3 - 10IP	2.97	**12600**				M5x0,5	2.31	**15700**
62 815 10396	M5x9,4/IP6	3.46	**45400**				M6x8 - SW3	1.28	**11300**
62 815 06389				M8x10	8.45	**37400**			
62 815 10397				M8x10	8.45	**37400**			
62 815 20696	M5x9,4/IP6	3.46	**45400**	M8x10	8.45	**37400**			

The TORX® screws 62 950 12600 / 62 950 45400 are designed for mounting the insert holder on the precision adjustment head.

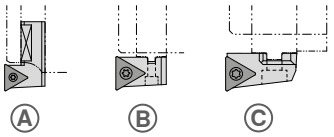
A detailed operating manual is available for download in the online shop next to the product.

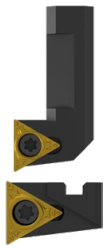
Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

→ **Page 8**
Here you will find a detailed system overview.

MicroKom – M03Speed – Insert holder

Scope of supply:
without inserts
incl. mounting screws





For precision adjustment head	For precision adjustment head (with interchangeable bridge)	KOMET no.	Insert	Fig.	62 864 ... £ W4/6A	
62 815 03390		M03 10011	TO.. 06T1	A	207.20	**03300**
62 815 03990		M03 10021	TO.. 06T1	A	207.20	**03900**
62 815 05089	62 815 06389 (62 865 05100 / 62 865 06300)	M03 10033	TO.. 06T1	B	170.70	**05000**
62 815 06388 / 62 815 08097	62 815 10397 (62 865 08300 / 62 865 10300)	M03 10043	TO.. 0902	B	170.70	**08000**
62 815 10396		M03 10063	TO.. 0902	B	181.41	**10300**
	62 815 20696 (62 865 13000 / 62 865 16800 / 62 865 20600)	M03 10070	TO.. 0902	C	181.41	**20600**

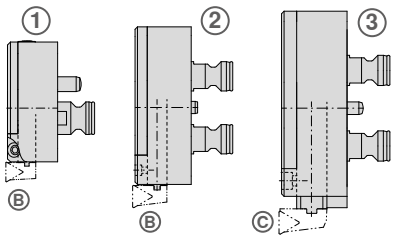

TORX® Screws

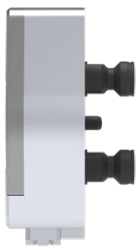
Spare parts Insert		62 950 ... £ W7/6B	
TO.. 06T1	M2x4,9/IP6	3.41	**09700**
TO.. 0902	M2,6x5,2 - 08IP	3.13	**12000**

→ **Page 58+59**
Find suitable indexable inserts here.

MicroKom – M03Speed – Interchangeable bridge

Scope of supply:
without insert holder





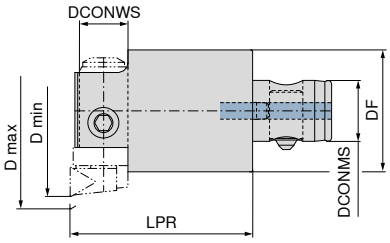
D_{min} - D_{max} mm	KOMET no.	Fig.	WT kg	For precision adjustment head	Suitable insert holders	62 865 ... £ W4/6A	
38 - 51	M03 20180	1	0.06	62 815 06389	62 864 05000	847.24	**05100**
50 - 63	M03 20190	1	0.08	62 815 06389	62 864 05000	871.71	**06300**
62 - 83	M03 20150	2	0.20	62 815 10397	62 864 08000	908.18	**08300**
82 - 103	M03 20160	2	0.24	62 815 10397	62 864 08000	911.26	**10300**
100 - 130	M03 20100	3	0.39	62 815 20696	62 864 20600	998.17	**13000**
128 - 168	M03 20110	3	0.49	62 815 20696	62 864 20600	1,144.40	**16800**
166 - 206	M03 20120	3	0.59	62 815 20696	62 864 20600	1,319.64	**20600**

MicroKom – FF precision adjustment head

Scope of supply:

Head with clamping screw
Without precision turning insert

ABS





D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	DF mm	LPR mm	WT kg	62 810 ... £ W4/6A	
29,5 - 36	B30 11010	ABS 25	10	13	25	50	0.17	361.20	**03690**
35,5 - 42	B30 11020	ABS 25	10	13	25	50	0.18	361.20	**04290**
39 - 45	B30 12010	ABS 32	12	16	32	60	0.35	376.44	**04589**
44 - 50	B30 12020	ABS 32	12	16	32	60	0.35	376.44	**05089**
47 - 57	B30 13010	ABS 40	16	20	40	60	0.52	399.29	**05788**
56 - 66	B30 13020	ABS 40	16	20	40	60	0.52	399.29	**06688**
58 - 71	B30 14010	ABS 50	20	28	50	70	0.97	441.93	**07197**
70 - 83	B30 14020	ABS 50	20	28	50	70	1.05	441.93	**08397**
79 - 94	B30 15010	ABS 63	25	34	63	70	1.58	511.97	**09496**
93 - 108	B30 15020	ABS 63	25	34	63	70	1.61	511.97	**10896**
100 - 121	B30 16010	ABS 80	32	46	80	90	3.33	612.66	**12192**
120 - 141	B30 16020	ABS 80	32	46	80	90	3.37	612.66	**14192**
138 - 159	B30 17010	ABS 100	32	56	100	90	6.56	708.62	**15991**
158 - 179	B30 17020	ABS 100	32	56	100	90	6.80	708.62	**17991**
178 - 199	B30 17030	ABS 100	32	56	100	90	6.61	708.62	**19991**



Clamping screw

Spare parts for Article no.		62 950 ... £ W7/6B	
62 810 03690	M6x6/SW3	1.28	**44700**
62 810 04290	M6x6/SW3	1.28	**44700**
62 810 04589	M8x8 - SW4	1.97	**14700**
62 810 05089	M8x10 - SW4	2.31	**44800**
62 810 05788	M10x10/SW5	2.31	**44900**
62 810 06688	M10x10/SW5	2.31	**44900**
62 810 07197	M12x12/SW6	1.28	**45000**
62 810 08397	M12x12/SW6	1.28	**45000**
62 810 09496	M16x16/SW8	1.28	**45100**
62 810 10896	M16x16/SW8	1.28	**45100**
62 810 12192	M20x20 - SW10	2.57	**45200**
62 810 14192	M20x20 - SW10	2.57	**45200**
62 810 15991	M20x30/SW10	2.95	**45300**
62 810 17991	M20x20 - SW10	2.57	**45200**
62 810 19991	M20x20 - SW10	2.57	**45200**

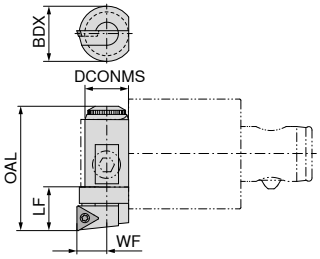
Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

→ **Page 8**
Here you will find a detailed system overview.

MicroKom – FF precision turning insert

Scope of supply:

Precision turning insert with fixing screw
Please order indexable insert separately





5

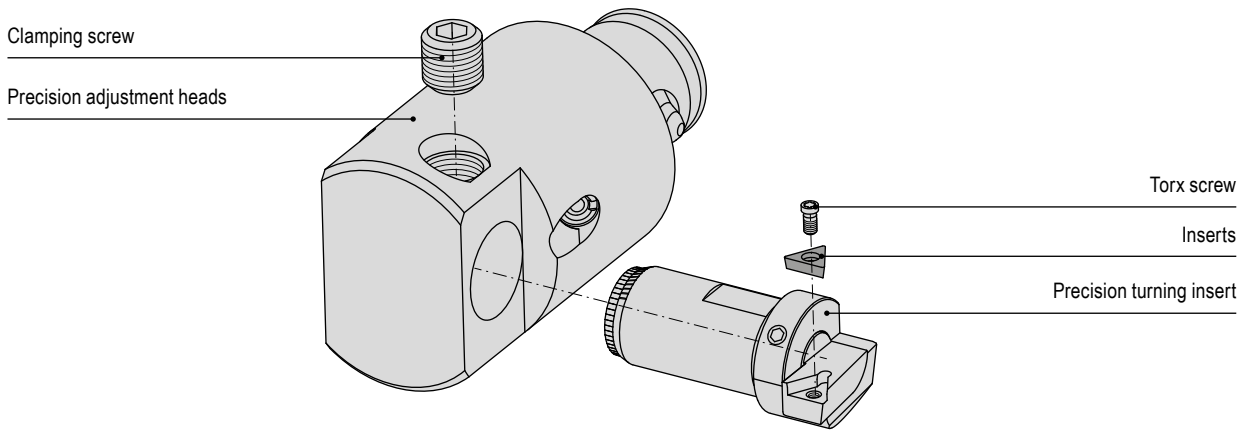
for	DCONMS mm	KOMET no.	LF mm	WF mm	BDX mm	OAL mm	Insert	62 855 ... £ W4/6A	
62 810 03690 / 62 810 04290	10	M30 20011	11.0	7.5	14	28.5	TO.. 06T1	454.10	**03000**
62 810 04589 / 62 810 05089	12	M30 20021	12.5	9.0	16	37.5	TO.. 06T1	505.96	**03900**
62 810 05788 / 62 810 06688	16	M30 20031	16.0	11.0	20	45.0	TO.. 0902	554.75	**04700**
62 810 07197 / 62 810 08397	20	M30 20041	18.0	14.5	25	56.0	TO.. 0902	641.51	**05800**
62 810 09496 / 62 810 10896	25	M30 20051	21.6	16.0	32	77.5	TO.. 1403	697.92	**07900**
62 810 12192 / 62 810 14192	32	M30 20061	25.5	19.0	40	97.0	TO.. 1403	821.43	**10000**
62 810 15991 / 62 810 17991 / 62 810 19991	32	M30 20071	25.5	19.0	40	131.0	TO.. 1403	882.41	**13800**


TORX® Screws


Screwdriver

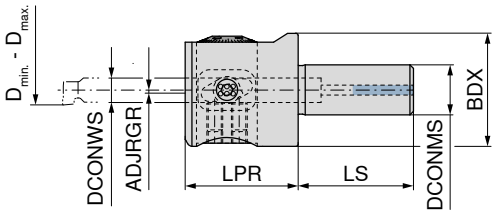
Spare parts DCONMS	62 950 ...			80 950 ...		
		£ W7/6B			£ Y7	
10	M2x3,8/IP6	3.58	**12800**			
12	M2x3,8/IP6	3.58	**12800**			
16	M2,6x5,2 - 08IP	3.13	**12000**	T08 - IP	11.07	**060**
20	M2,6x6,2 - 08IP	3.13	**09900**	T08 - IP	11.07	**060**
25	M3,5x7,3 - 10IP	2.97	**12600**	T10 - IP	10.85	**062**
32	M3,5x7,3 - 10IP	2.97	**12600**	T10 - IP	10.85	**062**

→ **Page 58+59**
Find suitable indexable inserts here.



SpinTools – Micro-Boring Head

▲ max. speed 30,000 U/min
▲ Digital variant: please order the digital stick separately





D_{min} - D_{max}	BDX	DCONWS	DCONMS	LPR	LS	ADJRGR	WT	Analogue 62 382 ... £ W4		Digital 62 386 ... £ W4	
mm	mm	mm	mm	mm	mm	mm	kg				
0,3 - 7,1	25	4	10	25	25	0 - 1,7	0.10	1,062.25	025	1,341.71	025
0,3 - 19,1	32	7	16	32	40	0 - 2,75	0.25	1,101.07	032	1,443.74	032


Clamping screw ST


Locking screw

Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7	
62 382 025 / 62 386 025	M5x4	2.22	214	M4x8	2.23	228
62 382 032 / 62 386 032	M6x5	2.22	215	M6x10	2.23	229

A detailed operating manual is available for download in the online shop next to the product.

→ **Page 7**
Here you will find a detailed system overview.

SpinTools – Digital Stick

▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
▲ revised software for even more precise adjustment

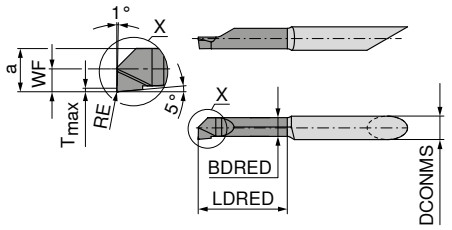
Scope of supply:
incl. AAA Battery



62 309 ... £ W4	
344.85	00100

A detailed operating manual is available for download in the online shop next to the product.

SpinTools – Solid carbide boring bar





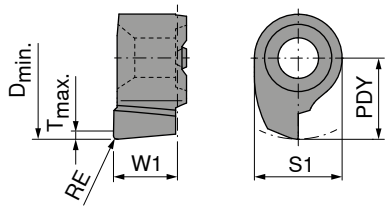
62 383 ...

D_{min} - D_{max} mm	DCONMS mm	LDRED mm	RE mm	a mm	BDRED mm	WF mm	$T_{max.}$ mm	£ W4	
0,3 - 0,7	4	1.2		0.25	0.15	0.15	0.03	46.83	**003**
0,6 - 1,1	4	2.5		0.55	0.46	0.30	0.05	46.83	**006**
1,0 - 2,3	4	4.0	0.05	0.95	0.65	0.50	0.10	47.64	**010**
2,2 - 3,3	4	6.0	0.05	2.00	1.55	1.10	0.20	39.89	**022**
3,2 - 4,3	4	10.2	0.05	3.00	2.55	1.60	0.20	40.94	**032**
3,9 - 7,1	4	15.2	0.05	3.70	3.45	1.95	0.30	44.11	**039**
5,2 - 6,3	7	20.3	0.05	5.00	4.25	2.60	0.50	61.75	**052**
6,2 - 7,3	7	20.3	0.05	6.00	5.25	3.10	0.50	61.75	**062**
6,9 - 8,1	7	25.4	0.20	6.70	6.25	3.45	0.50	55.16	**069**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 66

SpinTools – Carbide inserts





62 384 ...

D_{min} - D_{max} mm	RE mm	PDY mm	S1 mm	W1 mm	$T_{max.}$ mm	£ W4	
6,9 - 8,1	0.2	3.45	4.8	3.5	1	22.54	**069**
7,9 - 9,1	0.2	3.95	4.8	3.5	1	22.54	**079**
8,9 - 10,1	0.2	4.45	4.8	3.5	1	22.54	**089**
9,9 - 12,1	0.2	4.95	7.0	3.9	1	27.45	**099**
11,9 - 14,1	0.2	5.95	7.0	3.9	1	27.45	**119**
13,9 - 19,1	0.2	6.95	7.0	3.9	1	27.45	**139**

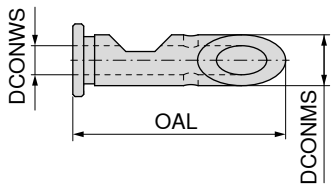
P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 66

SpinTools – Toolholder for carbide inserts

▲ with thro' coolant
▲ appropriate inserts for article no. 62 384 ... can be found in the table above

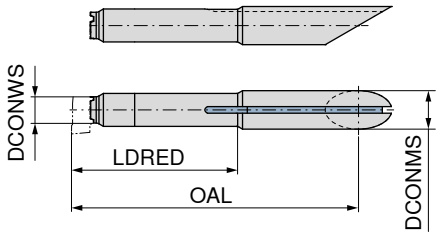
SpinTools – Adapter





62 335 ...

DCONMS mm	DCONWS mm	OAL mm	£ W4	
7	4	30	78.31	**407**





62 385 ...

DCONMS mm	LDRED mm	DCONWS mm	OAL mm	£ W4	
7	30	4.8	56	208.22	**330**
7	35	7.0	61	222.35	**350**


TORX® Screws


Key D

62 950 ... **80 950 ...**

Spare parts for Article no.	£ W7		£ Y7	
62 385 330	12.16	**007**	17.97	**124**
62 385 350	12.16	**094**	19.68	**126**

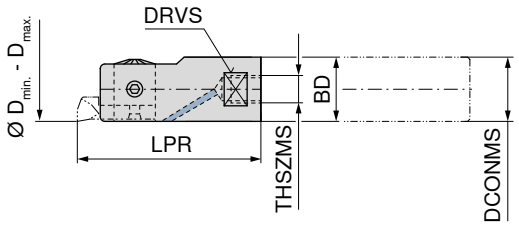
5

SpinTools – Precision boring head

▲ with thro' coolant

Scope of supply:

Fine boring head without shank, without insert holder





BD	D_{min} - D_{max}	THSZMS	DCONMS	LPR	DRVS	WT	62 304 ... £ W4	
mm	mm		mm	mm	mm	kg		
14	14,7 - 17,1	M6	14	39.8	12	0.05	925.39	**017**
16	16,7 - 20,1	M10	16	39.8	14	0.07	925.39	**020**
19	19,7 - 24,1	M10	18	39.8	16	0.09	925.39	**024**


TORX® Screws


Key D


Clamping screw ST

Spare parts for Article no.	62 950 ... £ W7		80 950 ... £ Y7		62 950 ... £ W7	
62 304 017	M2,5x6	5.88 **022**	T07	13.73 **109**	M3x2	3.89 **017**
62 304 020	M2,5x6	5.88 **022**	T07	13.73 **109**	M3x2,5	3.89 **018**
62 304 024	M2,5x6	5.88 **022**	T07	13.73 **109**	M3x4	3.89 **019**

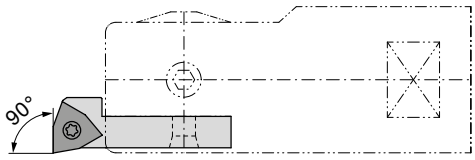
→ **Page 73**
Here you will find information about the working length.

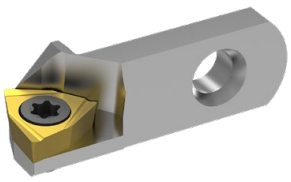
→ **Page 9**
Here you will find a detailed system overview.

SpinTools – Insert holder, 90°

Scope of supply:

without insert





Insert	62 317 ... £ W4	
WC.. 0201..	161.96	**024**


TORX® Screws


Key D

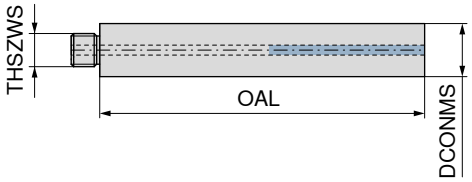
Spare parts Insert	62 950 ... £ W7		80 950 ... £ Y7	
WC.. 0201..	M2x3,7	5.88 **021**	T06	14.85 **108**

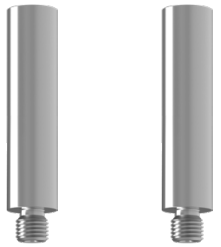
→ **Page 62**
Find suitable indexable inserts here.

SpinTools – High-speed carbide boring bars

▲ with threaded mounting stud made of high quality steel
▲ with thro' coolant
▲ Shank clamping length 35 mm
▲ Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:
boring shank, without boring head



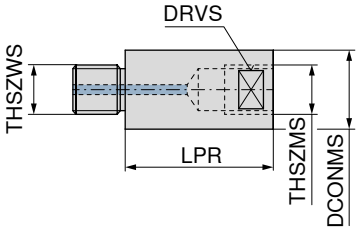


DCONMS mm	OAL mm	THSZWS	62 353 ... £ W4		62 353 ... £ W4	
14	110	M6	395.27	**014**		
16	120	M10	439.37	**016**		
18	100	M10			464.09	**018**
18	140	M10			640.53	**118**
18	180	M10			829.33	**218**

→ **Page 73**
Here you will find information about the working length.

SpinTools – Shank extensions (tempered steel)

▲ with thro' coolant



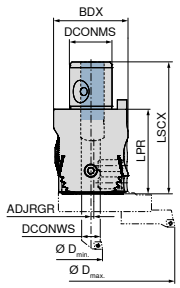


DCONMS mm	LPR mm	THSZWS	THSZMS	DRVS mm	62 349 ... £ W4	
16	32	M10	M10	14	72.98	**732**
16	64	M10	M10	14	83.64	**764**

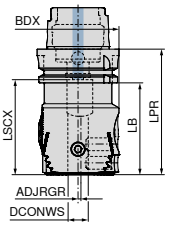
SpinTools – Multi-Head – boring and fine boring head

▲ **For boring bars Ø 16 mm and bridges**
▲ With internal coolant supply
▲ LSCX = Boring depth

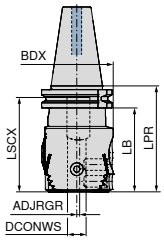
Scope of supply:
without boring bar, bridge and insert holder



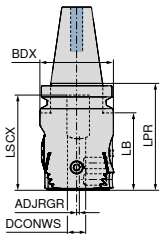
STM Modular



HSK-A 63



SK 40



MAS-BT 40


STM Modular


HSK-A


SK


MAS-BT

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	LPR mm	LB mm	LSCX mm	ADJRGR mm	WT kg	STM Modular 62 372 ... £ W4		HSK-A 62 373 ... £ W4		SK 62 373 ... £ W4		MAS-BT 62 373 ... £ W4	
3 - 320	STM 36	36	63	71.6		111.6	0 - 2,7	1.69	1,333.99	**653**						
3 - 320	SK 40		63	91.6	72.5	81.6	0 - 2,7	1.90					1,632.20	**153**		
3 - 320	BT 40		63	91.6	69.0	81.6	0 - 2,7	2.20							1,632.20	**453**
3 - 320	HSK-A 63		63	96.6	70.6	73.0	0 - 2,7	1.90			1,632.20	**653**				


Clamping screw


Screw for drivers


Driver


Clamping screw MH


Flange screw

Spare parts D_{min} - D_{max}	Clamping screw 62 950 ... £ W7		Screw for drivers 62 950 ... £ W7		Driver 62 950 ... £ W7		Clamping screw MH 62 950 ... £ W7		Flange screw 62 950 ... £ W7	
3 - 320	2.05	**227**	2.22	**167**	69.09	**040**	3.65	**226**	5.84	**225**

A detailed operating manual is available for download in the online shop next to the product.

→ **Page 50–56**
Here you will find the suitable base adaptors.

→ **Page 7**
Here you will find a detailed system overview.

SpinTools – Multi-Head – Boring and Fine Boring Head Set

▲ suitable for Ø 3 – Ø 320 mm

Scope of supply:

▲ **1 Tool Kit**
▲ **1 Multi-Head-Boring- and Fine Boring Head (depending on selection)**
▲ **4 Boring bars**
– 62 345 015 Ø 9.75 – Ø 15.1 mm
– 62 345 020 Ø 14.75 – Ø 20.1 mm
– 62 345 024 Ø 19.75 – Ø 25.1 mm
– 62 345 029 Ø 24.75 – Ø 30.1 mm
▲ **2 Boring tools, adjustable**
– 62 375 048 Ø 29.75 – Ø 48.1 mm
– 62 375 088 Ø 47.75 – Ø 88.1 mm
▲ **incl. insert holder**
– 62 377 048 CC.. 0602
– 62 377 088 CC.. 0602
▲ **1 Bridge**
– 62 376 164 Ø 86 – Ø 164 mm
▲ **1 Torx-Key – T7**
▲ **1 6-adjustment key – SW5**

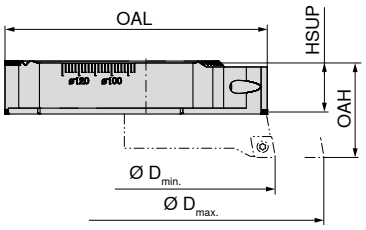


D_{min} - D_{max} mm	Adapter	STM Modular 62 374 ... £ W4		HSK-A 62 379 ... £ W4		SK 62 379 ... £ W4		MAS-BT 62 379 ... £ W4	
9,75 - 164	HSK-A 63			2,825.04	**996**				
9,75 - 164	BT 40							2,825.04	**993**
9,75 - 164	SK 40					2,825.04	**990**		
9,75 - 164	STM 36	2,537.39	**999**						

SpinTools – Bridge for Multi-Head

▲ Ø adjustable
▲ With internal coolant supply

Scope of supply:
without tool holder
including fixation screws

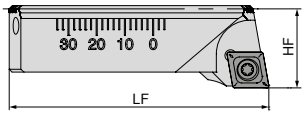


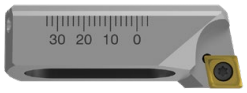


D_{min} - D_{max} mm	OAL mm	HSUP mm	OAH mm	62 376 ... £ W4	
86 - 164	80	15	29	308.78	164
162 - 320	158	15	29	462.32	320

SpinTools – Tool holder for boring bar and bridge Multi-Head

Scope of supply:
without inserts
incl. mounting screws

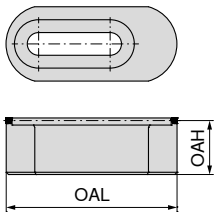




for	LF mm	HF mm	Insert	62 377 ... £ W4	
62 375 048	28.2	12	CC.. 0602	225.87	048
62 375 088 / 62 376 ...	46.0	14	CC.. 0602	248.80	088
62 375 088 / 62 376 ...	46.0	14	CC.. 09T3	259.39	089

SpinTools – Counterweight

Scope of supply:
Including fixation screw





for	OAL mm	OAH mm	62 378 ... £ W4	
62 376 ...	38	12	88.23	320

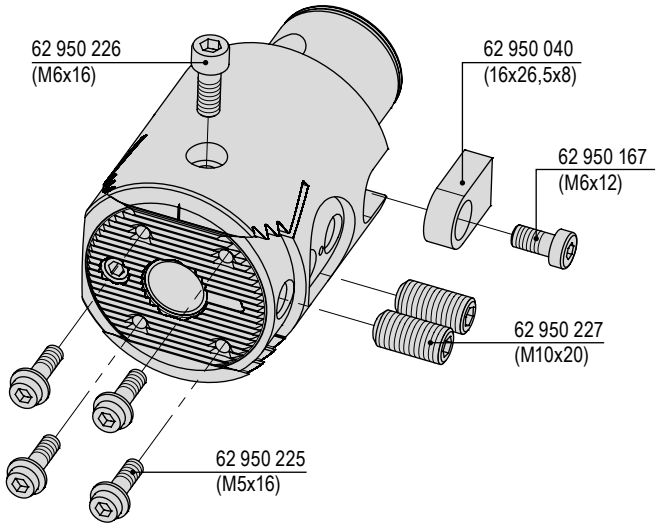

TORX® Screws


Key D


Flange screw

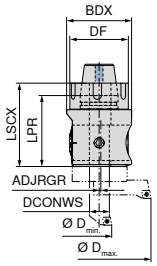
Spare parts for Article no.	62 950 ... £ W7		80 950 ... £ Y7		62 950 ... £ W7	
62 377 048 / 62 377 088	5.88	022	13.73	109	5.84	225
62 377 089	6.85	023	16.32	113	5.84	225

→ Page 63
Find suitable indexable inserts here.

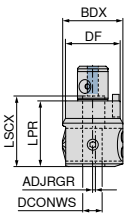


SpinTools – Single point boring heads – Modular system

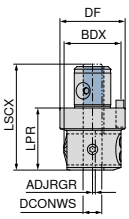
▲ LSCX = Recess depth of boring bar
▲ With thro' coolant supply
▲ Digital variant: please order the digital stick separately



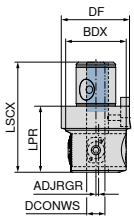
ER 32



without flange



with flange



Digital with collar



ER 32



without flange STM Modular



with flange STM Modular



Digital with collar STM Modular

D_{min} - D_{max} mm	Adapter	BDX mm	DF mm	DCONWS mm	LPR mm	LSCX mm	ADJRGR mm	WT kg	62 332 ... £ W4		62 332 ... £ W4		62 332 ... £ W4		62 326 ... £ W4	
3,0 - 88,1	ER 32	55	49.5	16	60	86.5	0 - 2,7	0.43	1,310.31	**732**						
3,0 - 88,1	STM 28	55	50.0	16	60	62.0	0 - 2,7	0.98			1,048.19	**553**				
3,0 - 88,1	STM 36	55	63.0	16	60	101.0	0 - 2,7	1.26					1,048.19	**653**		
3,0 - 88,1	STM 36	55	63.0	16	60	106.0	0 - 2,7	0.43							1,432.23	**036**



Clamping screw



Screw for drivers



Driver



Clamping screw ST

Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7			62 950 ... £ W7			62 950 ... £ W7	
62 332 732	M10x16	2.22	**047**							M10x8	2.22	**046**
62 332 553	M10x16	2.22	**047**	M5x10	2.22	**166**	12x20x6	54.40	**039**	M10x8	2.22	**046**
62 332 653	M10x16	2.22	**047**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M10x8	2.22	**046**
62 326 036	M10x16	2.22	**047**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M10x8	2.22	**046**

A detailed operating manual is available for download in the online shop next to the product.

→ **Page 50–56**
Here you will find the suitable base adaptors.

→ **Page 7**
Here you will find a detailed system overview.

SpinTools – Digital Stick

▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
▲ revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery

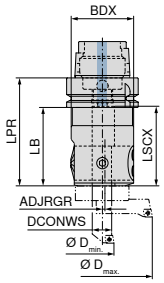


62 309 ... £ W4	
344.85	**00100**

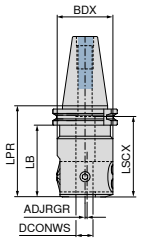
A detailed operating manual is available for download in the online shop next to the product.

SpinTools – Single point boring head – Monoblock analogue

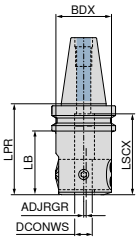
▲ LSCX = Boring depth
▲ With internal coolant supply



HSK-A 63



SK 40



MAS-BT 40



HSK-A



SK



MAS-BT

5

D_{min} - D_{max} mm	Adapter	BDX mm	DCONWS mm	LPR mm	LB mm	LSCX mm	ADJRGR mm	WT kg	62 333 ... £ W4		62 333 ... £ W4		62 333 ... £ W4	
3,0 - 88,1	HSK-A 63	55	16	95	69	70	0 - 2,7	1.66	1,331.18	**653**				
3,0 - 88,1	SK 40	55	16	90	70	80	0 - 2,7	1.83			1,331.18	**153**		
3,0 - 88,1	BT 40	55	16	90	63	80	0 - 2,7	1.90					1,331.18	**453**



Clamping screw

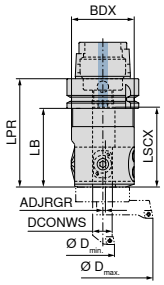


Clamping screw ST

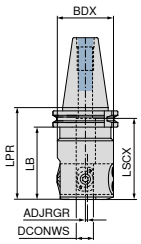
Spare parts D_{min} - D_{max}		62 950 ... £ W7			62 950 ... £ W7	
3,0 - 88,1	M10x16	2.22	**047**	M10x8	2.22	**046**

SpinTools – Single point boring head – Monoblock digital

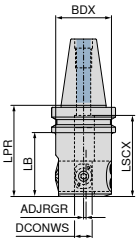
▲ LSCX = Recess depth of boring bar
▲ With thro' coolant supply
▲ Digital variant: please order the digital stick separately



HSK-A 63



SK 40



MAS-BT 40



Digital HSK-A



Digital SK



Digital MAS-BT

D_{min} - D_{max} mm	Adapter	BDX mm	DCONWS mm	LPR mm	LB mm	LSCX mm	ADJRGR mm	WT kg	62 363 ... £ W4		62 363 ... £ W4		62 363 ... £ W4	
3,0 - 88,1	HSK-A 63	55	16	95	70	70	0 - 2,7	1.66	2,022.28	**688**				
3,0 - 88,1	SK 40	55	16	90	71	80	0 - 2,7	1.83			2,022.28	**188**		
3,0 - 88,1	BT 40	55	16	90	59	80	0 - 2,7	1.90					2,022.28	**488**



Clamping screw



Clamping screw ST

Spare parts D_{min} - D_{max}		62 950 ... £ W7			62 950 ... £ W7	
3,0 - 88,1	M10x16	2.22	**047**	M10x8	2.22	**046**

A detailed operating manual is available for download in the online shop next to the product.

SpinTools – Single point boring heads Set 1

▲ suitable for Ø 3 – Ø 88.1 mm
▲ supplied with Ø 9.75 – Ø 30.1 or Ø 9.75 – Ø 40.1 mm
▲ with thro' coolant

Scope of supply:

▲ 1 Tool Kit
▲ 1 single point boring head (depending on selection)
▲ 4 Boring bars (SK40- and MAS-BT-Set)
– 62 345 015 Ø 9,75 – Ø 15,1 mm
– 62 345 020 Ø 14,75 – Ø 20,1 mm
– 62 345 024 Ø 19,75 – Ø 25,1 mm
– 62 345 029 Ø 24,75 – Ø 30,1 mm
▲ 8 Boring bars (Modular-Set)
– 62 345 015 Ø 9,75 – Ø 15,1 mm
– 62 345 019 Ø 13,75 – Ø 19,1 mm
– 62 345 023 Ø 17,75 – Ø 23,1 mm
– 62 345 027 Ø 21,75 – Ø 27,1 mm
– 62 345 030 Ø 24,75 – Ø 30,1 mm
– 62 345 033 Ø 27,75 – Ø 33,1 mm
– 62 345 037 Ø 31,75 – Ø 37,1 mm
– 62 345 040 Ø 34,75 – Ø 40,1 mm
▲ 1 6-adjustment key – SW5
▲ 1 Torx-Key – T7



D_{min} - D_{max} mm	Adapter	STM Modular 62 334 ... £ W4		SK 62 345 ... £ W4		MAS-BT 62 345 ... £ W4	
9,75 - 30,1	SK 40			1,922.01	990		
9,75 - 30,1	BT 40					1,922.01	993
9,75 - 40,1	STM 36	2,446.99	999				

SpinTools – Single point boring heads Set 2

▲ suitable for Ø 3 – Ø 88.1 mm
▲ Supplied with Ø 9.75 – Ø 88.1 mm
▲ with thro' coolant

Scope of supply:

▲ 1 Tool Kit
▲ 1 Fine boring head (depending on selection)
▲ 4 Boring bars
– 62 345 015 Ø 9.75 – Ø 15.1 mm
– 62 345 020 Ø 14.75 – Ø 20.1 mm
– 62 345 024 Ø 19.75 – Ø 25.1 mm
– 62 345 029 Ø 24.75 – Ø 30.1 mm
▲ 2 Boring tools, adjustable
– 62 375 048 Ø 29.75 – Ø 48.1 mm
– 62 375 088 Ø 47.75 – Ø 88.1 mm
▲ incl. insert holder
– 62 377 048 CC.. 0602
– 62 377 088 CC.. 0602
▲ 1 Torx key – T7
▲ 1 6-adjustment key – SW5



D_{min} - D_{max} mm	Adapter	STM Modular 62 334 ... £ W4		HSK-A 62 345 ... £ W4		SK 62 345 ... £ W4		MAS-BT 62 345 ... £ W4	
9,75 - 88,1	HSK-A 63			2,614.27	997				
9,75 - 88,1	BT 40							2,614.27	999
9,75 - 88,1	SK 40					2,614.27	998		
9,75 - 88,1	STM 36	2,331.32	997						

SpinTools – Single point boring heads ER32 Set

▲ Suitable for Ø 3.0 – Ø 88.1 mm
▲ Scope of supply Ø 9.75 – Ø 30.1 mm
▲ with thro' coolant supply

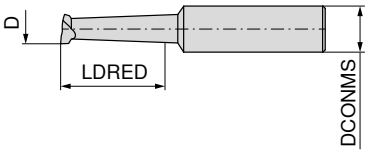
Scope of supply:

▲ 1 tool kit
▲ 1 single point boring head (62332732)
▲ 4 boring bars
– 62 345 015 Ø 9.75 – Ø 15.1 mm
– 62 345 020 Ø 14.75 – Ø 20.1 mm
– 62 345 024 Ø 19.75 – Ø 25.1 mm
– 62 345 029 Ø 24.75 – Ø 30.1 mm
▲ 1 Torx Key – T7
▲ 1 Allen Key – SW5



D_{min} - D_{max} mm	Adapter	62 332 ... £ W4	
9,75 - 30,1	ER 32	1,744.30	999

SpinTools – Boring tools with carbide cutting edge





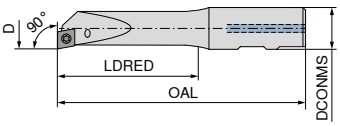
D_{min} - D_{max} mm	LDRED mm	DCONMS h6 mm	62 346 ... £ W4	
3,0 - 8,0	20	10	137.03	008
4,0 - 9,0	23	10	137.03	009
5,0 - 10,0	25	10	137.03	010
6,0 - 11,0	25	10	137.03	011
7,0 - 12,0	31	10	137.03	012

P	●
M	○
K	○
N	●
S	
H	
O	

→ v_c Page 66

SpinTools – Steel boring bars

▲ with thro' coolant





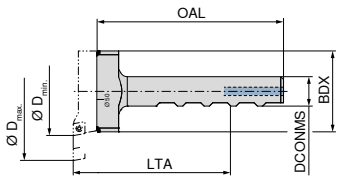
D_{min} - D_{max} mm	OAL mm	LDRED mm	DCONMS h6 mm	Insert	62 345 ... £ W4	
9,75 - 15,1	75	30	16	CC.. 0602	186.85	015
11,75 - 17,1	80	37	16	CC.. 0602	186.85	017
13,75 - 19,1	85	43	16	CC.. 0602	186.85	019
14,75 - 20,1	90	51	16	CC.. 0602	186.85	020
15,75 - 21,1	95	57	16	CC.. 0602	186.85	021
17,75 - 23,1	100	67	16	CC.. 0602	186.85	023
19,75 - 25,1	105	72	16	CC.. 0602	215.33	024
19,75 - 25,1	105	72	16	CC.. 09T3	215.33	025
21,75 - 27,1	110	77	16	CC.. 09T3	215.33	027
24,75 - 30,1	115	82	16	CC.. 0602	215.33	029
24,75 - 30,1	115	82	16	CC.. 09T3	215.33	030
27,75 - 33,1	115	82	16	CC.. 09T3	226.01	033
31,75 - 37,1	115	82	16	CC.. 09T3	226.01	037
34,75 - 40,1	115	82	16	CC.. 09T3	226.01	040
38,75 - 44,1	115	82	16	CC.. 09T3	240.25	044
42,75 - 48,1	115	82	16	CC.. 09T3	252.71	048
47,75 - 53,1	115	82	16	CC.. 09T3	282.98	053

→ **Page 63**
Find suitable indexable inserts here.

SpinTools – Adjustable boring bar bridge

▲ with thro' coolant

Scope of supply:
without insert holder

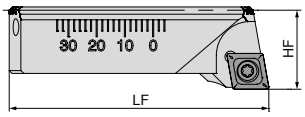


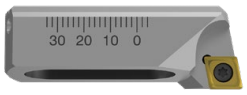


D_{min} - D_{max} mm	OAL mm	BDX mm	LTA mm	DCONMS mm	62 375 ... £ W4	
29,75 - 48,1	103	25	85	16	127.04	048
47,75 - 88,1	101	44	85	16	149.48	088

SpinTools – Tool holder for boring bar and bridge Multi-Head

Scope of supply:
without inserts
incl. mounting screws





for	LF mm	HF mm	Insert	62 377 ... £ W4	
62 375 048	28.2	12	CC.. 0602	225.87	048
62 375 088 / 62 376 ...	46.0	14	CC.. 0602	248.80	088
62 375 088 / 62 376 ...	46.0	14	CC.. 09T3	259.39	089


TORX® Screws


Key D


Flange screw

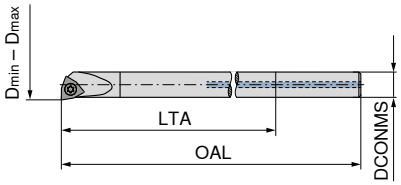
Spare parts for Article no.	62 950 ... £ W7		80 950 ... £ Y7		62 950 ... £ W7	
62 377 048	5.88	022	13.73	109	5.84	225
62 377 088	5.88	022	13.73	109	5.84	225
62 377 089	6.85	023	16.32	113	5.84	225

→ **Page 63**
Find suitable indexable inserts here.

5

SpinTools –
Boring bars with carbide shank

▲ With internal coolant supply
▲ LTA = max. overhang





62 341 ...

D_{min} - D_{max} mm	DCONMS h6 mm	OAL mm	LTA mm	Insert	£ W4	
5,8 - 11,2	5	80	45	WC.. 0201..	274.08	**011**
7,8 - 13,2	6	100	60	WC.. 0201..	274.08	**013**



TORX® Screws



Key D

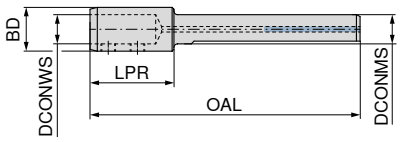
62 950 ... | **80 950 ...**

Spare parts Insert	£ W7		£ Y7	
WC.. 0201..	5.88	**021**	14.85	**108**

→ **Page 62**
Find suitable indexable inserts here.

SpinTools –
Boring tool extensions

▲ with thro' coolant





62 337 ...

DCONWS mm	DCONMS mm	BD mm	OAL mm	LPR mm	£ W4	
10	16	16	128		183.32	**128**
16	16	24	148	44	208.22	**148**



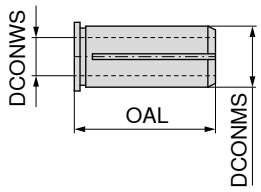
Clamping screw

62 950 ...

Spare parts for Article no.	£ W7	
62 337 128	10.90	**048**
62 337 148	8.56	**049**

SpinTools – Reduction sleeves

▲ for boring bars and boring tools





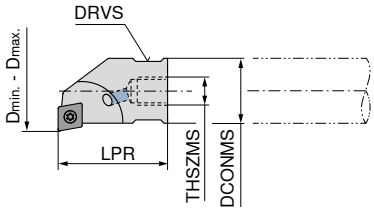
62 335 ...

DCONMS mm	DCONWS mm	OAL mm	£ W4	
16	4	37	85.43	**104**
16	5	37	85.43	**105**
16	6	37	85.43	**106**
16	8	37	85.43	**108**
16	9	37	85.43	**109**
16	10	37	85.43	**110**
16	11	37	85.43	**111**
16	12	37	85.43	**112**
16	13	37	85.43	**113**
16	14	37	85.43	**114**

SpinTools –
High-speed boring head

▲ for overturning holder and high speed carbide shank
▲ With internal coolant supply
▲ D max. = using a head with fine adjustment 0 – 2,7 mm

Scope of supply:
Boring head without boring shank, without inserts





D_{min} - D_{max} mm	LPR mm	THSZMS	DCONMS $_{h6}$ mm	Insert	62 361 ... £ W4	
8,75 - 14,1	18	M5	8	CC.. 0602	128.82	**014**
9,75 - 15,1	18	M5	9	CC.. 0602	128.82	**015**
10,75 - 16,1	23	M6	10	CC.. 0602	128.82	**016**
11,75 - 17,1	23	M6	11	CC.. 0602	128.82	**017**
12,75 - 18,1	23	M6	12	CC.. 0602	128.82	**018**
13,75 - 19,1	23	M6	13	CC.. 0602	128.82	**019**
14,75 - 20,1	23	M6	14	CC.. 0602	128.82	**020**
15,75 - 21,1	23	M6	14	CC.. 0602	128.82	**021**
16,75 - 22,1	27	M10	16	CC.. 0602	128.82	**022**
17,75 - 23,1	27	M10	16	CC.. 0602	128.82	**023**
19,75 - 25,1	27	M10	16	CC.. 0602	128.82	**025**
21,75 - 27,1	27	M10	16	CC.. 0602	130.59	**027**
24,75 - 30,1	27	M10	16	CC.. 0602	130.59	**030**
27,75 - 33,1	27	M10	16	CC.. 0602	130.59	**033**
31,75 - 37,1	27	M10	16	CC.. 0602	141.17	**037**
34,75 - 40,1	27	M10	16	CC.. 0602	151.27	**040**


TORX® Screws


Key D

Spare parts	62 950 ... £ W7		80 950 ... £ Y7	
Insert				
CC.. 0602	5.88	**022**	13.73	**109**

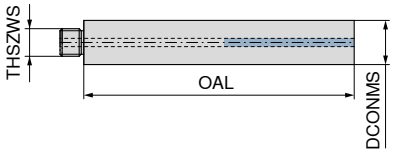
→ **Page 63**
Find suitable indexable inserts here.

A detailed operating manual is available for download in the online shop next to the product.

SpinTools –
High-speed carbide boring bars

▲ with threaded mounting stud made of high quality steel
▲ with thro' coolant
▲ Shank clamping length 35 mm

Scope of supply:
boring shank, without boring head





DCONMS mm	OAL mm	THSZWS	62 353 ... £ W4	
8	73	M5	259.39	**008**
9	80	M5	271.75	**009**
10	82	M6	289.40	**010**
11	89	M6	303.49	**011**
12	96	M6	319.37	**012**
13	103	M6	324.69	**013**
14	110	M6	395.27	**014**
16	120	M10	439.37	**016**

→ **Page 73**
Here you will find information about the working length.

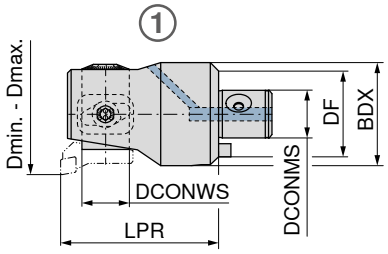
5

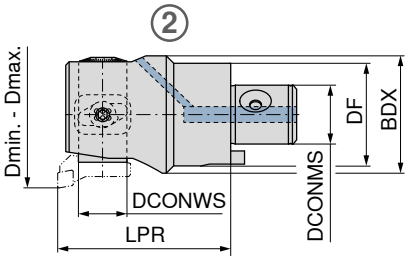
SpinTools – Single point finish boring heads

▲ With thro' coolant supply
▲ Digital variant: please order the digital stick separately

Scope of supply:
without insert holder and inserts

STM









										Analogue		Digital	
										62 303 ...		**62 308 ...**	
D_{min} - D_{max} mm	**D_{min} - D_{max} extended mm**	**Adapter**	**DCONMS mm**	**BDX mm**	**DF mm**	**LPR mm**	**DCONWS mm**	**WT kg**	**Fig.**	**£ W4**		**£ W4**	
23,9 - 31,1	29,9 - 37,1	STM 11	11	22.5	20	40	11	0.08	1	683.36	**031**	1,026.81	**031**
30,9 - 40,1	37,9 - 47,1	STM 14	14	29.0	25	45	13	0.15	1	683.36	**040**	1,026.81	**040**
39,9 - 51,1	47,9 - 59,1	STM 18	18	37.0	32	65	17	0.38	1	706.51	**051**	1,051.64	**051**
50,9 - 67,1	64,9 - 81,1	STM 22	22	47.0	40	72	22	0.70	1	740.32	**067**	1,088.94	**067**
66,9 - 87,1	84,9 - 105,1	STM 28	28	59.0	50	82	30	1.32	2	799.07	**087**	1,152.62	**087**
86,9 - 116,1	104,9 - 134,1 (124,9 - 154,1)	STM 36	36	72.0	63	105	30	3.15	2	934.30	**116**	1,304.86	**116**

For optimal stability when fine boring the main insert holder ranges are preferred over the extended range.


Screw for drivers


Driver


Fillister-head screw


Clamping screw ST

		62 950 ...			**62 950 ...**			**62 950 ...**			**62 950 ...**		
Spare parts for Article no.		**£ W7**			**£ W7**			**£ W7**			**£ W7**		
62 303 031 / 62 308 031	M2x2,5	1.50	**162**	5x8,5x3	35.87	**035**	M4x6	11.62	**287**	M4x3	2.22	**213**
62 303 040 / 62 308 040	M2,5x6	1.50	**163**	6x10,3x4	38.33	**036**	M5x8	11.62	**288**	M5x4	2.22	**214**
62 303 051 / 62 308 051	M3x8	1.84	**164**	8x15x5	40.26	**037**	M6x10	11.62	**289**	M6x5	2.22	**215**
62 303 067 / 62 308 067	M4x10	1.84	**165**	10x18,1x6	45.40	**038**	M8x12	11.62	**290**	M8x6	2.22	**216**
62 303 087 / 62 308 087	M5x10	2.22	**166**	12x20x6	54.40	**039**	M10x16	11.62	**291**	M10x10	2.22	**217**
62 303 116 / 62 308 116	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M10x16	11.62	**291**	M10x18	2.22	**218**

→ **Page 50–56**
Here you will find the suitable base adaptors.

→ **Page 9**
Here you will find a detailed system overview.

SpinTools – Digital Stick

▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
▲ revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery



62 309 ...
£ W4
344.85 **00100**

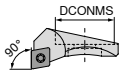
A detailed operating manual is available for download in the online shop next to the product.

SpinTools – Insert holder

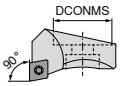
▲ for single point finish boring heads Art. 62 303 ..., 62 308 ...

Scope of supply:

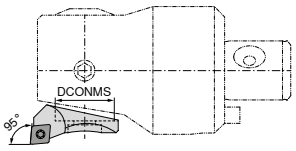
incl. Torx clamping screw for inserts, without fixing bolt for holder



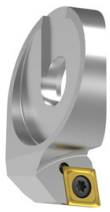
90°



Extended 90°



95°



90°



90° extended



95°

D_{min} - D_{max} mm	D_{min} - D_{max} extended mm	DCONMS mm	Insert	62 318 ... £ W4		62 318 ... £ W4		62 320 ... £ W4	
23,9 -31,1	29,9 - 37,1	11	CC.. 0602	142.36	**031**	169.06	**037**	156.62	**031**
30,9 - 40,1	37,9 - 47,1	13	CC.. 0602	156.62	**040**	186.85	**047**	172.62	**040**
39,9 - 51,1	47,9 - 59,1	17	CC.. 0602	172.62	**051**	204.65	**059**	190.40	**051**
50,9 - 67,1	64,9 - 81,1	22	CC.. 0602	186.85	**067**	222.46	**081**	195.76	**067**
66,9 - 87,1	84,9 - 105,1	30	CC.. 0602	202.89	**087**	240.25	**105**		
66,9 - 87,1		30	CC.. 09T3					222.46	**087**
86,9 - 116,1	104,9 - 134,1	30	CC.. 09T3	202.89	**116**	240.25	**134**		
	124,9 - 154,1	30	CC.. 09T3			281.16	**154**		



TORX® Screws



Key D

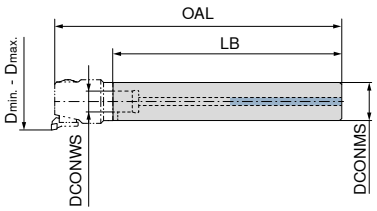
Spare parts **Insert**		62 950 ... £ W7		80 950 ... £ Y7	
CC.. 0602	M2,5x6	5.88	**022**	T07	13.73	**109**
CC.. 09T3	M4x9	6.85	**023**	T15	16.32	**113**

→ **Page 63**
Find suitable indexable inserts here.

A detailed operating manual is available for download in the online shop next to the product.

SpinTools – High-speed carbide boring tools

▲ Shaft extension for single point finish boring heads Art. No. 62 303 ..., 62 308 ...
▲ with thro' coolant supply



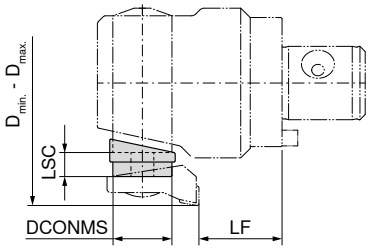


D_{min} - D_{max} mm	DCONWS mm	DCONMS mm	OAL mm	LB mm	WT kg	62 354 ... £ W4	
23,9 - 31,1	11	20	250	210	0.81	1,413.38	**020**
30,9 - 40,1	14	25	306	261	1.54	1,932.17	**025**
39,9 - 51,1	18	32	380	315	3.03	3,024.43	**032**

SpinTools – Reverse adapter for back boring

▲ For insert holder article nos. 62 318 ... / 62 320 ...

Scope of supply:
Adapter including fixing bolt





LSC mm	DCONMS mm	LF mm	D_{min} - D_{max} mm	62 321 ... £ W4	
6.5	11	13.0	37 - 44	220.68	**044**
8.0	11	13.0	40 - 47	220.68	**051**
6.5	13	12.6	44 - 53	220.68	**053**
10.0	13	12.6	51 - 60	220.68	**060**
6.5	17	31.3	53 - 64	220.68	**064**
10.0	17	31.3	60 - 71	220.68	**071**
6.5	22	31.2	68 - 80	227.80	**080**
12.0	22	31.2	75 - 91	227.80	**091**
10.0	30	29.0	87 - 107	234.90	**107**

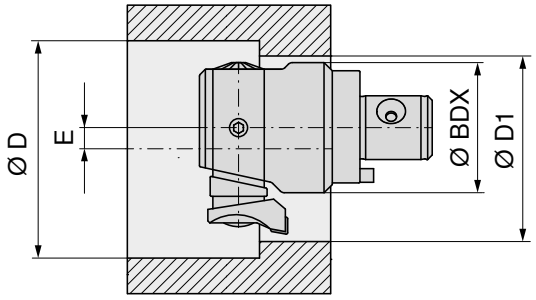
Note left hand direction of spindle rotation when in use

A detailed operating manual is available for download in the online shop next to the product.


Fillister-head screw

Spare parts for Article no.		62 950 ... £ W7	
62 321 044	M4x12	11.56	**278**
62 321 051	M4x13	11.97	**279**
62 321 053	M5x14	11.56	**280**
62 321 060	M5x16	11.97	**281**
62 321 064	M6x15	11.56	**282**
62 321 071	M6x20	11.97	**283**
62 321 080	M8x20	11.56	**284**
62 321 091	M8x25	11.97	**285**
62 321 107	M10x30	13.70	**286**

Minimum diameter (Ø D1) during retraction for back boring



Minimum diameter (Ø D1) of the entry bore

$$Ø\,D1 = \frac{Ø\,BDX + Ø\,D}{2} + 1^*$$

Minimum offset (E) for starting

$$E = \frac{Ø\,D - Ø\,D1}{2} + 0{,}5^*$$

*Safety margin

Example

Single point finish boring head 62 303 031 (Ø BDX = 22,5 mm)	
Reverse adapter 62 321 044 (Ø D_{min} – Ø D_{max} = 37 – 44 mm)	**Selected** **Ø D = 37 mm**
Insert holder 62 318 031	

$$Ø\,D1 = \frac{Ø\,22{,}5\text{ mm} + Ø\,37\text{ mm}}{2} + 1\text{ mm} = 30{,}75\text{ mm}$$

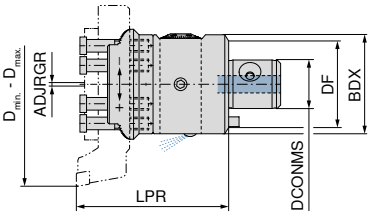
$$E = \frac{Ø\,37\text{ mm} - Ø\,30{,}75\text{ mm}}{2} + 0{,}5\text{ mm} = 3{,}625\text{ mm}$$

SpinTools – Single point finish boring heads

▲ With internal coolant supply
▲ extremely stable connection between insert holder and boring head

Scope of supply:
Boring head, without insert holder, pressure plate and support

STM





D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	ADJRGR mm	WT kg	62 305 ... £ W4	
86 - 402	STM 36	36	72	63	120	± 1,25	2.94	2,075.04	**302**



Cylindrical screw

Spare parts for Article no.		62 950 ... £ W7	
62 305 302	M8x45	6.66	**292**



Screw for drivers

		62 950 ... £ W7	
	M6x12	2.22	**167**



Driver

		62 950 ... £ W7	
	16x26,5x8	69.09	**040**



Clamping screw ST

		62 950 ... £ W7	
	M8x60	11.97	**011**

→ **Page 50–56**
Here you will find the suitable base adaptors.

A detailed operating manual is available for download in the online shop next to the product.

→ **Page 9**
Here you will find a detailed system overview.

SpinTools – Boring set

▲ suitable for Ø 86 – Ø 402 mm
▲ supplied with Ø 86 – Ø 302 mm
▲ with thro' coolant

Scope of supply:

▲ 1 Case
▲ 1 single point finish boring head
– 62 305 302
▲ 3 insert holders
– 62 438 138 Ø 86 – Ø 138 mm
– 62 438 220 Ø 136 – Ø 220 mm
– 62 438 302 Ø 188 – Ø 302 mm
▲ 2 pressure plates and 2 supports
– 62 950 149
– 62 950 150
– 62 950 152
– 62 950 153
▲ 1 Allen Key – SW5
▲ 1 Torx Key – T15

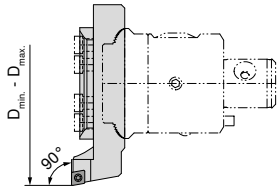


D_{min} - D_{max} mm	Adapter	STM Modular 62 439 ... £ W4	
86 - 302	STM 36	3,195.59	**999**

SpinTools – Tool holder

▲ for single point finish boring heads
▲ Approach angle 90°

Scope of supply:
incl. cover plate and support





D_{min} - D_{max} mm	Insert	62 438 ... £ W4	
86 - 138	CC.. 09T3	446.46	**138**
136 - 220	CC.. 09T3	532.88	**220**
188 - 302	CC.. 09T3	665.23	**302**
242 - 402	CC.. 09T3	797.55	**402**


TORX® Screws


Key D


Pressure plate


Support

Spare parts for Article no.		62 950 ... £ W7			80 950 ... £ Y7		62 950 ... £ W7		62 950 ... £ W7	
62 438 138	M4x9	6.85	**023**	T15	16.32	**113**	121.89	**152**	92.13	**149**
62 438 220	M4x9	6.85	**023**	T15	16.32	**113**	140.10	**153**	104.10	**150**
62 438 302	M4x9	6.85	**023**	T15	16.32	**113**	140.10	**153**	104.10	**150**
62 438 402	M4x9	6.85	**023**	T15	16.32	**113**	140.10	**153**	104.10	**150**

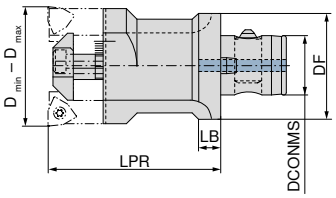
→ **Page 63**
Find suitable indexable inserts here.

TwinKom – Base body

Scope of supply:

Clamping plate incl. adjustment and fixing screws
Order tool holder (+indexable insert) and indexable inserts separately

ABS





D_{min} - D_{max} mm	KOMET no.	DCONMS mm	DF mm	Adapter	LPR mm	LB mm	WT kg	long 62 870 ... £ W4/6A		short 62 870 ... £ W4/6A	
24 - 32	G01 70552	13	25	ABS 25	45	6.0	0.11			537.47	**03290**
24 - 32	G01 71072	16	32	ABS 32	70	7.0	0.21	556.37	**13289**		
30 - 41	G01 70562	13	25	ABS 25	50		0.12			537.47	**04190**
30 - 41	G01 71132	16	32	ABS 32	85	7.5	0.30	556.37	**14189**		
39 - 53	G01 71022	16	32	ABS 32	60		0.29			703.05	**05389**
39 - 53	G01 71622	20	40	ABS 40	120	8.0	0.68	719.31	**15388**		
51 - 71	G01 71522	20	40	ABS 40	60		0.44			719.31	**07188**
51 - 71	G01 72122	28	50	ABS 50	135	10.0	1.24	749.35	**17197**		
64 - 91	G01 72022	28	50	ABS 50	70		0.82			778.09	**09197**
64 - 91	G01 72622	34	63	ABS 63	155	13.0	2.25	864.52	**19196**		
83 - 124	G01 72522	34	63	ABS 63	70		1.35			779.39	**12496**
83 - 124	G01 73122	46	80	ABS 80	155	16.5	3.80	885.92	**12592**		
109 - 167	G01 73032	46	80	ABS 80	90		3.10			1,127.69	**16792**[1)]
109 - 167	G01 73042	46	80	ABS 80	175		6.20	1,257.96	**16892**[1)]		
139 - 215	G01 73562	56	100	ABS 100	125		6.47			980.52	**21591**[1)]
139 - 215	G01 73572	56	100	ABS 100	240		13.25	1,151.52	**21691**[1)]		

1) Diameter range can only be achieved with TwinKom basic tool holder (radially + axially adjustable) and corresponding indexable insert!


Adjustment screw


TwinKom clamping plate


Fixing screw

Spare parts D_{min} - D_{max}		10 950 ... £ W7/6B		62 950 ... £ W7/6B			10 950 ... £ W7/6B	
24 - 32	M2,5X5.SW1,3	0.81	**16500**	72.31	**46900**	M2x4,5 - T06	3.72	**15800**
30 - 41	M2,5X5.SW1,3	0.81	**16500**	81.48	**47000**	M2,5x5,3 - T08	3.46	**15900**
39 - 53	M4x8 - SW2	1.28	**11100**	80.47	**47100**	M2,5x7 - T08	3.46	**16000**
51 - 71	M4x10 - SW2	1.28	**11200**	84.53	**47200**	M3,5x9,4 - T10	3.46	**16300**
64 - 91	M6X12 SW3	1.28	**16100**	96.76	**47300**	M4,5x11,5 - T15	3.46	**13500**
83 - 124	M6X20 SW3	1.28	**16200**	98.81	**47400**	M5x12 - SW2,5	1.28	**11000**
109 - 167	M8X20.SW4	1.93	**16600**	124.24	**47500**			
139 - 215	M10X20 DIN 913	3.26	**17500**	140.60	**47700**	M6x20 Sw5	1.02	**17600**


Cylindrical screw TwinKom


Cylindrical screw


Adjustment pin

Spare parts D_{min} - D_{max}		62 950 ... £ W7/6B			62 950 ... £ W7/6B		62 950 ... £ W7/6B	
24 - 32	M3X16	0.76	**46000**				9.66	**46200**
30 - 41	M4X20	1.28	**45500**				9.66	**46300**
39 - 53	M5X25	1.28	**45600**				9.66	**46400**
51 - 71	M6X30	1.28	**45700**				9.66	**46500**
64 - 91	M8X35	1.28	**45800**				9.66	**46600**
83 - 124	M8X45	1.42	**45900**				9.66	**46700**
109 - 167	M10X50	1.93	**46100**	M5x16	1.09	**00000**	9.66	**46800**
139 - 215	M12x60	1.93	**47600**				10.90	**47800**

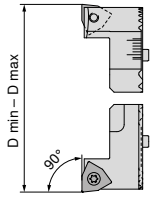
A detailed operating manual is available for download in the online shop next to the product.

→ **Page 10**
Here you will find a detailed system overview.

TwinKom – Tool holder 90°

▲ radially adjustable
▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately



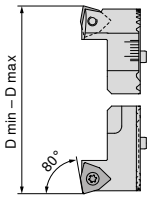


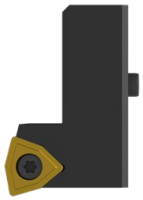
D_{min} - D_{max} mm	KOMET no.	Insert	62 871 ... £ W4/6A	
24 - 32	G03 70330	WO.X 0403..	217.90	**03200**
30 - 41	G03 70141	WO.X 05T3..	217.90	**04100**
39 - 53	G03 70230	WO.X 05T3..	211.88	**05300**
51 - 71	G03 70240	WO.X 06T3..	222.44	**07100**
64 - 91	G03 70250	WO.X 0804..	236.21	**09100**
83 - 124	G03 70260	WO.X 1005..	255.99	**12400**

TwinKom – Tool holder 80°

▲ radially adjustable
▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately





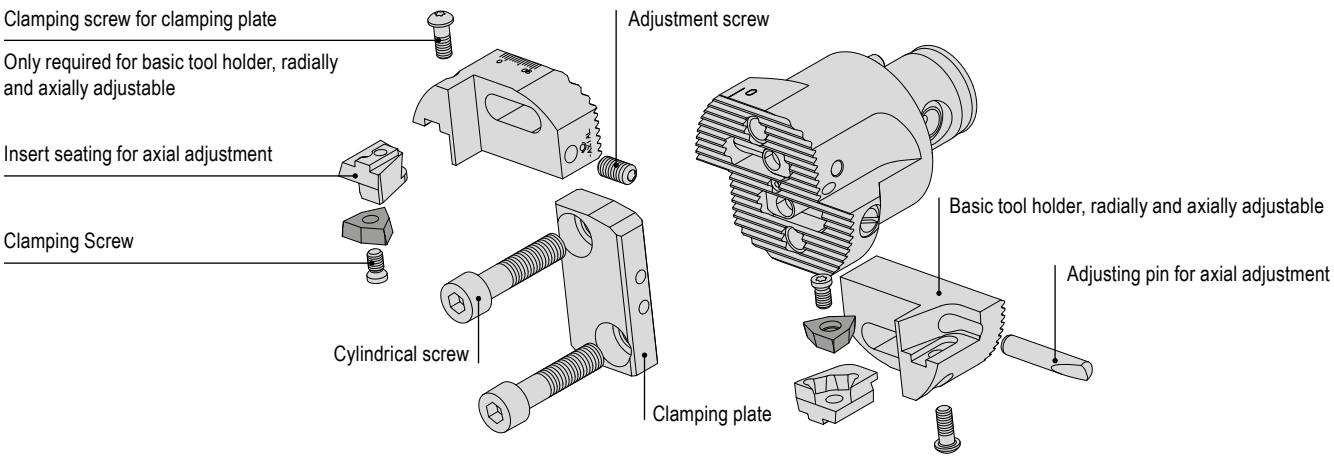
D_{min} - D_{max} mm	KOMET no.	Insert	62 875 ... £ W4/6A	
24 - 32	G03 80310	WO.X 0403..	217.90	**03200**
30 - 41	G03 80021	WO.X 05T3..	217.90	**04100**
39 - 53	G03 80090	WO.X 05T3..	211.88	**05300**
51 - 71	G03 80100	WO.X 06T3..	222.44	**07100**
64 - 91	G03 80110	WO.X 0804..	236.21	**09100**
83 - 124	G03 80120	WO.X 1005..	255.99	**12400**


Clamping screw

Spare parts D_{min} - D_{max}		10 950 ... £ W7/6B	
24 - 32	M2,2x5,5 - 06IP	2.86	**10700**
30 - 41	M2,5x7,2 - 08IP	2.86	**10500**
39 - 53	M2,5x7,2 - 08IP	2.86	**10500**
51 - 71	M3,5x7,3 - 10IP	2.86	**10600**
64 - 91	M4,5x9 - 15IP	3.07	**12700**
83 - 124	M4,5x9 - 15IP	3.07	**12700**

→ **Page 60+61**
Find suitable indexable inserts here.

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

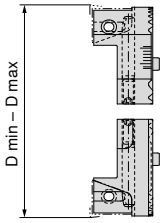


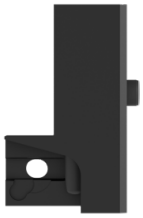
TwinKom – Basic tool holder, radially and axially adjustable

▲ Price per piece

Scope of supply:

Order indexable insert seats and indexable inserts separately





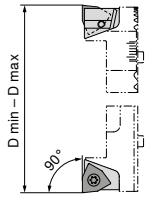
D_{min} - D_{max} mm	KOMET no.	62 872 ... £ W4/6A	
24 - 32	G03 70011	236.21	03200
30 - 41	G03 70021	236.21	04100
39 - 53	G03 70031	249.98	05300
51 - 71	G03 70041	257.60	07100
64 - 91	G03 70061	307.86	09100
83 - 124	G03 70071	377.89	12400
109 - 167	G03 70081	399.29	16700
139 - 215	G03 70091	466.00	21500

TwinKom – Indexable insert, 90°

▲ axially adjustable
▲ Price per piece

Scope of supply:

including clamping screw
Order indexable inserts separately





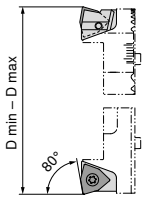
D_{min} - D_{max} mm	KOMET no.	Insert	62 873 ... £ 2B/6#	
24 - 32	D54 60510	WO.X 0302..	124.12	03200
30 - 41	D54 60520	WO.X 0403..	141.08	04100
39 - 53	D54 60030	WO.X 05T3..	151.13	05300
51 - 71	D54 60040	WO.X 06T3..	163.73	07100
64 - 91	D54 60050	WO.X 0804..	168.82	09100
83 - 167	D54 60060	WO.X 1005..	186.39	12400
139 - 215	D54 60070	WO.X 1206..	210.36	21500

TwinKom – Indexable insert, 80°

▲ axially adjustable
▲ Price per piece

Scope of supply:

including clamping screw
Order indexable inserts separately





D_{min} - D_{max} mm	KOMET no.	Insert	62 874 ... £ 2B/6#	
24 - 32	D54 60610	WO.X 0302..	124.12	03200
30 - 41	D54 60620	WO.X 0403..	141.08	04100
39 - 53	D54 60130	WO.X 05T3..	151.13	05300
51 - 71	D54 60140	WO.X 06T3..	163.73	07100
64 - 91	D54 60150	WO.X 0804..	168.82	09100
83 - 167	D54 60160	WO.X 1005..	186.39	16700
139 - 215	D54 60170	WO.X 1206..	210.36	21500



Clamping screw

Spare parts D_{min} - D_{max}		10 950 ... £ W7/6B	
24 - 32	M2,0x4,3 - 06IP	2.86	10000
30 - 41	M2,2x5,5 - 06IP	2.86	10700
39 - 53	M2,5x6,3 - 08IP	2.86	10800
51 - 71	M3,5x6,6 - 10IP	3.46	16400
64 - 91	M4,5x9 - 15IP	3.07	12700
83 - 167	M4,5x9 - 15IP	3.07	12700
139 - 215	M5,5x11 - 20IP	3.07	17400

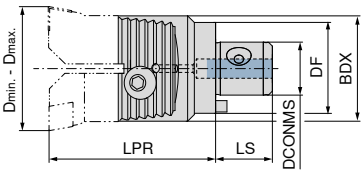
SpinTools – Boring heads for roughing with 2 cutting edges

▲ with thro' coolant

Scope of supply:

Boring head incl. drive dog, fixing screws, spring rings, drive dog screw and stop pin

STM





D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	LS mm	WT kg		62 295 ... £ W4	
23,5 - 30,5	STM 11	11	20	20	40	13	0.05		297.19	**030**
29,5 - 40,1	STM 14	14	25	25	45	16	0.09		318.56	**040**
39,5 - 50,5	STM 18	18	32	32	65	20	0.25		341.69	**050**
49,5 - 66,5	STM 22	22	42	40	72	24	0.38		387.96	**066**
65,5 - 87,5	STM 28	28	55	50	82	30	0.59		455.59	**087**



Fillister-head screw



Spring ring



Location Pin

Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7		62 950 ... £ W7	
62 295 030	M4x8	4.37	**298**	Ø 4,3/7,3	1.50	**311**	11.56	**231**
62 295 040	M5x12	4.37	**293**	Ø 5,3/9,3	1.50	**312**	11.56	**231**
62 295 050	M6x16	4.37	**294**	Ø 6.4/10,2	1.50	**313**	11.56	**231**
62 295 066	M8x20	4.37	**295**	Ø 8,4/14,0	1.50	**314**	12.98	**234**
62 295 087	M10x25	4.54	**296**	Ø 10,5/17,0	1.50	**315**	12.98	**234**



Screw for drivers



Driver

Spare parts for Article no.		62 950 ... £ W7			62 950 ... £ W7	
62 295 030	M2x2,5	1.50	**162**	5x8,5x3	35.87	**035**
62 295 040	M2,5x6	1.50	**163**	6x10,3x4	38.33	**036**
62 295 050	M3x8	1.84	**164**	8x15x5	40.26	**037**
62 295 066	M4x10	1.84	**165**	10x18,1x6	45.40	**038**
62 295 087	M5x10	2.22	**166**	12x20x6	54.40	**039**

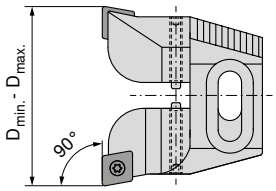
→ **Page 50–56**
Here you will find the suitable base adaptors.

A detailed operating manual is available for download in the online shop next to the product.

→ **Page 10**
Here you will find a detailed system overview.

SpinTools – Pair of tool holders, standard, 90°

Scope of supply:
Adjustment screws, positioning pin, insert clamping screws

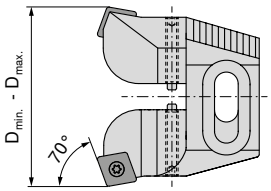




		62 296 ...	
D_{min} - D_{max} mm	Insert	£ W4	
23,5 - 30,5	CC.. 0602	341.69	**030**
29,5 - 40,1	CC.. 0602	357.72	**040**
39,5 - 50,5	CC.. 09T3	382.63	**050**
49,5 - 66,5	CC.. 09T3	436.02	**066**
65,5 - 87,5	CN.. 1204	567.70	**088**
65,5 - 87,5	CC.. 1204	544.55	**087**

SpinTools – Pair of tool holders, standard, 70°

Scope of supply:
Adjustment screws, positioning pin, insert clamping screws





		62 299 ...	
D_{min} - D_{max} mm	Insert	£ W4	
23,5 - 30,5	CC.. 0602	341.69	**030**
29,5 - 40,1	CC.. 0602	357.72	**040**
39,5 - 50,5	CC.. 09T3	382.63	**050**
49,5 - 66,5	CC.. 09T3	436.02	**066**
65,5 - 87,5	CN.. 1204	567.70	**088**
65,5 - 87,5	CC.. 1204	544.55	**087**


TORX® Screws

Key D

Adjustment screw

Spare parts			62 950 ...			80 950 ...			62 950 ...	
D_{min} - D_{max}	Insert		£ W7			£ Y7			£ W7	
23,5 - 30,5	CC.. 0602	M2,5x6	5.88	**022**	T07	13.73	**109**	M4x0,5x7	9.12	**238**
29,5 - 40,1	CC.. 0602	M2,5x6	5.88	**022**	T07	13.73	**109**	M4x0,5x9,5	9.30	**239**
39,5 - 50,5	CC.. 09T3	M4x9	6.85	**023**	T15	16.32	**113**	M4x0,5x13	9.66	**240**
49,5 - 66,5	CC.. 09T3	M4x9	6.85	**023**	T15	16.32	**113**	M6x14	2.22	**241**
65,5 - 87,5	CC.. 1204	M5x10	7.78	**232**	T20	17.48	**114**	M6x20	2.22	**242**


Shim


Elbow lever screw


Lever

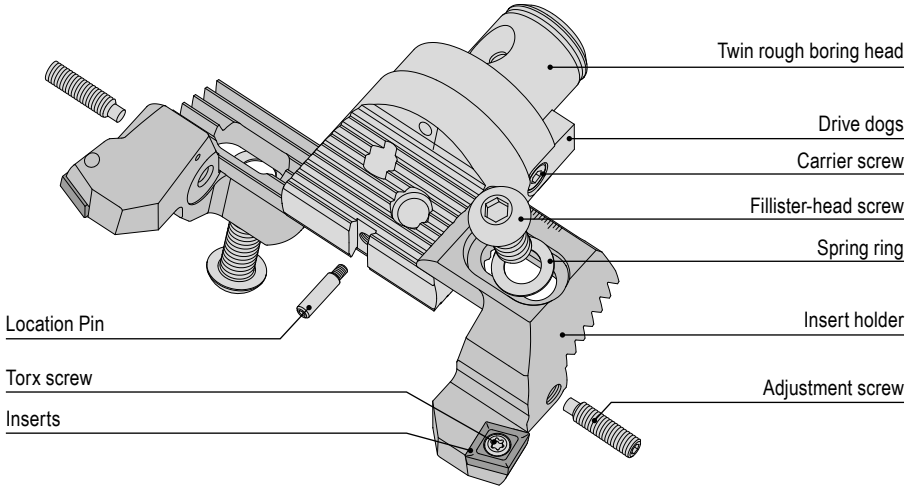

Carbide type C

Adjustment screw

Spare parts		62 950 ...		62 950 ...		62 950 ...		62 950 ...		62 950 ...	
D_{min} - D_{max}	Insert	£ W7		£ W7		£ W7		£ W7		£ W7	
65,5 - 87,5	CN.. 1204	3.04	**096**	10.08	**136**	28.45	**125**	24.32	**117**	M6x20	2.22	**242**

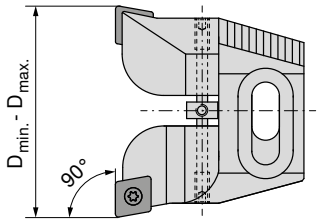
→ **Page 63**
Find suitable indexable inserts here.

A detailed operating manual is available for download in the online shop next to the product.



SpinTools – Pair of tool holders, ‘Synchro’, 90°

Scope of supply:
Insert clamping screws, synchronization screw





D_{min} - D_{max} mm	Insert	62 297 ... £ W4	
23,5 - 30,5	CC.. 0602	393.29	**030**
29,5 - 40,1	CC.. 0602	411.08	**040**
39,5 - 50,5	CC.. 09T3	437.77	**050**
49,5 - 66,5	CC.. 09T3	500.08	**066**
65,5 - 87,5	CC.. 1204	651.36	**087**


TORX® Screws

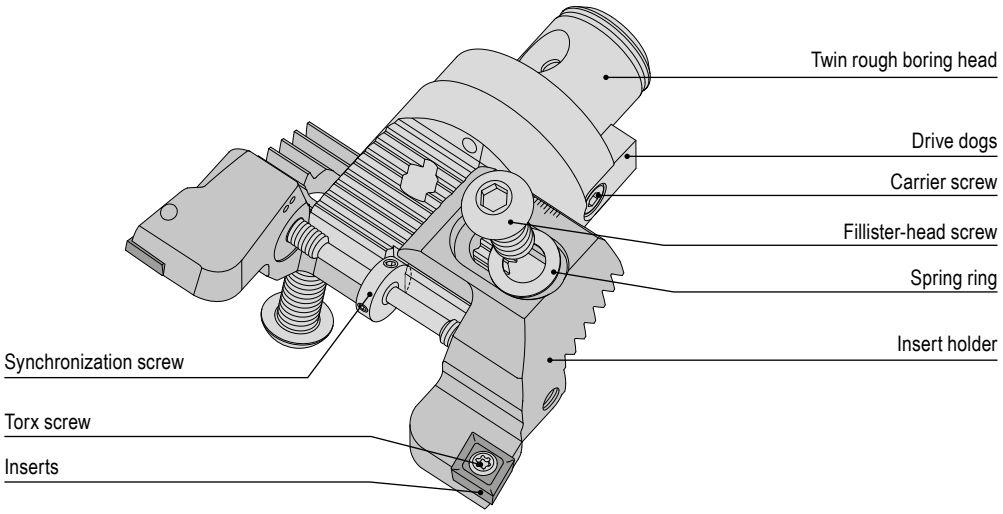

Synchronization screw


Key D

Spare parts for Article no.	62 950 ...	£ W7		62 950 ...	£ W7		80 950 ...	£ Y7	
62 297 030	M2,5x6	5.88	**022**	M4x0,5x18	67.92	**207**	T07	13.73	**109**
62 297 040	M2,5x6	5.88	**022**	M4x0,5x23	68.16	**208**	T07	13.73	**109**
62 297 050	M4x9	6.85	**023**	M4x0,5x30	70.43	**209**	T15	16.32	**113**
62 297 066	M4x9	6.85	**023**	M6x40	72.17	**210**	T15	16.32	**113**
62 297 087	M5x10	7.78	**232**	M6x52	74.12	**211**	T20	17.48	**114**

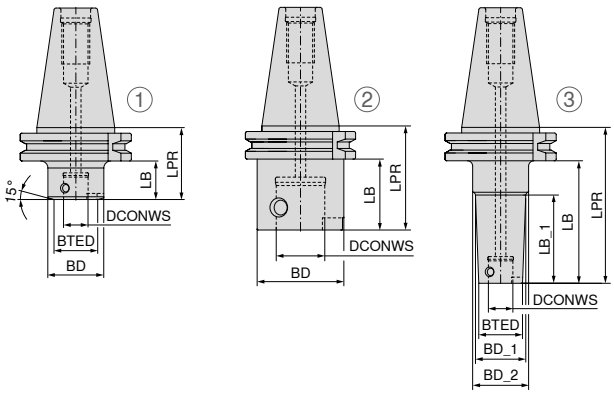
→ **Page 63**
Find suitable indexable inserts here.

A detailed operating manual is available for download in the online shop next to the product.



SpinTools – Base adapters ISO 7388-1 (DIN 69871)

STM







SK

62 107 ...

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	£ W4	
short	SK 40	1	STM 11	11	20	32			40	20.9		0.91	307.88	**111** [1]
	SK 40	1	STM 14	14	25	32			40	20.9		0.93	307.88	**114** [1]
	SK 40	2	STM 18	18		32			40	20.9		0.89	307.88	**118**
	SK 40	2	STM 22	22		40			50	30.9		1.02	307.88	**122**
	SK 40	2	STM 28	28		50			50	30.9		1.11	307.88	**128**
	SK 40	2	STM 36	36		63			60	40.9		1.27	284.75	**136**
	SK 50	2	STM 28	28		50			50	30.9		2.92	364.83	**428**
	SK 50	2	STM 36	36		63			63	43.9		3.27	364.83	**436**
long	SK 40	3	STM 11	11	20		23	32	80	60.9	40.9	1.04	341.69	**211** [1]
	SK 40	3	STM 14	14	25		28	32	80	60.9	40.9	1.07	341.69	**214** [1]
	SK 40	2	STM 18	18		32			80	60.9		1.13	341.69	**218**
	SK 40	2	STM 22	22		40			100	80.9		1.47	341.69	**222**
	SK 40	2	STM 28	28		50			100	80.9		1.84	341.69	**228**
	SK 40	2	STM 36	36		63			120	100.9		2.68	341.69	**236**
	SK 50	2	STM 36	36		63			120	100.9		4.60	411.08	**536**

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!



O-Ring



Clamping screw ST

Spare parts DCONWS		**62 950 ...** £ W7			**62 950 ...** £ W7	
11	9x1,5	3.04	**254**	M4x0,5x6	12.89	**026**
14	12x1,5	3.04	**255**	M5x0,5x7,5	13.55	**027**
18	16x1,5	3.04	**256**	M6x0,75x9,5	13.88	**028**
22	19x2	3.04	**257**	M8x0,75x12	15.39	**029**
28	25x2	3.04	**258**	M10x1x14,2	18.05	**030**
36	33x2	3.04	**259**	M12x1x18	23.15	**031**

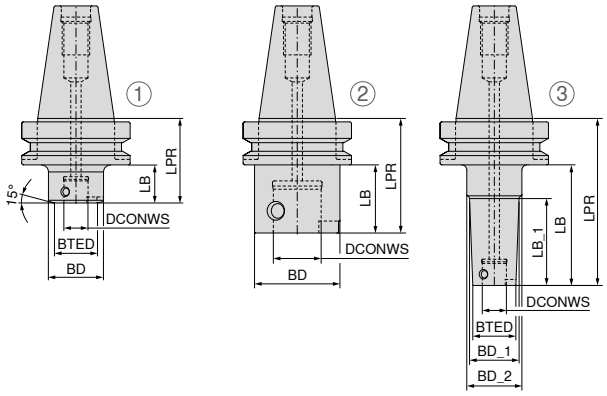
Suitable pull studs can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

ABS base adapters can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

SpinTools – Base adapters ISO 7388-2 (JIS B 6339 / MAS-BT)

▲ form B available upon request

STM







MAS-BT

5

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	62 112 ... £ W4	
short	BT 30	2	STM 28	28		50			55			0.64	307.88	328
	BT 40	1	STM 11	11	20	32			50	23		1.09	307.88	111 1)
	BT 40	1	STM 14	14	25	32			50	23		1.08	307.88	114 1)
	BT 40	2	STM 18	18		32			50	23		1.06	307.88	118
	BT 40	2	STM 22	22		40			50	23		1.10	307.88	122
	BT 40	2	STM 28	28		50			50	23		1.14	307.88	128
	BT 40	2	STM 36	36		63			60	33		1.38	284.75	136
	BT 50	2	STM 28	28		50			63	25		3.75	364.83	428
	BT 50	2	STM 36	36		63			63	25		3.78	364.83	436
long	BT 40	3	STM 11	11	20		23	32	90	63	43	1.20	341.69	211 1)
	BT 40	3	STM 14	14	25		28	32	90	63	43	1.24	341.69	214 1)
	BT 40	2	STM 18	18		32			90	63		1.30	341.69	218
	BT 40	2	STM 22	22		40			100	73		1.57	341.69	222
	BT 40	2	STM 28	28		50			100	73		1.87	341.69	228
	BT 40	2	STM 36	36		63			120	93		2.78	341.69	236
	BT 50	2	STM 36	36		63			120	82		5.18	411.08	536

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!



O-Ring



Clamping screw ST

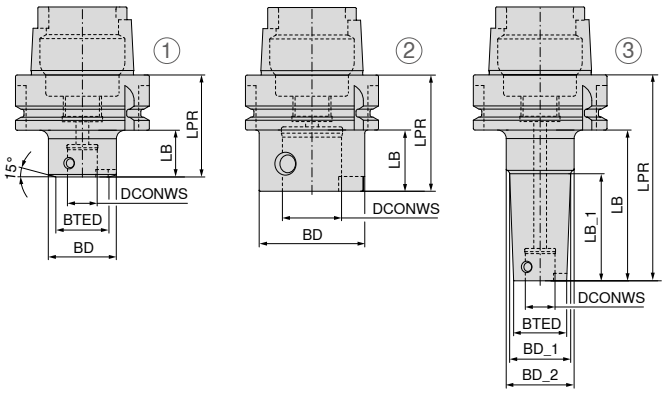
Spare parts DCONWS		62 950 ... £ W7			62 950 ... £ W7	
11	9x1,5	3.04	254	M4x0,5x6	12.89	026
14	12x1,5	3.04	255	M5x0,5x7,5	13.55	027
18	16x1,5	3.04	256	M6x0,75x9,5	13.88	028
22	19x2	3.04	257	M8x0,75x12	15.39	029
28	25x2	3.04	258	M10x1x14,2	18.05	030
36	33x2	3.04	259	M12x1x18	23.15	031

Suitable pull studs can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

ABS base adapters can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

SpinTools – Base adapters HSK-A ISO 12164-1 (DIN 69893-1)

STM







HSK-A

62 122 ...

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	£ W4	
short	HSK-A 63	1	STM 11	11	20	32			50	24		0.77	364.83	**111** [1]
	HSK-A 63	1	STM 14	14	25	32			50	24		0.76	364.83	**114** [1]
	HSK-A 63	2	STM 18	18		32			50	24		0.74	364.83	**118**
	HSK-A 63	2	STM 22	22		40			50	24		0.79	364.83	**122**
	HSK-A 63	2	STM 28	28		50			55	24		0.91	364.83	**128**
	HSK-A 63	2	STM 36	36		63			65	34		1.10	331.00	**136**
	HSK-A 100	2	STM 28	28		50			63	34		2.32	421.75	**428**
	HSK-A 100	2	STM 36	36		63			70	34		2.61	421.75	**436**
long	HSK-A 63	3	STM 11	11	20		23	32	90	64	44	0.87	398.64	**211** [1]
	HSK-A 63	3	STM 14	14	25		28	32	90	64	44	0.93	398.64	**214** [1]
	HSK-A 63	2	STM 18	18		32			90	64		0.98	398.64	**218**
	HSK-A 63	2	STM 22	22		40			100	74		1.26	398.64	**222**
	HSK-A 63	2	STM 28	28		50			100	74		1.58	398.64	**228**
	HSK-A 63	2	STM 36	36		63			120	94		2.41	421.75	**236**

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!



O-Ring



Clamping screw ST

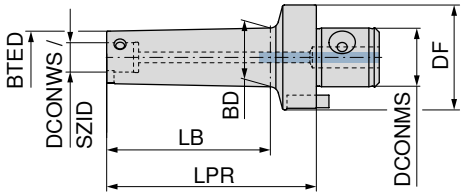
Spare parts DCONWS		**62 950 ...** £ W7			**62 950 ...** £ W7	
11	9x1,5	3.04	**254**	M4x0,5x6	12.89	**026**
14	12x1,5	3.04	**255**	M5x0,5x7,5	13.55	**027**
18	16x1,5	3.04	**256**	M6x0,75x9,5	13.88	**028**
22	19x2	3.04	**257**	M8x0,75x12	15.39	**029**
28	25x2	3.04	**258**	M10x1x14,2	18.05	**030**
36	33x2	3.04	**259**	M12x1x18	23.15	**031**

ABS base adapters can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

SpinTools – Reductions

▲ with thro' coolant

STM





Adapter	LPR mm	SZID	DCONMS mm	DCONWS mm	DF mm	BTED mm	BD mm	LB mm	WT kg	62 357 ... £ W4	
STM 14	30	STM 11	14	11	25	20	23	15	0.04	167.63	**111**
STM 18	30	STM 11	18	11	32	20	23	17	0.14	167.63	**211**
STM 18	30	STM 14	18	14	32	25	28	17	0.16	167.63	**214**
STM 22	30	STM 11	22	11	40	20	23	15	0.21	174.69	**311**
STM 22	30	STM 14	22	14	40	25	28	15	0.22	174.69	**314**
STM 22	30	STM 18	22	18	40	32	37	15	0.25	174.69	**318**
STM 28	40	STM 11	28	11	50	20	23	20	0.44	181.75	**411**
STM 28	40	STM 14	28	14	50	25	28	20	0.49	181.75	**414**
STM 28	40	STM 18	28	18	50	32	37	20	0.45	181.75	**418**
STM 28	40	STM 22	28	22	50	40	46	20	0.55	181.75	**422**
STM 36	40	STM 11	36	11	63	20	22	16	0.82	192.36	**511**
STM 36	70	STM 11	36	11	63	20	23	42	0.90	208.22	**811**
STM 36	95	STM 11	36	11	63	20	23	71	0.98	225.87	**611**
STM 36	115	STM 11	36	11	63	20	23	87	1.02	248.80	**911**
STM 36	135	STM 11	36	11	63	20	23	111	1.08	271.75	**711**
STM 36	40	STM 14	36	14	63	25	27	16	0.84	192.36	**514**
STM 36	80	STM 14	36	14	63	25	28	52	1.00	220.56	**814**
STM 36	120	STM 14	36	14	63	25	28	96	1.16	248.80	**614**
STM 36	145	STM 14	36	14	63	25	28	117	1.27	271.75	**914**
STM 36	170	STM 14	36	14	63	25	28	146	1.38	294.66	**714**
STM 36	40	STM 18	36	18	63	32	37	16	0.85	192.36	**518**
STM 36	100	STM 18	36	18	63	32	38	74	1.24	234.69	**818**
STM 36	150	STM 18	36	18	63	32	38	126	1.66	275.26	**918**
STM 36	207	STM 18	36	18	63	32	38	183	2.07	338.77	**618**
STM 36	40	STM 22	36	22	63	40	46	16	0.89	192.36	**522**
STM 36	120	STM 22	36	22	63	40	48	95	1.76	254.09	**822**
STM 36	183	STM 22	36	22	63	40	48	159	2.52	315.87	**622**
STM 36	263	STM 22	36	22	63	40	48	239	3.44	451.74	**722**
STM 36	40	STM 28	36	28	63	50	58	21	1.03	192.36	**528**
STM 36	140	STM 28	36	28	63	50	60	117	2.70	266.45	**828**
STM 36	233	STM 28	36	28	63	50	60	209	4.41	428.78	**628**
STM 36	333	STM 28	36	28	63	50	60	309	6.25	587.59	**728**

ABS reductions can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

Reductions – Spare Parts



O-Ring



Screw for drivers



Driver



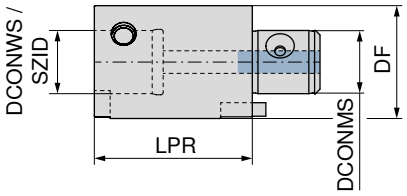
Clamping screw ST

		62 950 ...			62 950 ...			62 950 ...			62 950 ...	
Spare parts for Article no.		£ W7			£ W7			£ W7			£ W7	
62 357 111	9x1,5	3.04	**254**	M2,5x6	1.50	**163**	6x10,3x4	38.33	**036**	M4x0,5x6	12.89	**026**
62 357 211	9x1,5	3.04	**254**	M3x8	1.84	**164**	8x15x5	40.26	**037**	M4x0,5x6	12.89	**026**
62 357 214	12x1,5	3.04	**255**	M3x8	1.84	**164**	8x15x5	40.26	**037**	M5x0,5x7,5	13.55	**027**
62 357 311	9x1,5	3.04	**254**	M4x10	1.84	**165**	10x18,1x6	45.40	**038**	M4x0,5x6	12.89	**026**
62 357 314	12x1,5	3.04	**255**	M4x10	1.84	**165**	10x18,1x6	45.40	**038**	M5x0,5x7,5	13.55	**027**
62 357 318	16x1,5	3.04	**256**	M4x10	1.84	**165**	10x18,1x6	45.40	**038**	M6x0,75x9,5	13.88	**028**
62 357 411	9x1,5	3.04	**254**	M5x10	2.22	**166**	12x20x6	54.40	**039**	M4x0,5x6	12.89	**026**
62 357 414	12x1,5	3.04	**255**	M5x10	2.22	**166**	12x20x6	54.40	**039**	M5x0,5x7,5	13.55	**027**
62 357 418	16x1,5	3.04	**256**	M5x10	2.22	**166**	12x20x6	54.40	**039**	M6x0,75x9,5	13.88	**028**
62 357 422	19x2	3.04	**257**	M5x10	2.22	**166**	12x20x6	54.40	**039**	M8x0,75x12	15.39	**029**
62 357 511	9x1,5	3.04	**254**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M4x0,5x6	12.89	**026**
62 357 811	9x1,5	3.04	**254**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M4x0,5x6	12.89	**026**
62 357 611	9x1,5	3.04	**254**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M4x0,5x6	12.89	**026**
62 357 911	9x1,5	3.04	**254**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M4x0,5x6	12.89	**026**
62 357 711	9x1,5	3.04	**254**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M4x0,5x6	12.89	**026**
62 357 514	12x1,5	3.04	**255**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M5x0,5x7,5	13.55	**027**
62 357 814	12x1,5	3.04	**255**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M5x0,5x7,5	13.55	**027**
62 357 614	12x1,5	3.04	**255**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M5x0,5x7,5	13.55	**027**
62 357 914	12x1,5	3.04	**255**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M5x0,5x7,5	13.55	**027**
62 357 714	12x1,5	3.04	**255**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M5x0,5x7,5	13.55	**027**
62 357 518	16x1,5	3.04	**256**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M6x0,75x9,5	13.88	**028**
62 357 818	16x1,5	3.04	**256**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M6x0,75x9,5	13.88	**028**
62 357 918	16x1,5	3.04	**256**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M6x0,75x9,5	13.88	**028**
62 357 618	16x1,5	3.04	**256**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M6x0,75x9,5	13.88	**028**
62 357 522	19x2	3.04	**257**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M8x0,75x12	15.39	**029**
62 357 822	19x2	3.04	**257**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M8x0,75x12	15.39	**029**
62 357 622	19x2	3.04	**257**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M8x0,75x12	15.39	**029**
62 357 722	19x2	3.04	**257**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M8x0,75x12	15.39	**029**
62 357 528	25x2	3.04	**258**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M10x1x14,2	18.05	**030**
62 357 828	25x2	3.04	**258**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M10x1x14,2	18.05	**030**
62 357 628	25x2	3.04	**258**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M10x1x14,2	18.05	**030**
62 357 728	25x2	3.04	**258**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M10x1x14,2	18.05	**030**

SpinTools – Extensions

▲ with thro' coolant

STM





5

Adapter	LPR mm	SZID	DCONWS mm	DF mm	DCONMS mm	WT kg	62 351 ... £ W4	
STM 11	25	STM 11	11	20	11	0.06	160.15	**111**
STM 11	35	STM 11	11	20	11	0.09	160.15	**211**
STM 14	30	STM 14	14	25	14	0.11	160.15	**114**
STM 14	45	STM 14	14	25	14	0.17	160.15	**214**
STM 18	40	STM 18	18	32	18	0.23	170.84	**118**
STM 18	60	STM 18	18	32	18	0.35	169.39	**218**
STM 22	50	STM 22	22	40	22	0.45	183.32	**122**
STM 22	80	STM 22	22	40	22	0.73	181.75	**222**
STM 28	50	STM 28	28	50	28	0.71	183.32	**128**
STM 28	75	STM 28	28	50	28	1.07	192.36	**228**
STM 28	100	STM 28	28	50	28	1.44	202.93	**328**
STM 36	60	STM 36	36	63	36	1.33	194.00	**136**
STM 36	90	STM 36	36	63	36	2.02	215.28	**236**
STM 36	120	STM 36	36	63	36	2.72	238.21	**336**



O-Ring



Screw for drivers



Driver



Clamping screw ST

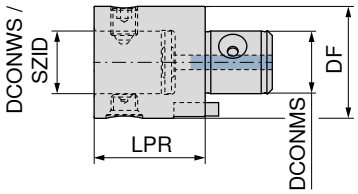
Spare parts DCONWS		62 950 ... £ W7			62 950 ... £ W7			62 950 ... £ W7			62 950 ... £ W7	
11	9x1,5	3.04	**254**	M2x2,5	1.50	**162**	5x8,5x3	35.87	**035**	M4x0,5x6	12.89	**026**
14	12x1,5	3.04	**255**	M2,5x6	1.50	**163**	6x10,3x4	38.33	**036**	M5x0,5x7,5	13.55	**027**
18	16x1,5	3.04	**256**	M3x8	1.84	**164**	8x15x5	40.26	**037**	M6x0,75x9,5	13.88	**028**
22	19x2	3.04	**257**	M4x10	1.84	**165**	10x18,1x6	45.40	**038**	M8x0,75x12	15.39	**029**
28	25x2	3.04	**258**	M5x10	2.22	**166**	12x20x6	54.40	**039**	M10x1x14,2	18.05	**030**
36	33x2	3.04	**259**	M6x12	2.22	**167**	16x26,5x8	69.09	**040**	M12x1x18	23.15	**031**

ABS extensions can be found in → **Clamping technology catalogue, Chapter 16, Adapters and accessories.**

SpinTools – ABS/STM adapters

▲ using this adapter, ABS core drilling and precision spindle systems can be accommodated reliably and precisely in STM base adapters
▲ with thro' coolant supply

STM





NEW

Adapter	LPR mm	SZID	DCONWS mm	DF mm	DCONMS mm	62 359 ... £ W4/6A	
STM 14	35	ABS 25	13	25	14	259.53	**02519**
STM 18	40	ABS 32	16	32	18	261.24	**03218**
STM 22	45	ABS 40	20	40	22	299.04	**04017**
STM 28	50	ABS 50	28	50	28	324.50	**05016**
STM 36	60	ABS 63	34	63	36	352.46	**06315**


Clamping screw

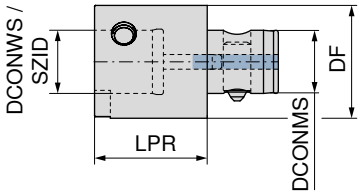

Driver

Spare parts DCONWS	62 950 ... £ XX		62 950 ... £ W7	
13			38.33	**036**
16	12.60	**13989**	40.26	**037**
20			45.40	**038**
28			54.40	**039**
34			69.09	**040**

MicroKom – STM/ABS adapters

▲ using this adapter, STM core drilling and precision spindle systems can be accommodated reliably and precisely in ABS base adapters
▲ with thro' coolant supply

ABS





NEW

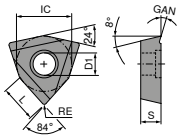
Adapter	LPR mm	SZID	DCONWS mm	DF mm	DCONMS mm	62 359 ... £ W4/6A	
ABS 25	30	STM 14	14	25	13	259.53	**02590**
ABS 32	40	STM 18	18	32	16	261.24	**03289**
ABS 40	40	STM 22	22	40	20	299.04	**04088**
ABS 50	50	STM 28	28	50	28	324.50	**05097**
ABS 63	60	STM 36	36	63	34	352.46	**06396**


Clamping screw ST

Spare parts DCONWS	62 950 ... £ W7	
14	13.55	**027**
18	13.88	**028**
22	15.39	**029**
28	18.05	**030**
36	23.15	**031**

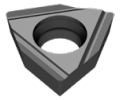
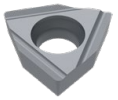
WOHX

Designation	L mm	S mm	D1 mm	IC mm
WOHX 02T0..	2.6	1.20	2	4



WOHX

5

ISO	KOMET no.	RE mm	-G12 BK2710	-G12 BK8440	-G12 K10
					
			F WOHX 62 600 ... £ 1A/3#	F WOHX 62 600 ... £ 1A/3#	F WOHX 62 600 ... £ 1A/3#
02T001EL	W00 04120.018440	0.1		22.73 **00102**	
02T001EL	W00 04120.012710	0.1	22.73 **10102**		
02T001FL	W00 04120.0121	0.1			18.69 **20102**
P			●	●	
M			●	●	
K			●	●	
N					●
S			●		●
H				●	
O					●

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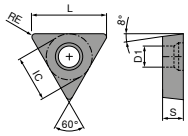
Material group	Guideline recommendation Grade	Chip groove
P	BK8440	-G12
M	BK8440	-G12
K	BK2710	-G12
N	K10	-G12
S	K10	-G12
H1.1	BK8440	-G12
O	K10	-G12

The guideline recommendation shown here is based on experience and serves only to make it easy to find the correct indexable insert for your application.

Additional indexable inserts can be found in our online shop at cuttingtools.ceratizit.com

TOGX

Designation	L	S	D1	IC
	mm	mm	mm	mm
TOGX 06T1..	6.64	1.80	2.2	4.0
TOGX 0902..	9.12	2.50	2.8	5.6
TOGX 1403..	13.62	3.00	3.8	8.2



TOGX

			-18 CK32	-14 CK3230	-14 BK60	-14 BK8430	-12 BK7710	-12 K10
								
			F	F	F	F	F	F
			CERMET TOGX	CERMET TOGX	TOGX	TOGX	TOGX	TOGX
			62 607 ...	62 606 ...	62 601 ...	62 601 ...	62 601 ...	62 601 ...
ISO	KOMET no.	RE mm	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#
06T102EN	W57 04140.0260	0.2			17.65 90206			
06T102EN	W57 04140.028430	0.2				23.29 30201		
06T102EN	W57 04140.023230	0.2		23.29 10201				
06T102EN	W57 04180.0432	0.4	23.29 20401					
06T102FN	W57 04120.027710	0.2					30.47 70201	
06T102FN	W57 04120.0223	0.2						17.65 50206
090202EN	W57 14140.028430	0.2				25.57 33801		
090204EN	W57 14140.0460	0.4			19.34 70409			
090204EN	W57 14140.043230	0.4		25.57 11401				
090204EN	W57 14180.0432	0.4	25.57 21401					
090204FN	W57 14120.047710	0.4					33.12 70401	
090204FN	W57 14120.0423	0.4						19.34 50409
140302EN	W57 26140.028430	0.2				36.17 34401		
140304EN	W57 26140.0460	0.4			27.32 70414			
140304EN	W57 26140.043230	0.4		36.17 12601				
140304EN	W57 26180.0432	0.4	36.17 22601					
140304FN	W57 26120.047710	0.4					51.00 71401	
140304FN	W57 26120.0423	0.4						31.24 50414
P			●	●	●	○		
M			●	●	●	○		
K					●	○		
N							●	●
S						●	○	●
H						●	○	
O							○	●

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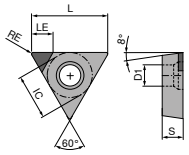
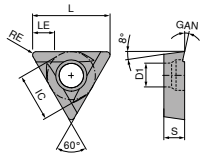
TOGX / TOEX / TOHX

Designation	L	S	D1	IC	LE
	mm	mm	mm	mm	mm
TO.X 06T1..	6.64	1.80	2.2	4.0	1.8
TO.X 0902..	9.12	2.50	2.8	5.6	2.7
TO.X 1403..	13.62	3.00	3.8	8.2	2.7
TOHX 06T1..	6.50	1.80	2.2	4.0	1.0
TOHX 0902..	9.12	2.50	2.8	5.6	2.5
TOHX 1403..	13.62	3.00	3.8	8.2	4.5





TOGX / TOEX / TOHX

	CBN40	CTDPU20	-G12 BK8425	-G06 BK2710	-G06 BK6110	-G06 BK7615
						
	F	F	F	F	F	F
	TOGX	DIAMOND TOEX	TOHX	TOHX	TOHX	TOHX
	62 601 ...	62 605 ...	62 603 ...	62 602 ...	62 602 ...	62 602 ...
ISO	KOMET no.	RE mm	£ Y0	£ Y0	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#
06T102FN	W30 04990.025510	0.2		74.28 00201				
06T102TN	W30 04990.0240	0.2	75.97 60206					
06T103EL	W30 04120.038425	0.3			22.92 30200			
06T103EL	W30 04060.037615	0.3						21.42 80606
06T103EL	W30 04060.036110	0.3					19.34 40606	
06T103EL	W30 04060.032710	0.3				18.18 10606		
090204EL	W30 14120.048425	0.4			25.93 31800			
090204EL	W30 14060.047615	0.4						23.39 80409
090204EL	W30 14060.046110	0.4					21.42 40409	
090204EL	W30 14060.042710	0.4				20.67 10409		
090204FN	W30 14990.045510	0.4		149.94 01401				
090204TN	W30 14990.0440	0.4	84.29 60409					
140304EL	W30 26120.048425	0.4			29.24 32600			
140304EL	W30 26060.047615	0.4						34.64 82600
140304EL	W30 26060.046110	0.4					23.91 40414	
140304EL	W30 26060.042710	0.4				30.73 12600		
140304FN	W30 26990.045510	0.4		159.54 02601				
140304TN	W30 26990.0440	0.4	159.54 62600					
P					●	●	●	
M					●	●	●	
K					●	●	●	●
N				●	○			
S					●	●		
H			●		○		●	
O				●				

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Material group	Guideline recommendation	
	Grade	Chip groove
P	BK60	-14
M	BK2710	-G06
K	BK7615	-G06
N	BK7710	-12
S1.1 – S2.3	BK2710	-G06
S3.1 – S3.3	BK7710	-12
H	CBN40	
O	BK7710	-12

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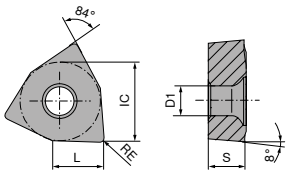
WOEX / WOGX

Designation	L	S	D1	IC
	mm	mm	mm	mm
WO.X 0302..	3.2	2.30	2.30	5.00
WO.X 0403..	4.1	3.18	2.55	6.35
WO.X 05T3..	5.3	3.80	2.85	8.00
WO.X 06T3..	6.6	3.80	4.05	10.00
WO.X 0804..	7.9	4.80	4.90	12.00
WOEX 1005..	9.9	5.30	4.90	15.00
WOEX 1206..	11.6	6.00	5.95	17.60



WOEX

	-01 BK8425	-01 BK7935	-01 BK7615	-11 BK77
				
	WOEX	WOEX	WOEX	WOEX
	10 821 ...	10 821 ...	10 821 ...	10 821 ...
ISO	KOMET no.	RE mm	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#
030204	W29 10010.047935	0.4		14.50 50301		
030204	W29 10110.0477	0.4				14.30 80311
030204	W29 10010.047615	0.4			22.92 05301	
030204	W29 10010.048425	0.4	13.74 30301			
040304	W29 18010.047935	0.4		15.39 50401		
040304	W29 18110.0477	0.4				15.02 80411
040304	W29 18010.047615	0.4			23.05 05401	
040304	W29 18010.048425	0.4	14.60 30401			
05T304	W29 24010.047935	0.4		15.62 50501		
05T304	W29 24110.0477	0.4				15.18 80511
05T304	W29 24010.047615	0.4			24.05 05501	
05T304	W29 24010.048425	0.4	14.98 30501			
06T304	W29 34010.047935	0.4		17.74 50601		
06T304	W29 34110.0477	0.4				17.00 80611
06T304	W29 34010.047615	0.4			25.83 05601	
06T304	W29 34010.048425	0.4	16.74 30601			
080404	W29 42010.047935	0.4		22.35 50801		
080404	W29 42110.0477	0.4				21.78 80811
080404	W29 42010.047615	0.4			31.49 05801	
080404	W29 42010.048425	0.4	21.15 30801			
100504	W29 50010.047935	0.4		30.42 51001		
100504	W29 50110.0477	0.4				30.11 81011
100504	W29 50010.047615	0.4			35.15 06001	
100504	W29 50010.048425	0.4	28.84 31001			
120608	W29 58010.087935	0.8		35.40 53201		
120608	W29 58010.087615	0.8			43.34 08201	
120608	W29 58010.088425	0.8	33.51 31201			
P			●	●		
M			●	●		
K			●	●	●	
N			○	○		
S			●	●		●
H			○			○
O						○

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WOEX / WOGX

			-01 BK6115	-02 BK6440	-15 BK8430	-11 BK7710
						
			WOEX	WOEX	WOGX	WOEX
			10 821 ...	10 821 ...	10 821 ...	10 821 ...
ISO	KOMET no.	RE mm	£ 1A/3#	£ 1A/3#	£ 1A/3#	£ 1A/3#
030204	W29 10150.048430	0.4			24.93 00315	
030204	W29 10110.047710	0.4				14.98 90311
030204	W29 10010.046115	0.4	19.90 40301			
040304	W29 18150.048430	0.4			25.93 00415	
040304	W29 18110.047710	0.4				15.87 90411
040304	W29 18010.046115	0.4	20.03 40401			
05T304	W29 24020.046440	0.4		20.03 25502		
05T304	W29 24110.047710	0.4				16.00 90511
05T304	W29 24150.048430	0.4			26.33 00515	
05T304	W29 24010.046115	0.4	21.65 40501			
06T304	W29 34020.046440	0.4		22.17 25602		
06T304	W29 34110.047710	0.4				18.01 90611
06T304	W29 34150.048430	0.4			30.11 00615	
06T304	W29 34010.046115	0.4	21.40 40601			
080404	W29 42020.046440	0.4		27.60 25802		
080404	W29 42110.047710	0.4				22.92 90811
080404	W29 42150.048430	0.4			34.12 00815	
080404	W29 42010.046115	0.4	26.43 40801			
100504	W29 50020.046440	0.4		31.11 26002		
100504	W29 50110.047710	0.4				31.49 91011
100504	W29 50010.046115	0.4	31.24 41001			
120608	W29 58020.086440	0.8		38.30 21202		
120608	W29 58010.086115	0.8	39.16 41201			
P			●	●	○	
M			●	●	○	
K			●		○	
N						●
S					●	○
H			○		●	○
O						○

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Material group	Guideline recommendation Grade / chip breaker
P	BK8425 / -01
M	BK7935 / -01
K	BK7615 / -01
N	BK7710 / -11
S1.1 – S2.3	BK7935 / -01
S3.1 – S3.3	BK7710 / -11
O	BK7710 / -11

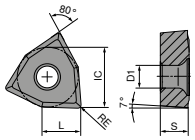
Material group	Maximum feed values						
	WO.X 0302	WO.X 0403	WO.X 05T3	WO.X 06T3	WO.X 0804	WO.X 1005	WO.X 1206
	a_p max.						
P	1,5	2,5	4,5	6,0	7,5	9,0	9,0
M	1,0	1,5	3,5	4,0	6,0	9,0	9,0
K	1,5	3,0	5,0	6,0	7,5	9,0	9,0
N	2,0	3,0	5,0	6,0	7,5	9,0	9,0
S	1,0	1,5	3,5	4,0	6,0	9,0	9,0
O	1,0	1,5	3,5	4,0	7,5	9,0	9.0

The guideline recommendation shown here is based on experience and serves only to make it easy to find the correct indexable insert for your application.

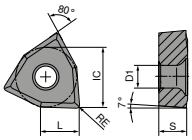
Additional indexable inserts can be found in our online shop at cuttingtools.ceratizit.com

WCMT / WCGT

Designation	L	S	D1	IC
	mm	mm	mm	mm
WC.T 0201..	2.71	1.59	2.1	3.97



WCMT



WCGT

WCMT / WCGT

		-SF30 CWC06		-SF20 CWN10		-SF16 CWP25	
							
		F		F		F	
		CERMET WCMT		WCGT		WCGT	
		70 294 ...		70 295 ...		70 295 ...	
ISO	RE mm	£ X2		£ X2		£ X2	
020102	0.2	18.84	850	119.42	850	53.91	500
020104	0.4			119.42	852		
P		●		●		●	
M		○		●		●	
K		●		●		○	
N		●		●		●	
S				●			
H				●			
O							

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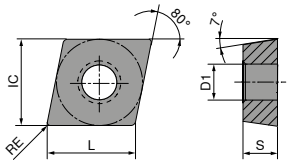
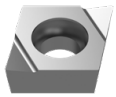
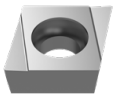
Additional indexable inserts can be found in → **Chapter 9, Indexable insert turning tools**
or in our online shop at cuttingtools.ceratizit.com

CCGT

Designation	L mm	S mm	D1 mm	IC mm
CCGT 06..	6.4	2.38	2.8	6.35
CCGT 09..	9.7	3.97	4.4	9.52



CCGT

	-SF20 CWN10	-SF15 CWC06	-SF14 CWC10
			
	F	F	F
		CERMET	CERMET
	CCGT	CCGT	CCGT
	70 296 ...	70 296 ...	70 300 ...

ISO	RE mm	£ X2		£ X2		£ X2	
060202L	0.2	84.37	300	54.45	850	20.09	903
060204L	0.4	84.37	302	54.45	852	20.09	905
09T302L	0.2	91.07	304	58.89	854	25.06	911
09T304L	0.4	91.07	306	58.89	856	25.06	913
P		●		●		●	
M		●		○		●	
K		●		●		●	
N		●		●			
S		●					
H		●					
O							

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Additional indexable inserts can be found in → **Chapter 9, Indexable insert turning tools** or in our online shop at cuttingtools.ceratizit.com

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

* Tensile strength

Cutting data standard values for indexable inserts – MicroKom tools

Index	Indexable inserts for ...																			
	MicroKom													TwinKom						
	62 800 ..., 62 810 ..., 62 815 ..., 62 820 ..., 62 840 ...													62 870 ...						
	K10	BK 2710	BK 60	BK 6110	BK 7615	BK 7710	BK 8425	BK 8430	BK 8440	CBN 40	CTDPU 20	CK 3230	CK 32	BK 6115	BK 6440	BK 7615	BK 77	BK 7710	BK 7935	BK 8425	BK 8430
	v_c (m/min)													v_c (m/min)							
P.1.1		230	270	300			260	200	170			350	350	300	240				250	260	200
P.1.2		230	270	300			260	200	170			350	350	300	240				220	260	200
P.1.3		230	270	300			270	200	170			350	350	270	220				270	270	200
P.1.4		210	250	300			240	180	150			320	320	250	220				240	240	180
P.1.5		210	250	300			230	180	150			320	320	270	220				200	230	180
P.2.1		180	210	270			270	160	140			280	280	270	200				270	270	160
P.2.2		180	210	270			260	160	140			280	280	260	200				260	260	160
P.2.3		180	210	270			180	160	140			280	280	240	200				160	180	160
P.2.4		180	210	270			150	160	140			280	280	190	200				130	150	160
P.3.1		160	190	250			160	140	120			250	250	200	180				140	160	140
P.3.2		160	190	250			130	140	120			250	250	160	160				110	130	140
P.3.3		160	190	250			120	140	120			250	250	140	160				100	120	140
P.4.1		140	160	220			180	120	100			210	210	220	140				160	180	120
P.4.2		140	160	220			130	120	100			210	210	160	140				110	130	120
M.1.1		180	280	220			150	160	140			280	280	220	200				160	150	160
M.2.1		160	250	220			150	140	120			250	250	220	180				160	150	140
M.3.1		120	180	200			130	100	90			180	180	200	160				150	130	100
K.1.1		210	210	290	290		160	180	150					240		290			150	160	180
K.1.2		180	180	290	290		120	160	140					140		290			110	120	160
K.2.1		160	160	270	270		160	140	120					160		270			150	160	140
K.2.2		160	160	250	250		100	140	120					100		250			90	100	140
K.3.1		140	140	220	220		120	120	100					120		220			110	120	120
K.3.2		140	140	220	220		100	120	100					100		220			90	100	120
N.1.1	250					600	400				500							600	400	400	
N.1.2	250					500	400				500							500	400	400	
N.2.1	250					400	250				500							400	250	250	
N.2.2	250					300	250				500							300	250	250	
N.2.3	250					250	230				500							250	230	230	
N.3.1	230					400	200				450							400	200	200	
N.3.2	230					300	220				450							300	220	220	
N.3.3	230					300	330				450							300	330	330	
N.4.1	230					300	200				450							300	200	200	
S.1.1	20	60				60	60	60									50	60	50	60	60
S.1.2	20	50				60	50	50									40	60	40	50	50
S.2.1	20	60				60	60	60									50	60	50	60	60
S.2.2	20	50				60	50	50									40	60	40	50	50
S.2.3	20	30				60	30	30									30	60	30	30	30
S.3.1	60	100				80	100	100									70	80	70	100	100
S.3.2	30	80				80	80	80									60	80	60	80	80
S.3.3	30	50				80	50	50									40	80	40	50	50
H.1.1				100		80	100	100	90	160				100			40	80		100	100
H.1.2				80		40	80	80	70	185				80			30	40		80	80
H.1.3				50		40	50	50	40	215				50			20	40		50	50
H.1.4						40				240								40			
H.2.1				100		80	100	100	90					100			40	80		100	100
H.3.1				80		80	80	80	70					80			30	80		80	80
O.1.1	100					100					500						100	100			
O.1.2	100					100					500						100	100			
O.2.1											500										
O.2.2	100					100					300						100	100			
O.3.1	100					100					300						100	100			

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The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

5

Cutting data standard values for indexable inserts – SpinTools tools

Index	Indexable inserts for ...									Boring steel	Inserts Cutting insert
	62 295 ...					62 303 ..., 62 304 ..., 62 305 ..., 62 308 ..., 62 326 ..., 62 332 ..., 62 333 ..., 62 363 ..., 62 372 ..., 62 373 ...				62 346 ...	62 383 ..., 62 384 ...
	CTCP125 (HCX1125)	CTCP115 (HCX1115)	CTCP135 (HCR1135)	CTC2135 (CWN2135)	H10T (CWK15)	CWN10	CWP25	CWC06	CWC10	HM uncoated	Solid carbide TiN
	v_c (m/min)					v_c (m/min)				v_c (m/min)	v_c (m/min)
P.1.1	295	370	210	360		185	185	250	175	175	190
P.1.2	250	315	175	360		185	185	250	140	175	200
P.1.3	210	270	145	360		185	185	250	140	175	170
P.1.4	200	250	135	375		185	185	250	140	175	170
P.1.5	180	230	120	375		185	185	250	140	175	160
P.2.1	260	325	180	385		185	185	250	140	175	180
P.2.2	195	250	130	385		185	185	250	175	175	150
P.2.3	180	230	120	385		185	185	250	140	175	160
P.2.4	130	170	85	385		185	185	250	140	175	160
P.3.1	170	200	150	310		185	185	250	175	175	120
P.3.2	105	140	95	310		135	135	165	140	65	100
P.3.3	40	85	35	310		135	135	165	140	65	100
P.4.1	170	200	155	320		125	125	120	120	100	80
P.4.2	135	170	125	320		125	125	120	120	100	80
M.1.1			155	300		120	120	120	120	100	80
M.2.1			95	310		100	100	100	110	70	80
M.3.1			135	325		120	120	120	120	100	80
K.1.1	170	255			140	160	160	160	225	135	200
K.1.2	160	235			115	160	160	160	225	135	150
K.2.1	180	270			150	160	160	160	125	135	120
K.2.2	160	205			110	140	140	140	125	115	110
K.3.1	200	250			170	140	140	140	125	115	180
K.3.2	160	210			140	140	140	140	125	115	150
N.1.1					1400	400	400	400		250	300
N.1.2					1100	400	400	400		250	240
N.2.1					950	400	400	400		250	240
N.2.2					950	400	400	400		250	240
N.2.3					500	400	400	400		250	240
N.3.1					425	400	400	400		250	290
N.3.2					400	400	400	400		250	290
N.3.3					275	400	400	400		250	290
N.4.1					225						220
S.1.1				30		55					60
S.1.2				25		55					40
S.2.1				15		55					30
S.2.2				10		55					30
S.2.3				10		55					30
S.3.1				105		55					30
S.3.2				25		55					25
S.3.3						55					25
H.1.1						125					110
H.1.2						100					80
H.1.3						80					70
H.1.4											
H.2.1						170					70
H.3.1						125					70
O.1.1					130						240
O.1.2											240
O.2.1					105						180
O.2.2											180
O.3.1											180

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The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

Cutting data standard values for precision adjustment heads – MicroKom

Index	62 820 …, 62 840 …, 62 800 … BluFlex 2, hi.flex Fine machining with depth of cut a_p = 0.1 – 0.2 mm				62 800 06089 hi.flex micro Fine machining with depth of cut a_p = 0.1 – 0.2 mm			● 1st choice ○ suitable		
	Ø 0,5 – 5,6	Ø 5,6 – 8	Ø 8 – 12	Ø 12 – 365	Ø 0,5 – 8	Ø 8 – 12	Ø 12 – 60	Emulsion	Compressed air	MMS
	f (mm/rev)				f (mm/rev)					
P.1.1	0,02–0,05	0,03–0,04	0,05–0,07	0,07–0,10	0,02–0,05	0,05–0,07	0,07–0,10	●	○	
P.1.2	0,02–0,05	0,03–0,04	0,05–0,07	0,08–0,12	0,02–0,05	0,05–0,07	0,08–0,12	●	○	
P.1.3	0,02–0,05	0,03–0,04	0,04–0,06	0,08–0,12	0,02–0,05	0,04–0,06	0,08–0,12	●	○	
P.1.4	0,02–0,05	0,03–0,04	0,04–0,06	0,07–0,10	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
P.1.5	0,02–0,05	0,03–0,04	0,05–0,07	0,08–0,12	0,02–0,05	0,05–0,07	0,08–0,12	●	○	
P.2.1	0,02–0,05	0,03–0,04	0,04–0,06	0,08–0,12	0,02–0,05	0,04–0,06	0,08–0,12	●	○	
P.2.2	0,02–0,05	0,03–0,04	0,04–0,06	0,07–0,10	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
P.2.3	0,02–0,05	0,02–0,03	0,04–0,06	0,07–0,10	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
P.2.4	0,02–0,05	0,02–0,03	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
P.3.1	0,02–0,05	0,02–0,03	0,04–0,06	0,06–0,08	0,02–0,05	0,04–0,06	0,06–0,08	●	○	
P.3.2	0,02–0,05	0,02–0,03	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
P.3.3	0,02–0,05	0,02–0,03	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
P.4.1	0,02–0,05	0,02–0,03	0,04–0,05	0,07–0,10	0,02–0,05	0,04–0,05	0,07–0,10	●	○	
P.4.2	0,02–0,05	0,02–0,03	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
M.1.1	0,02–0,05	0,01–0,015	0,04–0,05	0,07–0,10	0,02–0,05	0,04–0,05	0,07–0,10	●	○	
M.2.1	0,02–0,05	0,01–0,015	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
M.3.1	0,02–0,05	0,01–0,015	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
K.1.1	0,02–0,05	0,04–0,05	0,06–0,08	0,11–0,15	0,02–0,05	0,06–0,08	0,11–0,15	○	●	
K.1.2	0,02–0,05	0,04–0,05	0,06–0,08	0,11–0,15	0,02–0,05	0,06–0,08	0,11–0,15	○	●	
K.2.1	0,02–0,05	0,03–0,04	0,06–0,08	0,11–0,15	0,02–0,05	0,06–0,08	0,11–0,15	○	●	
K.2.2	0,02–0,05	0,02–0,03	0,05–0,07	0,08–0,12	0,02–0,05	0,05–0,07	0,08–0,12	○	●	
K.3.1	0,02–0,05	0,03–0,04	0,06–0,08	0,11–0,15	0,02–0,05	0,06–0,08	0,11–0,15	○	●	
K.3.2	0,02–0,05	0,02–0,03	0,05–0,07	0,08–0,12	0,02–0,05	0,05–0,07	0,08–0,12	○	●	
N.1.1	0,02–0,05	0,01–0,02	0,04–0,06	0,07–0,10	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
N.1.2	0,02–0,05	0,01–0,02	0,04–0,06	0,07–0,10	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
N.2.1	0,02–0,05	0,04–0,05	0,06–0,08	0,08–0,12	0,02–0,05	0,06–0,08	0,08–0,12	●	○	
N.2.2	0,02–0,05	0,04–0,05	0,06–0,08	0,08–0,12	0,02–0,05	0,06–0,08	0,08–0,12	●	○	
N.2.3	0,02–0,05	0,04–0,05	0,06–0,08	0,08–0,12	0,02–0,05	0,06–0,08	0,08–0,12	●	○	
N.3.1	0,02–0,05	0,01–0,02	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
N.3.2	0,02–0,05	0,01–0,02	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
N.3.3	0,02–0,05	0,04–0,05	0,06–0,08	0,11–0,15	0,02–0,05	0,06–0,08	0,11–0,15	●	○	
N.4.1	0,02–0,05	0,01–0,02	0,03–0,04	0,06–0,08	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
S.1.1	0,02–0,08	0,01–0,015	0,03–0,04	0,06–0,08	0,02–0,08	0,03–0,04	0,06–0,08	●	○	
S.1.2	0,02–0,08	0,01–0,015	0,02–0,03	0,04–0,06	0,02–0,08	0,02–0,03	0,04–0,06	●	○	
S.2.1	0,02–0,08	0,01–0,015	0,03–0,04	0,06–0,08	0,02–0,08	0,03–0,04	0,06–0,08	●	○	
S.2.2	0,02–0,08	0,01–0,015	0,02–0,03	0,04–0,06	0,02–0,08	0,02–0,03	0,04–0,06	●	○	
S.2.3	0,02–0,08	0,01–0,015	0,06–0,08	0,04–0,06	0,02–0,08	0,06–0,08	0,04–0,06	●	○	
S.3.1	0,02–0,08	0,01–0,015	0,03–0,04	0,06–0,08	0,02–0,08	0,03–0,04	0,06–0,08	●	○	
S.3.2	0,02–0,08	0,01–0,015	0,03–0,04	0,06–0,08	0,02–0,08	0,03–0,04	0,06–0,08	●	○	
S.3.3	0,02–0,08	0,01–0,015	0,01–0,02	0,03–0,04	0,02–0,08	0,01–0,02	0,03–0,04	●	○	
H.1.1	0,02–0,05		0,04–0,05	0,06–0,08	0,02–0,05	0,04–0,05	0,06–0,08		●	
H.1.2	0,02–0,05		0,04–0,05	0,06–0,08	0,02–0,05	0,04–0,05	0,06–0,08		●	
H.1.3	0,02–0,05		0,02–0,03	0,03–0,04	0,02–0,05	0,02–0,03	0,03–0,04		●	
H.1.4										
H.2.1	0,02–0,05		0,04–0,05	0,06–0,08	0,02–0,05	0,04–0,05	0,06–0,08		●	
H.3.1	0,02–0,05		0,04–0,05	0,06–0,08	0,02–0,05	0,04–0,05	0,06–0,08		●	
O.1.1	0,02–0,05		0,06–0,08	0,06–0,08	0,02–0,05	0,06–0,08	0,06–0,08	○	●	
O.1.2	0,02–0,05		0,06–0,08	0,06–0,08	0,02–0,05	0,06–0,08	0,06–0,08	○	●	
O.2.1										
O.2.2	0,02–0,05		0,06–0,08	0,07–0,10	0,02–0,05	0,06–0,08	0,07–0,10		●	
O.3.1	0,02–0,05		0,06–0,08	0,07–0,10	0,02–0,05	0,06–0,08	0,07–0,10		●	

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The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The specified values represent guideline cutting data that can be adjusted within the range according to the usage conditions! It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

5

Cutting data standard values for precision adjustment heads – MicroKom

Index	62 815 … M03 Speed, Fine machining with depth of cut a_p = 0.1 – 0.2 mm		62 810 … FF precision adjustment head, Fine machining with depth of cut a_p = 0.1 – 0.2 mm			● 1st choice ○ suitable		
	Ø 24,8 – 63	Ø 63 – 206	Ø 29,5 – 50	Ø 47 – 83	Ø 79 – 199	Emulsion	Compressed air	MMS
	f (mm/rev)		f (mm/rev)					
P.1.1	0,06–0,08	0,07–0,10	0,06–0,08	0,07–0,10	0,11–0,15	●	○	○
P.1.2	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,14–0,20	●	○	○
P.1.3	0,06–0,08	0,08–0,12	0,06–0,08	0,08–0,12	0,14–0,20	●	○	○
P.1.4	0,05–0,07	0,07–0,10	0,05–0,07	0,07–0,10	0,13–0,18	●	○	○
P.1.5	0,06–0,09	0,09–0,13	0,06–0,09	0,09–0,13	0,13–0,18	●	○	○
P.2.1	0,06–0,08	0,08–0,12	0,06–0,08	0,08–0,12	0,14–0,20	●	○	○
P.2.2	0,05–0,07	0,07–0,10	0,05–0,07	0,07–0,10	0,13–0,18	●	○	○
P.2.3	0,06–0,08	0,07–0,10	0,06–0,08	0,07–0,10	0,14–0,20	●	○	○
P.2.4	0,04–0,06	0,06–0,08	0,04–0,06	0,06–0,08	0,07–0,10	●	○	○
P.3.1	0,04–0,06	0,07–0,10	0,04–0,06	0,07–0,10	0,11–0,15	●	○	○
P.3.2	0,03–0,04	0,06–0,08	0,03–0,04	0,06–0,08	0,08–0,12	●	○	○
P.3.3	0,03–0,04	0,05–0,07	0,03–0,04	0,05–0,07	0,07–0,10	●	○	○
P.4.1	0,04–0,06	0,07–0,10	0,04–0,06	0,07–0,10	0,11–0,15	●	○	○
P.4.2	0,03–0,04	0,06–0,08	0,03–0,04	0,06–0,08	0,08–0,12	●	○	○
M.1.1	0,04–0,06	0,07–0,10	0,04–0,06	0,07–0,10	0,11–0,15	●	○	○
M.2.1	0,04–0,06	0,07–0,10	0,04–0,06	0,07–0,10	0,11–0,15	●	○	○
M.3.1	0,04–0,05	0,06–0,09	0,04–0,05	0,06–0,09	0,08–0,12	●	○	○
K.1.1	0,11–0,15	0,14–0,20	0,11–0,15	0,14–0,20	0,21–0,30	○	●	○
K.1.2	0,11–0,15	0,14–0,20	0,11–0,15	0,14–0,20	0,21–0,30	○	●	○
K.2.1	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,18–0,25	○	●	○
K.2.2	0,06–0,08	0,08–0,12	0,06–0,08	0,08–0,12	0,14–0,20	○	●	○
K.3.1	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,18–0,25	○	●	○
K.3.2	0,06–0,08	0,08–0,12	0,06–0,08	0,08–0,12	0,14–0,20	○	●	○
N.1.1	0,06–0,08	0,08–0,12	0,06–0,08	0,08–0,12	0,11–0,15	●	○	○
N.1.2	0,06–0,08	0,08–0,12	0,06–0,08	0,08–0,12	0,11–0,15	●	○	○
N.2.1	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,14–0,20	●	○	○
N.2.2	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,14–0,20	●	○	○
N.2.3	0,06–0,09	0,08–0,12	0,06–0,09	0,08–0,12	0,13–0,18	●	○	○
N.3.1	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,14–0,20	●	○	○
N.3.2	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,15–0,22	●	○	○
N.3.3	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,14–0,20	●	○	○
N.4.1	0,07–0,10	0,11–0,15	0,07–0,10	0,11–0,15	0,14–0,20	●	○	○
S.1.1	0,04–0,06	0,06–0,08	0,04–0,06	0,06–0,08	0,07–0,10	●	○	○
S.1.2	0,03–0,04	0,04–0,06	0,03–0,04	0,04–0,06	0,06–0,08	●	○	○
S.2.1	0,04–0,06	0,06–0,08	0,04–0,06	0,06–0,08	0,07–0,10	●	○	○
S.2.2	0,03–0,04	0,04–0,06	0,03–0,04	0,04–0,06	0,06–0,08	●	○	○
S.2.3	0,03–0,04	0,04–0,06	0,03–0,04	0,04–0,06	0,04–0,06	●	○	○
S.3.1	0,04–0,06	0,06–0,08	0,04–0,06	0,06–0,08	0,08–0,11	●	○	○
S.3.2	0,04–0,06	0,06–0,08	0,04–0,06	0,06–0,08	0,07–0,10	●	○	○
S.3.3	0,03–0,04	0,04–0,06	0,03–0,04	0,04–0,06	0,07–0,10	●	○	○
H.1.1	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	0,07–0,10		●	○
H.1.2	0,04–0,06	0,04–0,06	0,04–0,06	0,04–0,06	0,06–0,08		●	○
H.1.3	0,03–0,04	0,03–0,04	0,03–0,04	0,03–0,04	0,03–0,04		●	○
H.1.4								
H.2.1	0,04–0,05	0,04–0,06	0,04–0,05	0,04–0,06	0,07–0,10		●	○
H.3.1	0,04–0,05	0,04–0,06	0,04–0,05	0,04–0,06	0,06–0,08		●	○
O.1.1	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	○	●	○
O.1.2	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	○	●	○
O.2.1								
O.2.2	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08		●	
O.3.1	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08	0,06–0,08		●	

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The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The specified values represent guideline cutting data that can be adjusted within the range according to the usage conditions! It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

Cutting data standard values for finish boring heads – SpinTools

Index	62 303 ..., 62 308 ...	62 305 ...	● 1st choice ○ suitable			62 382 ..., 62 386 ...	62 372 ..., 62 373 ...	62 326 ..., 62 332 ..., 62 333 ..., 62 363 ...	62 304 ...	● 1st choice ○ suitable		
	Single point finish boring head		Emulsion	Compressed air	MMS	Micro Boring Head	Multi-Head boring and fine boring head	Single point boring head	Fine boring head	Emulsion	Compressed air	MMS
	a_p = 0,1 – 0,4					a_p = 0,1 – 0,2	a_p = 0,1 – 0,4	a_p = 0,1 – 0,4	a_p = 0,1 – 0,4			
	Ø 23,9–116,1	Ø 86–402				Ø 0,3–19,1	Ø 2–320	Ø 3–88	Ø 14,7–24,1			
	f (mm/rev)					f (mm/rev)						
P.1.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.1.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.1.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.1.4	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.1.5	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.2.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.2.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.2.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.2.4	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.3.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.3.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.3.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.4.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
P.4.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
M.1.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
M.2.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
M.3.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
K.1.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
K.1.2	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
K.2.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
K.2.2	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
K.3.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
K.3.2	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
N.1.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.1.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.2.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.2.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.2.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.3.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.3.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.3.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
N.4.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.1.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.1.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.2.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.2.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.2.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.3.1	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.3.2	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
S.3.3	0,03–0,12	0,03–0,12	●	○		0,02	0,03–0,12	0,03–0,12	0,03–0,10	●	○	○
H.1.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
H.1.2	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
H.1.3	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
H.1.4												
H.2.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
H.3.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
O.1.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
O.1.2	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	○
O.2.1	0,03–0,12	0,03–0,12	○	●		0,02	0,03–0,12	0,03–0,12	0,03–0,10	○	●	
O.2.2	0,03–0,12	0,03–0,12		●		0,02	0,03–0,12	0,03–0,12	0,03–0,10		●	
O.3.1	0,03–0,12	0,03–0,12		●		0,02	0,03–0,12	0,03–0,12	0,03–0,10		●	

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The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The specified values represent guideline cutting data that can be adjusted within the range (i.e. by ± 20%) according to the usage conditions! It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

Cutting data standard values for boring heads for roughing – TwinKom

Index	62 870 … Twin cutters Cutting depth a_p = 1 – 9 mm							● 1st choice ○ suitable		
	Ø 24–32	Ø 30– 41	Ø 39– 53	Ø 51–71	Ø 64–91	Ø 83–124	Ø 109–215	Emulsion	Compressed air	MMS
	f (mm/rev)									
P.1.1	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.1.2	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.1.3	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.1.4	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.1.5	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.2.1	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.2.2	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.2.3	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.2.4	0,14–0,20	0,17–0,24	0,22–0,30	0,28–0,40	0,32–0,45	0,35–0,50	0,35–0,50	●	○	○
P.3.1	0,11–0,15	0,14–0,20	0,18–0,25	0,22–0,32	0,27–0,38	0,29–0,42	0,29–0,42	●	○	○
P.3.2	0,11–0,15	0,14–0,20	0,18–0,25	0,22–0,32	0,27–0,38	0,29–0,42	0,29–0,42	●	○	○
P.3.3	0,11–0,15	0,14–0,20	0,18–0,25	0,22–0,32	0,27–0,38	0,29–0,42	0,29–0,42	●	○	○
P.4.1	0,08–0,12	0,11–0,15	0,14–0,20	0,18–0,25	0,20–0,28	0,25–0,35	0,25–0,35	●	○	○
P.4.2	0,08–0,12	0,11–0,15	0,14–0,20	0,18–0,25	0,20–0,28	0,25–0,35	0,25–0,35	●	○	○
M.1.1	0,10–0,14	0,13–0,18	0,17–0,24	0,17–0,24	0,21–0,30	0,28–0,40	0,32–0,45	●	○	○
M.2.1	0,10–0,14	0,13–0,18	0,17–0,24	0,28–0,40	0,21–0,30	0,28–0,40	0,32–0,45	●	○	○
M.3.1	0,08–0,12	0,10–0,14	0,14–0,20	0,14–0,20	0,18–0,25	0,21–0,30	0,25–0,35	●	○	○
K.1.1	0,18–0,25	0,21–0,30	0,28–0,40	0,35–0,50	0,39–0,55	0,42–0,60	0,42–0,60	○	●	○
K.1.2	0,18–0,25	0,21–0,30	0,28–0,40	0,35–0,50	0,39–0,55	0,42–0,60	0,42–0,60	○	●	○
K.2.1	0,18–0,25	0,21–0,30	0,28–0,40	0,35–0,50	0,39–0,55	0,42–0,60	0,42–0,60	○	●	○
K.2.2	0,15–0,22	0,20–0,28	0,21–0,30	0,32–0,45	0,32–0,45	0,35–0,50	0,35–0,50	○	●	○
K.3.1	0,14–0,20	0,17–0,24	0,20–0,28	0,25–0,35	0,28–0,40	0,32–0,45	0,32–0,45	○	●	○
K.3.2	0,14–0,20	0,17–0,24	0,20–0,28	0,25–0,35	0,28–0,40	0,32–0,45	0,32–0,45	○	●	○
N.1.1	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.1.2	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.2.1	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.2.2	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.2.3	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.3.1	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.3.2	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.3.3	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
N.4.1	0,18–0,25	0,21–0,30	0,35–0,50	0,35–0,50	0,42–0,60	0,49–0,70	0,49–0,70	●	○	○
S.1.1	0,08–0,12	0,08–0,12	0,08–0,12	0,10–0,14	0,13–0,18	0,14–0,20	0,14–0,20	●	○	○
S.1.2	0,07–0,10	0,07–0,10	0,07–0,10	0,08–0,11	0,10–0,14	0,11–0,16	0,11–0,16	●	○	○
S.2.1	0,08–0,12	0,08–0,12	0,08–0,12	0,10–0,14	0,13–0,18	0,14–0,20	0,14–0,20	●	○	○
S.2.2	0,07–0,10	0,07–0,10	0,07–0,10	0,08–0,11	0,13–0,18	0,11–0,16	0,11–0,16	●	○	○
S.2.3	0,07–0,10	0,07–0,10	0,07–0,10	0,08–0,11	0,10–0,14	0,11–0,16	0,11–0,16	●	○	○
S.3.1	0,08–0,12	0,08–0,12	0,08–0,12	0,10–0,14	0,13–0,18	0,14–0,20	0,14–0,20	●	○	○
S.3.2	0,08–0,12	0,08–0,12	0,08–0,12	0,10–0,14	0,13–0,18	0,14–0,20	0,14–0,20	●	○	○
S.3.3	0,07–0,10	0,07–0,10	0,07–0,10	0,08–0,11	0,13–0,18	0,11–0,16	0,11–0,16	●	○	○
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1	0,11–0,16	0,11–0,16	0,11–0,16	0,14–0,20	0,14–0,20	0,14–0,20	0,14–0,20	○	●	○
O.1.2	0,11–0,16	0,11–0,16	0,11–0,16	0,14–0,20	0,14–0,20	0,14–0,20	0,14–0,20	○	●	○
O.2.1										
O.2.2	0,06–0,08	0,06–0,08	0,07–0,10	0,07–0,10	0,08–0,12	0,08–0,12	0,10–0,14		●	
O.3.1	0,06–0,08	0,06–0,08	0,07–0,10	0,07–0,10	0,09–0,12	0,08–0,12	0,10–0,14		●	

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The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The specified values represent guideline cutting data that can be adjusted within the range according to the usage conditions! It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

Cutting data standard values for boring heads for roughing – SpinTools

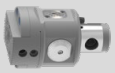
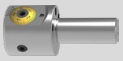
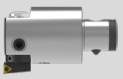
Index	62 295 … Twin rough boring head, Cutting depth a_p = 2.5 – 7 mm			● 1st choice ○ suitable		
	Ø 23,5–40,5	Ø 40,5–66,5	Ø 66,5–87,5	Emulsion	Compressed air	MMS
	f (mm/rev)					
P.1.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.1.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.1.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.1.4	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.1.5	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.2.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.2.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.2.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.2.4	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.3.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.3.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.3.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.4.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
P.4.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
M.1.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
M.2.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
M.3.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
K.1.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
K.1.2	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
K.2.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
K.2.2	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
K.3.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
K.3.2	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
N.1.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.1.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.2.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.2.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.2.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.3.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.3.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.3.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
N.4.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.1.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.1.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.2.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.2.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.2.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.3.1	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.3.2	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
S.3.3	0,3–0,4	0,4–0,5	0,5–0,7	●	○	
H.1.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
H.1.2	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
H.1.3	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
H.1.4						
H.2.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
H.3.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
O.1.1	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
O.1.2	0,3–0,4	0,4–0,5	0,5–0,7	○	●	
O.2.1	0,3–0,4	0,4–0,5	0,5–0,7	○		
O.2.2	0,3–0,4	0,4–0,5	0,5–0,7		●	
O.3.1	0,3–0,4	0,4–0,5	0,5–0,7		●	

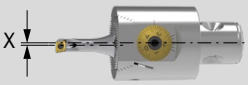
→ v_c Page 65+66 → $n_{max.}$ Page 72+74 → LTA Page 72+74

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The specified values represent guideline cutting data that can be adjusted within the range according to the usage conditions! It is essential to observe the v_c values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length (LTA).

Fine boring tools

Maximum speed

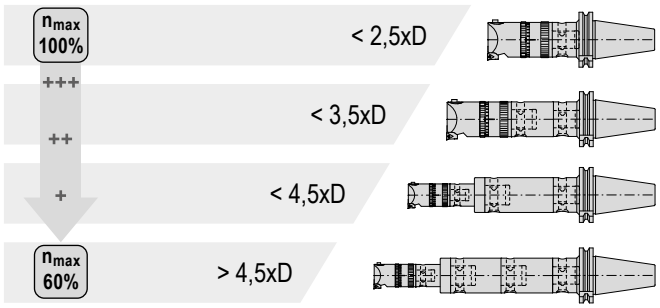
System / tool		Boring range Ø (mm)	Maximum speed in slide centre position n_{max} in $1/_{min}$
	**62 820 ..., 62 840 ...** BluFlex 2	0,5–365	20.000
	**62 800 ...** hi.flex	0,5–365	17.500
	**62 800 06089** hi.flex micro	0,5–60	30.000
	**62 386 ..., 62 382 ...** Micro Boring Head	0,3–19,1	30.000
	**62 815 ...** M03 Speed	24–39	40.000
		38–50	31.000
		49–63	24.000
		62–80	18.500
		79– 103	15.000
		100– 130	11.500
		128–168	10.000
		166–206	8.000
	**62 810 ...** FF precision adjustment head	29,5–42	25.000
		39–50	18.000
		47–66	12.000
		58–83	9.000
		79– 108	6.000
		100–141	4.000
		138–179	3.500
		178–199	3.000
	**62 372 ..., 62 373 ...** Multi-Head boring and fine boring head with bridge	88–164	900
		164–320	250
	**62 305 ...** Single point finish boring head with insert holder	86–138	1.150
		136–220	720
		188–302	520
		242–402	400

System / tool	Boring range Ø (mm)	Offset Maximum speed n_{max} in $1/_{min}$	
		X ≤ 0,5 mm	X > 0,5 mm
62 372 ..., 62 373 ... Multi-Head boring and fine boring head with boring bar	3–20	16.000	6.000
62 326 ..., 62 332 ..., 62 333 ..., 62 363 ... Single point boring head with boring bar	20–48	12.000	4.000
	48–88	8.000	2.000

System / tool	Boring range Ø (mm)	Unbalanced Maximum speed n_{max} in $1/_{min}$	Balanced
			
62 308 ..., 62 303 ... Single point finish boring head with insert holder	24–31	9.000	12.000
	31–40	7.500	10.000
	40–51	5.250	8.000
	51–67	4.000	6.500
	67– 87	3.000	5.000
	87–116	2.500	4.000
	116–153	1.750	3.000

Selection of the maximum speed

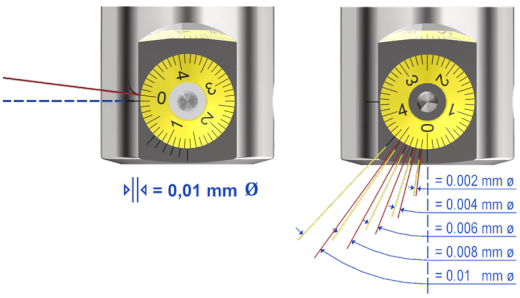
depending on the overhang length (LTA)



Scale accuracy

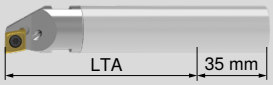
Large scale with 0.002 mm adjustment

How it works:



Fine boring tools

Maximum overhang length LTA at 35 mm shank clamping depth



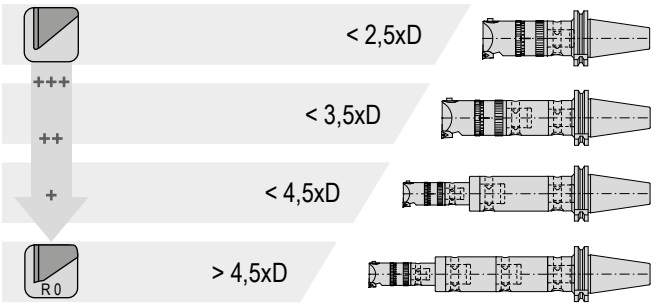




LTA (mm)	High-speed boring head 62 361 ...																Fine boring head 62 304 ...			Boring bar 62 353 ...
	014	015	016	017	018	019	020	021	022	023	025	027	030	033	037	040	017	020	024	
	56																			008
		63																		009
			70																	010
				77																011
					84															012
						91														013
							98	98									115			014
									112	112	112	112	112	112	112	112		125		016
																			105	018
																			145	118
																			185	218

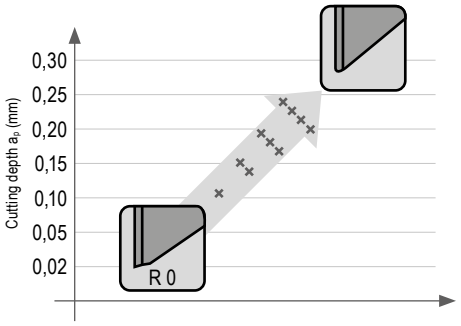
Selection of the cutting radius

depending on the overhang length (LTA)



Selection of the cutting radius

depending on the cutting depth a_p



Influence of the cutting forces of the cutting edge radius on internal machining

Resulting force

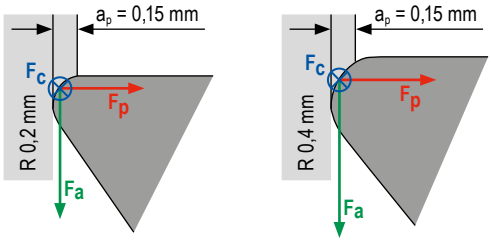
$$F_{res} = \sqrt{F_a^2 + F_p^2} = \sqrt{F_c^2 + F_f^2 + F_p^2}$$

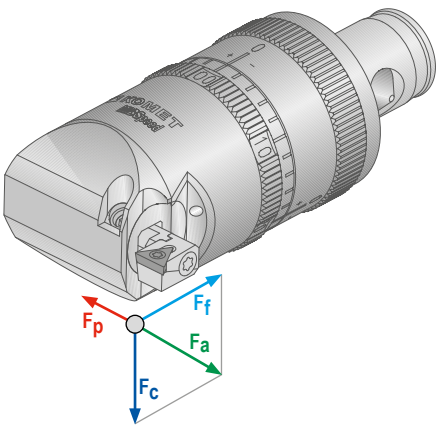
Tangential cutting force (Fc)
- ▲ pushes the tool down from the vertical central axis
- ▲ is influenced by the cutting depth and the chip thickness
- ▲ reduces the clearance angle

Passive cutting force (Fp)
- ▲ pushes the tool away from the horizontal central axis
- ▲ increases the risk of vibrations and causes dimensional inaccuracies

Feed force (Ff)
- ▲ acts in the machining direction of the tool

Active cutting force (Fa)
- ▲ determined by F_c and F_f

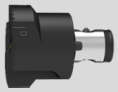




5

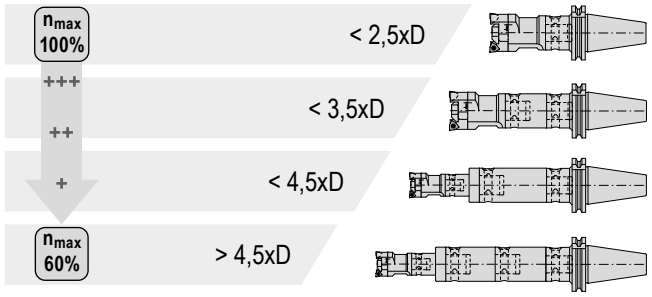
Counterboring tools

Maximum speed

System / tool	Boring range Ø (mm)	Maximum speed n_{max} in $1/_{min}$
 **62 870 ...** TwinKom	24–31	12.000
	31–40	10.000
	40–51	8.000
	51–68	6.500
 **62 295 ...** Twin rough boring head	67–87	5.000
	87–116	4.000
	116–153	3.000
	153–215	2.200

Selection of the maximum speed

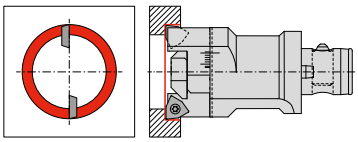
depending on the overhang length (LTA)



TwinKom applications

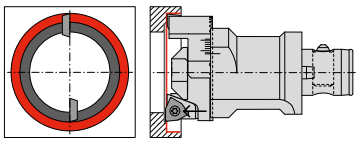
in pre-cast / premachined holes

Roughing as a "true" two-edged cutter

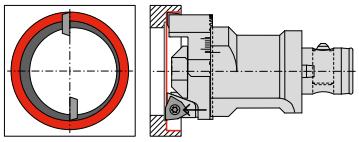


Axial adjustment required

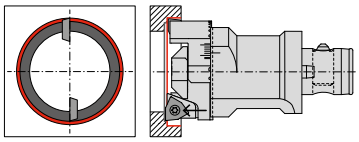
Roughing with large allowance



Roughing with large offset

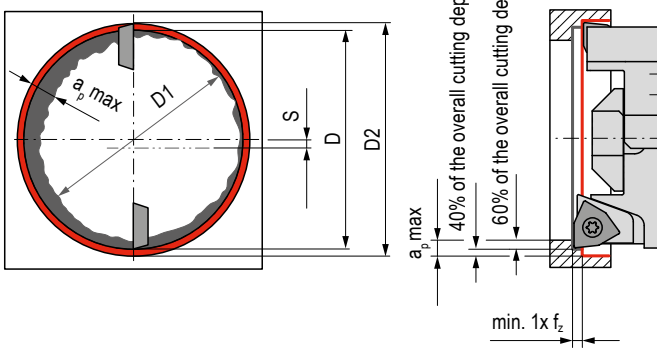


Roughing / Semi-Finishing



Cut distribution calculation

Example:
D2 (finished Ø) = 100 mm,
D1 (raw Ø) = 80 mm,
S (offset) = 3 mm



Calculation formula

$$D = D2 - [(\frac{D2 - D1}{2}) + S] \times 0{,}8$$

$$D = 100 - [(\frac{100 - 80}{2}) + 3] \times 0{,}8 = 89{,}6 \text{ mm}$$

Feed rate guide values for surface finish quality

Roughness range R_Z in µm	R_{th}	Corresponds to R_a	Roughness index	ISO 1302	Corner radius RE in mm and feed f in mm/rev						
					RE = 0,1	RE = 0,2	RE = 0,4	RE = 0,8	RE = 1,2	RE = 1,6	RE = 2,4
63–100	$R_{th}63$	12,5–25	N11	25	0,22*	0,32*	0,45*	0,63	0,78	0,9	1,1
40–63	$R_{th}40$	6,3–12,5	N10	12,5	0,18*	0,25*	0,36	0,51	0,62	0,72	0,88
31,5–40	$R_{th}31{,}5$	4,9–6,3	N9	6,3	0,16*	0,22*	0,32	0,45	0,55	0,63	0,78
25–31,5	$R_{th}25$	4,0–4,9			0,14*	0,2*	0,28	0,4	0,49	0,57	0,69
16–25	$R_{th}16$	2,5–4,0	N8	3,2	0,11*	0,16	0,23	0,32	0,39	0,45	0,55
10–16	$R_{th}10$	1,6–2,5			0,09	0,13	0,18	0,25	0,31	0,36	0,44
6,3–10	$R_{th}6{,}3$	1,0–1,6	N7	1,6	0,07	0,1	0,14	0,2	0,25	0,28	0,35
4–6,3	$R_{th}4$	0,8–1,0	N6	0,8	0,06	0,08	0,11	0,16	0,2	0,23	0,28
2,5–4	$R_{th}2{,}5$	0,4–0,8	N5	0,4	0,04	0,06	0,09	0,13	0,15	0,18	0,22
1,6–2,5	$R_{th}1{,}6$	0,2–0,4	N4	0,2	0,04	0,05	0,07	0,1	0,12	0,14	0,18
1–1,6	$R_{th}1$	0,1–0,2	N3	0,1	0,03	0,04	0,06	0,08	0,1	0,11	0,14

*Please ensure that the feed rate values used do not exceed the corner radius (RE).

The feed rate values shown are recommended values and are based on purely theoretical calculations using the above-mentioned formula. These may however deviate in practice.

Insert

Selection of the rake angle

Recommendations for the usage of indexable inserts with ground chip breakers

	rounded E	Sharp F	chamfered T
0°	P	P	P
	M	M	M
	K	K	**K**
	N	**N**	N
	S	S	S
	H	H	**H**
≤ 6°	**P**	P	P
	M	M	M
	K	K	K
	N	N	N
	S	S	S
	H	H	H
≤ 12°	**P**	P	P
	M	M	M
	K	K	K
	N	**N**	N
	S	**S**	S
	H	H	H
≤ 20°	P	P	P
	M	M	M
	K	K	K
	N	**N**	N
	S	**S**	S
	H	H	H

→ **Page 79**
Here you will find a detailed chip groove description.

Number key

for MicroKom indexable inserts

W	2	9	2	4	0	1	0	.	0	4	8	4	2	5
	2	*3*	*4*	*5*	*6*	*7*	*8*		*9*	*10*	*11*	*12*	*13*	*14*

2 – 3 Type / shape

00	W...	84°	Regular version, periphery ground
29	W...	84°	Reinforced version
30	T...	60°	Periphery ground, clearance angle 8°
57	T...	60°	Periphery ground, clearance angle 11°
80	S...	90°	Periphery sintered

4 – 5 Size / IC

04	4,0 mm	**18**	6,2 mm 6,35 mm	**28**	8,9 mm	**42**	12,0 mm
10	4,8 mm 5,0 mm	**20**	7,0 mm 7,1 mm	**32**	9,52 mm 9,8 mm	**46**	13,2 mm
12	5,5 mm	**24**	8,0 mm	**34**	10,0 mm	**50**	15,0 mm
14	5,6 mm	**26**	8,2 mm	**38**	10,9 mm 11,1 mm	**58**	17,6 mm

6 – 7 Topography

Ground code

06	Left-hand cutting, 6°
12	Left-hand cutting, 12°
34	High-feed geometry, chamfered and rounded

Sintered code

01	Double grooves, cutting edge chamfered and rounded
02	Stepped geometry, cutting edge chamfered and rounded
03	Calotte geometry, cutting edge rounded
11	20° chip former, cutting edge rounded
12	Alu / finishing geometry
13	Shaft geometry, cutting edge rounded
14	Finishing topography
15	Semi-finishing topography
18	Finishing topography with wiper corner
32	Burr-minimised, periphery ground
33	Burr-minimised, periphery sintered

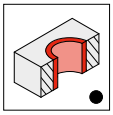
9 – 10 Corner radius

01	R 0,1	**04**	R 0,4
02	R 0,2	**06**	R 0,6
03	R 0,3	**08**	R 0,8

11 – 14 Grade

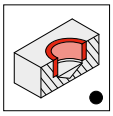
→ **Page 80+81**
Here you will find the detailed grade description.

Notes on drilling technology – TwinKom

1. 

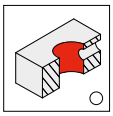
Counterboring a through hole

▲ Possible without any problems

2. 

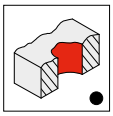
Counterboring a blind hole

▲ Possible without any problems

3. 

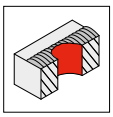
Drilling through a transverse hole

▲ Reduce feed by up to 50%, if necessary
▲ Check for chip jamming on the periphery of the tool
▲ Use tough indexable inserts
▲ Use stable corner radius

4. 

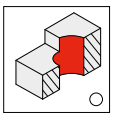
Spot drilling uneven surfaces (casting surfaces)

▲ Feed must reduce by up to 40% when spot drilling
▲ Use tough indexable inserts
▲ Use stable corner radius

5. 

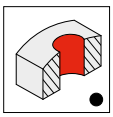
Spot drilling a seam (forging/welding/casting seam)

▲ Reduce feed
▲ Use max. 3xD tools

6. 

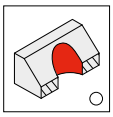
Spot drilling an edge

▲ Reduce feed to 50%
▲ Use tough indexable inserts
▲ Use stable corner radius

7. 

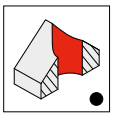
Spot drilling convex surfaces

▲ Possible without any problems
▲ If necessary, reduce feed

8. 

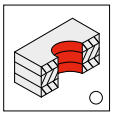
Spot drilling angled surfaces

▲ From the interrupted cut, reduce the feed by up to 50%
▲ Use tough indexable inserts
▲ Use stable corner radius

9. 

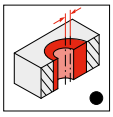
Spot drilling a pointed contour

▲ Reduce the feed by up to 40% in the area where cutting is interrupted

10. 

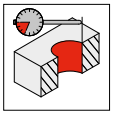
Stack plate drilling

▲ Use holder with 80° positioning
▲ Good workpiece clamping required
▲ Max. gap size = 1 mm

11. 

Large hole offset

▲ Possible without any problems
▲ Axial-radial cut distribution, see graphic: Cut distribution

12. 

Adjustable in diameter

▲ Possible without any problems

Problems / possible causes / solutions – Counterboring and fine boring

1. No chip breakage

▲ Cutting depth a_p too low for cutting edge topography used	→ If necessary, increase the cutting depth a_p → Use cutting edge topography for small to medium cutting depths
▲ Cutting depth a_p too big for cutting edge topography used	→ Reduce cutting depth a_p → Axial-radial cut distribution → Use cutting edge topography for larger cutting depths
▲ Feed/tooth too low	→ Increase feed/tooth
▲ RPM too high	→ Reduce RPM
▲ Cutting edges not same length axially	→ Correct axial offset: Use holder with axial length compensation

2. Chip jamming

▲ Unfavourable chip shape	→ Increase feed → Use cutting edge topography with chip breaker → Axial-radial cut distribution → See measures: 1. No chip breakage
▲ Workpiece clamping	→ In the case of through holes, check there is sufficient space for pecking behind the component
▲ Cooling lubricant pressure/quantity too low	→ Improve cooling lubricant pressure/quantity

3. Conical hole

→ See measures: 1. No chip breakage

4. Poor surface quality

▲ Feed too high	→ Reduce feed
▲ Cutting speed too low	→ Increase cutting speed
▲ Cutting radius too small	→ Use indexable insert with a larger cutting radius → Use indexable insert with wiper geometry
▲ Rake angle of the indexable insert too small	→ Use indexable insert with positive cutting edge geometry
▲ Built-up edge	→ Use indexable insert with positive cutting edge geometry → Use indexable insert with wider chip breaker groove
▲ Unfavourable chip shape	→ See measures: 1. No chip breakage → See measures: 2. Chip jam

5. Vibration

▲ Tool design – high L/D ratio	→ If necessary, check tool design → If possible, consistently avoid the same boring bar Ø → If possible, stepped tool design; design tool to be as stable as possible → Check axial-radial cutting settings → Use vibration-optimised boring bar, if necessary → Use HMD damping element, if necessary
▲ Feed too high	→ Reduce feed
▲ Cutting speed too high	→ Reduce cutting speed, see graphic: Selection of the cutting speed depending on the overhang length
▲ Depth of cut too big	→ Reduce depth of cut → Axial-radial cut distribution
▲ Cutting edge geometry too blunt	→ Use indexable insert with positive cutting edge geometry → Use indexable insert with wider chip breaker groove
▲ Cutting radius too big	→ Use indexable insert with a smaller cutting radius, see graphic: Selection of the cutting radius depending on the overhang length and the depth of cut

Types of wear

Wear on clearance face

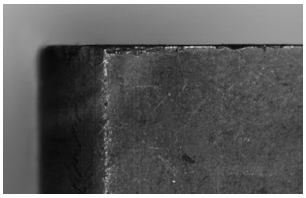


Abrasion on the flank: normal wear after a certain period of operation.

Cause
- Cutting speed too high
- Carbide grade does not have enough wear resistance
- Feed not adapted to application

Remedy
- Reduce cutting speed
- Select a carbide grade with high wear resistance
- Bring feed into the right relationship with cutting speed and cutting depth

Edge chipping

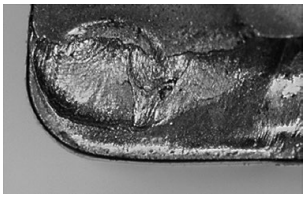


Increased mechanical stress on the cutting edge may result in carbide particles breaking off.

Cause
- Grade with too high a wear resistance
- Vibrations on tool or workpiece
- Feed rate or cutting depth is too high
- Built-up edge
- Interrupted cut
- Chip stroke

Remedy
- Use tougher grade
- Improve stability (tool, workpiece)
- Avoid built-up edges

Cratering

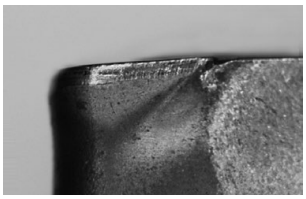


The outgoing hot chip is causing cratering of the cutting insert on the clamping surface.

Cause
- Cutting speed too high, feed too high
- Rake angle too low
- Grade does not have enough wear resistance
- Incorrectly supplied coolant

Remedy
- Reduce cutting speed and/or feed rate
- Choose carbide grades with greater wear-resistance
- Increase quantity and/or pressure of coolant, check supply
- Use a more crater-resistant grade

Plastic deformation

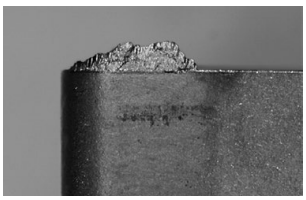


High machining temperature with simultaneous mechanical stress can lead to plastic deformation.

Cause
- Working temperature too high, softening of the base material
- Damage to the coating
- Grade does not have enough wear resistance
- Incorrectly supplied coolant

Remedy
- Reduce cutting speed
- Select more wear-resistant, more thermally stable carbide grade
- Make provisions for cooling / check supply

Built-up edge

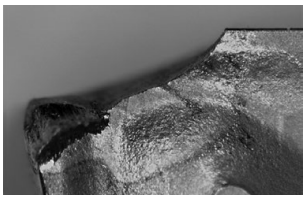


Material builds up on the cutting edge if the chip does not flow correctly due to the cutting temperature being too low.

Cause
- Cutting speed to low
- Rake angle too small
- Incorrect cutting material
- Missing coolant/lubrication

Remedy
- Increase cutting speed
- Increase rake angle
- Use TiN coating
- Make provisions for cooling / increase oil content of emulsion

Insert breakage



If a cutting insert is overloaded, insert breakage may occur.

Cause
- Cutting material overloaded (extreme values)
- Lack of stability
- Wedge angle too small
- Interference contours were not taken into account
- Interrupted cut

Remedy
- Use a tougher cutting material
- Use chamfer for edge protection
- Increase rounding of cutting edge
- Use more stable geometry
- Check cutting data
- Check interference contours

Chip breakers

-SF14

- Rake angle 14°
- Specially developed chip breakers with remarkable chip control for a range of applications, from fine finishing to medium machining

-SF15

- Rake angle 15°
- Balanced geometry: high stability with high cutting edge sharpness
- Excellent chip control with minimum susceptibility to built-up edge formation
- Particularly good chip breakage with small and medium feeds
- Initial recommendation for machining C-steel, alloyed and stainless steels

-SF16

- Rake angle 15°
- Balanced geometry: High stability for high cutting edge sharpness
- Large chip chamber, therefore good chip control at low feeds
- Initial recommendation for machining C-steel, alloyed and stainless steels

-SF20

- Rake angle 20°
- Particularly smooth cutting thanks to the extremely positive rake angle
- Excellent chip control with minimum susceptibility to built-up edge formation
- Perfect cutting performance thanks to the extremely positive rake angle, particularly with low depths of cut and feeds
- Initial recommendation for machining stainless steel, alloy steels, carbon steel and non-ferrous metals

-SF30

- Rake angle 15°
- Balanced geometry: High stability for high cutting edge sharpness
- Chip breaker geometry: Very good chip breakage for small and medium feeds
- Initial recommendation for machining C-steel, alloyed and stainless steels

-01

- Rake angle 12°
- All-round topography chamfered, rounded
- Very smooth-cutting thanks to positive cutting edge geometry
- Also suitable for less-powerful machines and unstable workpieces
- Easily controllable chip formation also in less solid materials

-02

- Rake angle 0°
- Roughing topography, extremely stable (significant wedge angle)
- Excellent chip formation for chips that are difficult to control
- Only suitable for small cutting depths < 1.5 mm under certain circumstances

-11

- Rake angle 20°
- Highly positive, minimally rounded chip breaker
- For soft-cutting usage
- Main application in aluminium

-12

- Rake angle 30°
- Peripheral ground indexable insert with pressed chip breaker
- Highly positive, sharp and all-round cutting edge, therefore extremely smooth-cutting
- Peripheral ground flanks guarantee controlled chip formation and best surface quality at low cutting forces

-14

- Rake angle 14°
- Peripheral ground, sintered topography
- Controlled chip formation in fine and extremely fine machining

-15

- Rake angle 15°
- Semi-finishing chip breaker; peripheral ground, sintered
- Controlled chip formation in fine and extremely fine machining

-18

- Rake angle 14°
- Peripheral ground and sintered topography
- Controlled chip formation in fine and extremely fine machining
- Positive wiper geometry for maximum demands on surface quality

-G06

- Rake angle 6°
- For P / M / K materials
- High stability due to significant wedge angle

-G12

- Rake angle 12°
- For P / N / S materials
- Extremely smooth-cutting thanks to positive cutting edge geometry
- Extremely suitable for less-powerful machines and unstable workpieces
- Easily controllable chip formation also in less solid materials

Type

K10

- Carbide, uncoated
- ISO | **K10**
- Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

BK2710

- Carbide, TiAlN-coated
- ISO | P10 | M10 | **K10**
- Extremely wear-resistant carbide grade for machining stainless steels, structural steels and tool steels as well as cast iron materials

BK60

- Carbide, TiC-TiCN-TiN-coated
- ISO | P25 | **M10**
- Multi-layer coating for long service life even in the upper cutting speed range

BK6110

- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | P10 | **K10**
- Wear-resistant carbide grade for machining cast iron and steel materials

BK6115

- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | **P20** | **K20** | H20
- High-quality, surface-treated coating for machining cast iron materials in normal to stable conditions and at high cutting speeds

BK6440

- Carbide, CVD-TiCN-Al_2O_3-TiN coated
- ISO | **M25** | **K35**
- Extremely tough standard grain grade; good wear resistance in steel and stainless steel materials, even in unfavourable cutting conditions / interrupted cut

BK7615

- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- Highly productive grade with extreme edge stability for wet and dry machining of all cast iron materials

BK77

- Carbide, TiN-coated
- ISO | **S10** | H10 | O10
- The wear-resistant carbide grade for machining aluminum alloys, superalloys and plastics at medium cutting speeds

BK7710

- Carbide, TiB_2-coated
- ISO | **N10** | S10 | O10
- The wear-resistant grade with optimum cutting characteristics to prevent built-up edge formation for machining aluminium and titanium alloys

BK7935

- Carbide, AlTiN-coated
- ISO | **P35** | **M30** | **K30** | N30 | **S30** | O30
- The tough carbide grade for machining stainless steel and acid-resistant steels as well as special alloys

BK8425

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25**
- Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating

BK8430

- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25**
- Fine-grain grade with high wear resistance
- Extreme edge stability and maximum wear resistance in the middle and top speed range

BK8440

- Carbide, TiCN-TiN-coated
- ISO | **P35** | M10
- Very tough carbide grade for medium cutting speeds and interrupted cut

Type

CBN40

- Cubic boron nitride, uncoated
- ISO | **H05**
- Uncoated cutting material made of cubic boron nitride for machining hardened steels over 45 HRC, heat-resistant nickel-based or cobalt-based alloys

CK32

- Cermet, uncoated
- ISO | **P10** | **M15** | K05 | N15
- For fine and finish turning
- Less wear and greater cutting speed result in longer tool life and high surface quality
- Cutting material for high productivity in the top cutting speed range

CK3230

- Cermet, uncoated
- ISO | **P20** | **M20** | K10 | N20
- Extremely tough behaviour with good wear resistance suitable for use also in interrupted cut

CTDPU20

- Polycrystalline diamond cutting material with mixed grain, uncoated
- ISO | **N15**
- Outstanding wear resistance, even where Si content > 12 % and high proportion of abrasive reinforcements
- Used in plastics and fibre composites (GFK, CFK)

CWC06

- Cermet, TiC/TiN-coated
- ISO | **P10** | M10 | **K10** | N10
- Coated cermet grade for fine boring at high cutting speed and with a uniform cut

CWC10

- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining of stainless and hardened steel
- Particularly wear-resistant due to high heat resistance

CWN10

- Carbide, TiN-coated
- ISO | **K10**
- The carbide grade for machining steels, stainless steels and non-ferrous metals

CWP25

- Carbide, uncoated
- ISO | **P25** | **M25** | K25 | **N25** | S25
- Uncoated carbide grade for fine boring with large hole depths and small machining allowances

Coatings

TiN

- TiN coating
- Maximum application temperature: 450 °C





Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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WNT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

WNT \ Standard

Quality tools for standard applications.

The quality tools of the **WNT Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Symbol explanation

M	Thread type Explanation of the thread types can be found on → **Page 6**
UNI NCW	Application range Special feature An explanation of the areas of application/ special features can be found on → **Page 7**
C 2–3	Chamfer form An explanation of the chamfer forms can be found on → **Page 6**
ISO 2 6H	Tolerance Explanation of the tolerances can be found on → **Page 103**
TiN	Coating An explanation of the coatings can be found on → **Page 106**
	Cooling agent supply



	Coloured ring An explanation of the coloured rings can be found on → **Page 5**
HSS-E	Tool Material An explanation of the cutting materials can be found on → **Page 6**
FHA 42°	Helix angle
≤ 1100 N/mm²	Tensile strength
	Through hole thread
	Blind hole thread
	Through hole thread and blind hole thread

The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Tool types

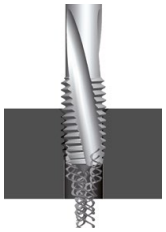
TruTap



Through hole tap type TruTap

- For through holes up to 4xD
- Lead Form B: 3.5–5 cutting leads, with spiral point
- Straight Flutes
- Also suitable for synchronised machining, with Weldon flat and with extra long version
- Due to the special geometry of the flutes, the chips are removed in the direction of cut

TruTap DL



Through hole tap type TruTap DL

- For through holes up to 4xD
- Lead Form C: 3.5–5 cutting leads, without spiral point
- 15° left hand helix
- Suitable for steel, titanium alloys and Inconel 718
- The chips are discharged in the direction of cut

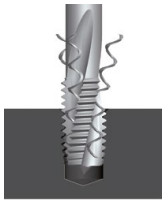
CavTap



Blind hole tap type CavTap

- For blind holes up to 3xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- (35°, 42°, 45°, 50°) right hand helix
- Also suitable for syncronised machining, with Weldon flat, with extra long version and through coolant
- The high helix angle ensures chips are discharged effectively against the direction of cut

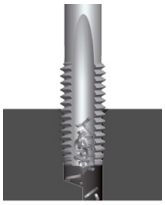
CavTap SL



Blind hole tap type CavTap SL

- For blind holes up to 2xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- (15°, 25°, 30°) slow right hand helix
- For steel, titanium alloys and Inconel 718
- Also suitable for synchronised machining, with extra long version and through coolant
- Also suitable for difficult operating conditions such as cross holes

DuoTap



Through and blind hole tap Type DuoTap

- For blind and through holes up to 2xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form D: 3.5–5 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- Straight Flutes
- For steel, short chipping and hardened materials to 55 (62) HRc
- Also with extra long version and through coolant

DuoForm



Thread former type DuoForm

- For blind and through holes up to 3xD
- Lead Form C: 2–3 cutting leads, without spiral point
- For cold formable materials up to 1400 N/mm²
- Suitable for synchronised machining, with lubrication grooves and internal cooling

Coloured rings



for steel up to 750 N/mm²

ST

ST application area:
uncoated taps for steels up to a tensile strength of 750 N/mm²



for corrosion and acid-resistant steels

VA

VA application area:
for stainless steels



for hardened steels

HT

HT application area:
for hard machining



for steel to 1100 N/mm²

ST
VG

ST and VG application area:
coated taps for steels up to a tensile strength of 1100 N/mm²



for heat resistant alloys

Ti
Ni

Ti and Ni application area:
for heat-resistant steels, titanium and Inconel



for aluminium and non-ferrous metal

NW | Ms
Soft | AMPCO

NW, Soft, Ms and AMPCO application area:
for aluminium, short-chipping brass and soft materials



for steel up to 1400 N/mm²

HR

HR application area:
for steels up to a tensile strength of 1400 N/mm²



for cast iron materials

GG

GG application area:
for cast iron materials



for universal application up to 1100 N/mm²

UNI

UNI application area:
for universal application

→ **Page 7**
Here you will find a detailed explanation of the areas of application.

Thread types

M	ISO metric coarse thread DIN 13
MF	ISO Metric fine thread DIN 13
G	Whitworth pipe thread DIN EN ISO 228
UNC	Unified coarse thread ASME B1.15 and ISO 3161
UNF	Unified fine thread ASME B1.1
EG M	ISO Metric coarse thread for wire inserts DIN 8140-2
EG UNC	EG Unified coarse thread for wire inserts ASME B18.29.1
EG UNF	EG Unified fine thread for wire inserts ASME B18.29.1

UNJC	Unified coarse thread ASME B1.15 and ISO 3161	
UNJF	Unified extra fine thread ASME B1.15 and ISO 3161	
BSW	Whitworth thread BS84	
NPT	American taper pipe thread with sealing (1:16) ANSI/ASME B1.20.1	
NPTF	American taper pipe thread with sealing (1:16) ANSI/ASME B1.20.3	
Rc	Whitworth taper pipe thread (1:16) DIN EN 10226-2 (ISO7-1)	
Rp	Cylindrical Whitworth coarse thread DIN EN 10226-1 (ISO7-1)	

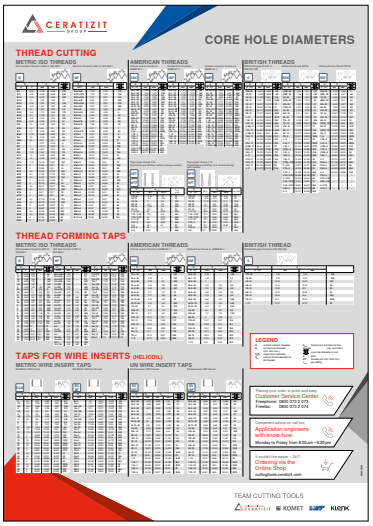

These thread types, as well as hand taps and dies, are available in the online shop.

Chamfer forms

	Form B (with spiral point, 4–5 thread lead)
	Form C (without spiral point, 2–3 thread lead)
	Form D (without spiral point, 4–5 thread lead)
	Form E (without spiral point, 1.5–2 thread lead)

Cutting materials

HSS	High-speed steel
HSS-E	High-performance high speed steel
HSS-E / HM	HSS-E base support material cutting/forming medium: HM
HSS-PM	High-performance sintered high-speed steel
Solid carbide	Solid carbide



A must-have for your production processes!

Thread core hole diameters at a glance thanks to the CERATIZIT workshop poster!

To receive a copy in your national language, please contact your sales representative.

Application areas

WNT \ Performance

UNI	for universal application up to 1100 N/mm²
ST	for good quality free machining steel
FE	Dies for steel
VG	for tempered and heat-resistant steels < 1100 N/mm²
HR	for high-tensile steels < 1400 N/mm²
VA	for stainless and acid-resistant steels up to 1100 N/mm²
GG	for cast iron
NW	For aluminium
Soft	For soft materials
Ms	for short chipping brass
AMPCO	For Ampco alloys
Ti	For titanium and titanium alloys
Ni	special for Inconel 718
HT	for hardened steel and chilled iron up to 55 HRc

EC	DuoForm thread former for universal use
NEO	DuoForm thread former for heat-resistant alloys
ERGO	Hand Taps for stainless, heat-resistant and heat-treated steels up to 1100 N/mm²
ERGO F.T	Hand tap for steel up to 1400 N/mm², wolfram, chilled iron

Tools for these application areas are available in the online shop.

WNT \ Standard

UNI	for universal application up to 1000 N/mm²
FE	for steel to 850 N/mm²
FE-HF	for high-tensile steel to 1100 N/mm²
VA	for corrosion and acid-resistant steels
GG	for cast iron
AL	for aluminium and aluminium alloys

Special Features

AUT	short version for automatic use
AZ	with intermittent teeth, reduces friction
CNC	for synchronised CNC machining with minimum length compensation chuck
DRY	for dry machining or minimum quantity lubrication (MMS)
EL	extra long, with double overall length
ES	extra short
HML	with soldered-in carbide strips for a higher cutting speed
LH	for left hand threads

MMB	Machine taps
NC	for synchronised CNC machining with minimum length compensation chuck
NCW	with Weldon flat for synchronised CNC machining without length compensation chuck
R_z=1	Lapped Dies
S	with back taper, for deep threads
SN	Thread formers with lubrication grooves
TS	for high-speed machining, up to 100 m/min.

Toolfinder

Thread formers

		Machining	Application range	WNT \ Standard M	MF	G	UNC	UNF
UNI	for cold-formable materials		UNI	54	72			

HSS taps

UNI	for universal use up to 1000 N/mm² **WNT Standard** up to 1100 N/mm² **WNT Performance**		UNI	26+27	59+60	74	81	89
			UNI	42+43	65	77	83	92
P	for steels up to 850 N/mm² **WNT Standard** up to 1100 N/mm² **WNT Performance**		FE	27	60			
			FE	43	66			23 282... 23 283...
P	for high-strength steels up to 1100 N/mm² **WNT Standard** up to 1400 N/mm² **WNT Performance**		FE-HF	27			81	
			FE-HF	43			83	
M	for corrosion and acid-resistant steels		VA	28	60		81	
			VA	43+44	67		83	92
K	for cast iron materials		GG	50				
N	for aluminium and non-ferrous metal		AL	28				
			AL	44				
S	for heat-resistant materials							
H	Hard materials							

→ **Page 10–15**
Here you will find the taps overview with tools for other applications.

This article can be found in our online shop at cuttingtools.ceratizit.com

Tool type	Application range	WNT \ Performance														
		M	EG M	MF	G	UNC	EG UNC	UNJC	UNF	EG UNF	UNJF	BSW	NPT	NPTF	Rp	Rc
DuoForm	EC	51+52		71	79	84			93							
TruTap	UNI	16–18	55	57+58	73	80	85		88	94		22 626... 22 627...				
CavTap	UNI	29–31	56	61+62	75+76	82	86		90	95		22 628... 22 629...				
TruTap	ST	19+20		58												
CavTap	ST	32+33			76											
DuoTap	ST	45+46											98	22 367... 22 382...	22 381...	22 389...
TruTap	HR	20														
CavTap	HR	34														
DuoTap	HR	45+46		68+69	78											
TruTap	VA	21			73	80										
CavTap	VA	35			76	82			90				96			
DuoTap	GG	47		22 173...												
TruTap	NW															
CavTap	NW	36														
DuoTap	AMPCO	22 030...														
TruTap	Ti	22				80					22 167...					
CavTap SL	Ti	37				22 262...		87	91		22 168...					
DuoTap	HT	48														

→ Page 99
Here you will find shank extensions for taps.

Thread-cutting oils can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
M	**Metric ISO standard thread**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	ISO 2 6H ISO 3 6G 7G	HSS-E	■		16+17	
UNI CNC	TruTap	B 4–5	ISO 2X 6HX ISO 3X 6GX 7GX	HSS-E	■		18	
UNI NCW	TruTap	B 4–5	ISO 2 6H	HSS-PM	■		18	
UNI EL	TruTap	B 4–5	ISO 2 6H	HSS-E	■		24	
UNI		B 4–5	ISO 2 6H	HSS-E HSS-PM	■			26
UNI NC		B 4–5	ISO 2 6H	HSS-E	■			27
UNI NCW		B 4–5	ISO 2 6H	HSS-PM	■			27
	UNI – Blind hole thread							
UNI	CavTap	C 2–3	ISO 2 6H 7G	HSS-E	■		29	
UNI	CavTap	E 1,5–2	ISO 2 6H	HSS-E	■	●	30	
UNI		C 2–3	ISO 2 6H	HSS-E HSS-PM	■			42
UNI NC		C 2–3	ISO 2 6H	HSS-E	■			42
UNI NCW	CavTap	C 2–3	ISO 2 6H	HSS-PM	■		30	
UNI NCW		C 2–3	ISO 2 6H	HSS-PM	■			43
UNI CNC	CavTap	C 2–3	ISO 2X 6HX ISO 2 6H 7G	HSS-E	■		31	
UNI CNC	CavTap	E 1,5–2	ISO 2 6H	HSS-E	■	●	31	
UNI CNC	CavTap	C 2–3	ISO 3 6G	HSS-E	■		22 588..., 22 589...	
UNI	CavTap	C 2–3	ISO 1 4H	HSS-E	■		22 528...	
UNI	CavTap	E 1,5–2	ISO 3 6G	HSS-E	■		22 530...	
UNI S	CavTap	C 2–3	ISO 2 6H	HSS-E	■		22 536..., 22 537...	
UNI ES	CavTap	E 1,5–2	ISO 2 6H	HSS-E	■		38	
UNI EL	CavTap	C 2–3	ISO 2 6H	HSS-E	■		40	
UNI	CavTap SL	C 2–3	ISO 2 6H	HSS-E	□		22 516...	

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
M	**Metric ISO standard thread**							
	P – Through hole thread							
ST	TruTap	B 4–5	ISO 2 6H	HSS-E	□		19	
ST LH	TruTap	B 4–5	ISO 2 6H	HSS-E	□		19	
ST	TruTap	B 4–5	ISO 1 4H	HSS-E	□		22 002..., 22 003...	
ST	TruTap	B 4–5	ISO 3 6G	HSS-E	□		22 004...	
ST TS	TruTap	B 4–5	ISO 2X 6HX	HSS-E	■		20	
HR	TruTap	B 4–5	ISO 2X 6HX	HSS-PM	■		20	
VG	TruTap	B 4–5	ISO 2X 6HX	HSS-E	■		20	
ST EL	TruTap	B 4–5	ISO 2 6H	HSS-E	□		24	
ST MMB		≈ 20	ISO 2 6H	HSS-E	□		25	
FE		B 4–5	ISO 2 6H	HSS-E	□			27
FE-HF		B 4–5	ISO 2 6H	HSS-E	■			27
	P – Blind hole thread							
ST	CavTap	C 2–3	ISO 2 6H	HSS-E	■□		33	
ST	CavTap	C 2–3	ISO 3 6G	HSS-E	□		22 134..., 22 135...	
ST CNC	CavTap SL	C 2–3	ISO 2X 6HX	HSS-E	■	●	32	
ST ES	CavTap SL	C 2–3	ISO 2 6H	HSS-E	□		39	
ST EL	CavTap	C 2–3	ISO 2 6H	HSS-E	□		40	
ST EL	CavTap SL	E 1,5–2	ISO 2 6H	HSS-E	□		41	
HR	CavTap SL	C 2–3	ISO 2 6H	HSS-PM	■		32	
HR	CavTap	C 2–3	ISO 2 6H	HSS-PM	■□		34	

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Taps Overview

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
M	**Metric ISO standard thread**							
FE		C 2–3	ISO 2 6H	HSS-E	□			43
FE-HF		C 2–3	ISO 2 6H	HSS-E	■			43
	P – Through hole thread and blind hole thread							
ST	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	□		45+46	
ST AZ	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	□		22 111..., 22 113...	
HR	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	■		45+46	
HR EL	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	■		49	
	M – Through hole thread							
VA	TruTap	B 4–5	ISO 2 6H	HSS-E	■		21	
VA		B 4–5	ISO 2 6H	HSS-PM HSS-E	■			28
	M – Blind hole thread							
VA	CavTap	C 2–3	ISO 2 6H	HSS-E	■		35	
VA	CavTap	E 1,5–2	ISO 2 6H	HSS-E	■	●	35	
VA		C 2–3	ISO 2 6H	HSS-E HSS-PM	■□			43+44
	K – Through hole thread and blind hole thread							
GG	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	■	●	47	
GG		C 2–3	ISO 2X 6HX	HSS-E	■			50
	N – Through hole thread							
Soft	TruTap	B 4–5	ISO 2 6H	HSS-E	■		22 305...	
AL		B 4–5	ISO 2 6H	HSS-E	■□			28
	N – Blind hole thread							
Soft	CavTap	C 2–3	ISO 2 6H	HSS-E	□		36	
NW	CavTap	C 2–3	ISO 2 6H	HSS-E	■		36	
AL		C 2–3	ISO 2 6H	HSS-E	■□			44

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
M	**Metric ISO standard thread**							
	N – Through hole thread and blind hole thread							
AMPCO	DuoTap	C 2–3	ISO 2X 6HX	HSS-PM	□		22 030...	
Ms	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	□		22 119...	
	S – Through hole thread							
Ti	TruTap	B 4–5	ISO 1X 4HX ISO 2X 6HX	HSS-PM	■		22	
Ti	TruTap DL	D 4–5	ISO 2X 6HX	HSS-E	■		23	
Ni	TruTap DL	D 4–5	ISO 2X 6HX	HSS-E	■		23	
	S – Blind hole thread							
Ti	CavTap SL	C 2–3	ISO 2X 6HX	HSS-PM	■		37	
Ni	CavTap SL	C 2–3	ISO 2X 6HX	HSS-PM	■		37	
	H – Through hole thread and blind hole thread							
HT	DuoTap	D 4–5	ISO 2X 6HX	VHM	■		48	
HT	DuoTap	C 2–3	ISO 2X 6HX	HSS-PM	■		48	
	Machine thread formers							
EC	DuoForm	C 2–3	ISO 2X 6HX	HSS-E	■		51	
EC SN	DuoForm	C 2–3	ISO 2X 6HX ISO 3X 6GX	HSS-E	■		52	
NW HML	DuoForm	C 2–3	ISO 2X 6HX	HSS-E	□	●	51	
NEO SN	DuoForm	C 2–3	ISO 2X 6HX	HSS-PM	■	●	53	
UNI		C 2–3	ISO 2X 6HX	HSS-E	■			54
UNI SN		C 2–3	ISO 2X 6HX	HSS-E	■			54
	Hand taps							
ST		C 2–3	ISO 2X 6HX	VHM	□		22 800...	
ST		C 2–3	ISO 2X 6HX	HSS-E	□		22 010...	
ERGO		C 2–3	ISO 2X 6HX	HSS-E	□		22 012...	
ERGO F.T.		C 2–3	ISO 2X 6HX	HSS-E	■		22 013...	

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Taps Overview

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
M	**Metric ISO standard thread**							
	Dies							
FE		1,5–2	ISO 6g ISO 6e	HSS	□		22 700..., 22 701...	
FE		1,5–2	ISO 6g	HSS	□		23 910...	
FE LH		1,5–2	ISO 6g	HSS	□		22 702...	
VA		2	ISO 6g	HSS-E	□		22 704...	
VA R_z=1		2	ISO 6g	HSS-E	□		22 705...	
EG M	**ISO metric coarse thread for wire inserts**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	6H mod	HSS-E	■		55	
	UNI – Blind hole thread							
UNI	CavTap	C 2–3	6H mod	HSS-E	■		56	
MF	**Metric ISO fine thread**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	ISO 2 6H	HSS-E	■		57+58	
UNI	TruTap	B 4–5	ISO 3 6G	HSS-E	■		22 599...	
UNI		B 4–5	ISO 2 6H	HSS-PM HSS-E	■			59+60
	UNI – Blind hole thread							
UNI	CavTap	E 1,5–2	ISO 2 6H ISO 3 6G	HSS-E	■		61	
UNI	CavTap	C 2–3	ISO 2 6H	HSS-E	■		62	
UNI		C 2–3	ISO 2 6H	HSS-PM HSS-E	■			65+66

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
MF	**Metric ISO fine thread**							
UNI CNC	CavTap	E 1,5–2	ISO 3 6G	HSS-E	■		22 561...	
UNI CNC	CavTap	E 1,5–2	ISO 2 6H 7G	HSS-E	■		62	
UNI NC		E 1,5–2	ISO 2 6H	HSS-E	■			66
	P – Through hole thread							
ST TS	TruTap	B 4–5	ISO 2X 6HX	HSS-E	■		58	
FE		B 4–5	ISO 2 6H	HSS-E	□			60
	P – Blind hole thread							
ST TS	CavTap	C 2–3	ISO 2 6H	HSS-E	■		22 216...	
ST	CavTap SL	C 2–3	ISO 2 6H	HSS-E	□		63	
FE		C 2–3	ISO 2 6H	HSS-E	□			66
	P – Through hole thread and blind hole thread							
ST	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	□		22 171...	
ST ES	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	□		70	
ST LH/ES	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	□		70	
HR	DuoTap	C 2–3	ISO 2X 6HX	HSS-E	■		68+69	
	M – Through hole thread							
VA		B 4–5	ISO 2 6H	HSS-E	■			60
	M – Blind hole thread							
VA	CavTap	E 1,5–2	ISO 2 6H	HSS-E	■		64	
VA		E 1,5–2	ISO 2 6H	HSS-E	■			67

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Taps Overview

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
MF	**Metric ISO fine thread**							
	Machine thread formers							
EC SN	DuoForm	C 2–3	ISO 2X 6HX	HSS-E	■		71	
EC HML	DuoForm	C 2–3	ISO 2X 6HX	HSS-E	■	💧	71	
UNI SN		C 2–3	ISO 2X 6HX	HSS-E	■			72
	Dies							
FE		1,5–2	ISO 6g	HSS	□		22 711...	
VA		2	ISO 6g	HSS-E	□		22 714...	
G	**Whitworth pipe thread**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	ISO 228	HSS-E	■		73	
UNI		B 4–5	ISO 228	HSS-E	■			74
	UNI – Blind hole thread							
UNI	CavTap	C 2–3	ISO 228	HSS-E	■		75	
UNI	CavTap	E 1,5–2	ISO 228, ISO 228 +0,05	HSS-E	■		75	
UNI CNC	CavTap	E 1,5–2	ISO 228	HSS-E	■		76	
UNI		C 2–3	ISO 228	HSS-E	■			77

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
G	**Whitworth pipe thread**							
	P – Through hole thread							
FE		B 4–5	ISO 228	HSS-E	□			23 260...
	P – Blind hole thread							
ST	CavTap	C 2–3	ISO 228	HSS-E	□		76	
ST	CavTap SL	C 2–3	ISO 228	HSS-E	□		22 353...	
FE		C 2–3	ISO 228	HSS-E	□			23 261...
	P – Through hole thread and blind hole thread							
HR	DuoTap	C 2–3	ISO 228X	HSS-E	■		78	
	M – Through hole thread							
VA	TruTap	B 4–5	ISO 228	HSS-E	■		73	
	M – Blind hole thread							
VA	CavTap	E 1,5–2	ISO 228	HSS-E	■		76	
	K – Through hole thread and blind hole thread							
GG	DuoTap	C 2–3	ISO 228X	HSS-E	■		22 348...	
	Machine thread formers							
EC SN	DuoForm	C 2–3	ISO 228	HSS-E	■		79	
	Dies							
FE		1,5–2	ISO 228A	HSS	□		22 741...	

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Taps Overview

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
UNC	**Unified coarse thread**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	2B	HSS-E	■		80	
UNI		B 4–5	2B	HSS-E	■			81
	UNI – Blind hole thread							
UNI	CavTap	C 2–3	2B	HSS-E	■		82	
UNI		C 2–3	2B	HSS-E	■			83
	P – Through hole thread							
FE-HF		B 4–5	2B	HSS-E	■			81
	P – Blind hole thread							
ST	CavTap	C 2–3	2B	HSS-E	□		22 264...	
FE-HF		C 2–3	2B	HSS-E	■			83
	M – Through hole thread							
VA	TruTap	B 4–5	2B	HSS-E	■		80	
VA		B 4–5	2B	HSS-E	■			81
	M – Blind hole thread							
VA	CavTap	C 2–3	2B	HSS-E	■		82	
VA		C 2–3	2B	HSS-E	□			83
	S – Through hole thread							
Ti	TruTap	B 4–5	2BX	HSS-PM	■		80	
	S – Blind hole thread							
TI	CavTap SL	C 2–3	2BX	HSS-PM	■		22 262...	
	Machine thread formers							
EC	DuoForm	C 2–3	2BX	HSS-E	■		22 270...	
EC SN	DuoForm	C 2–3	2BX	HSS-E	■		84	

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
UNC	**Unified coarse thread**							
	Dies							
FE		1,5–2	2A	HSS	□		22 721...	
EG UNC	**Unified coarse thread for wire inserts**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	2B mod	HSS-E	■		85	
	UNI – Blind hole thread							
UNI	CavTap	E 1,5–2	2B mod	HSS-E	■		86	
UNJC	**Unified coarse thread**							
	S – Blind hole thread							
Ti	CavTap SL	C 2–3	3BX	HSS-E	■		87	
UNF	**Unified fine thread**							
	UNI – Through hole thread							
UNI	TruTap	B 4–5	2B	HSS-E	■		88	
UNI		B 4–5	2B	HSS-E	■			89
	UNI – Blind hole thread							
UNI	CavTap	C 2–3	2B	HSS-E	■		90	
UNI	CavTap	E 1,5–2	2B +0,05	HSS-E	■		90	
UNI		C 2–3	2B	HSS-E	■			92
	M – Blind hole thread							
VA	CavTap	E 1,5–2	2B	HSS-E	■		90	
VA		C 2–3	2B	HSS-E	□			92

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Taps Overview

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
UNF	**Unified fine thread**							
	**S – Blind hole thread**							
Ti	CavTap SL	C 2–3	2BX 3BX	HSS-PM	■		91	
	**Thread formers**							
EC SN	DuoForm	C 2–3	2BX	HSS-E	■		93	
EG UNF	**Unified Fine Thread for wire inserts**							
	**UNI – Through hole thread**							
UNI	TruTap	B 4–5	2B	HSS-E	■		94	
	**UNI – Blind hole thread**							
UNI	CavTap	E 1,5–2	2B	HSS-E	■		95	
UNJF	**Unified extra-fine thread**							
	**S – Through hole thread**							
Ti	TruTap DL	D 4–5	3BX	HSS-E	■		22 167...	
	**S – Blind hole thread**							
Ti	CavTap SL	C 2–3	3BX	HSS-E	■		22 168...	
BSW	**Whitworth thread**							
	**UNI – Through hole thread**							
UNI	TruTap	B 4–5	med.	HSS-E	■		22 626..., 22 627...	
	**UNI – Blind hole thread**							
UNI	CavTap	C 2–3	med.	HSS-E	■		22 628..., 22 629...	

Application Area / Special Features	Tool type	Chamfer form	Tolerance	Tool Material	coated ■ uncoated □	Coolant	WNT \ Performance	WNT \ Standard
NPT	**American taper pipe thread**							
	**P – Through hole thread and blind hole thread**							
ST ES	DuoTap	C 2–3		HSS-E	□		98	
VG	DuoTap	C 2–3		HSS-E	□		97	
VG AZ	DuoTap	C 2–3		HSS-E	□		22 377..., 22 378...	
	**M – Blind hole thread**							
VA	CavTap	C 2–3		HSS-E	■		96	
VA	CavTap	E 1,5–2		HSS-E	■		96	
NPTF	**American taper pipe thread**							
	**P – Through hole thread and blind hole thread**							
ST	DuoTap	C 2–3		HSS-E	□		22 382...	
VG	DuoTap	C 2–3		HSS-E	□		22 380...	
ST ES	DuoTap	C 2–3		HSS-E	□		22 367...	
Rp	**Cylindrical Whitworth thread**							
	**P – Through hole thread and blind hole thread**							
ST	DuoTap	C 2–3	X	HSS-E	□		22 381...	
Rc	**Tapered Whitworth thread**							
	**P – Through hole thread and blind hole thread**							
ST	DuoTap	C 2–3		HSS-E	□		22 389...	

Accessories

Shank extensions for taps	99
Tapping Oil, Chlorine Free	22 950...
Thread-cutting paste, chlorine-free	

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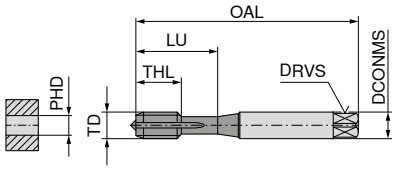
Through hole – Machine taps, right hand

TruTap | M



DIN 371 with reinforced shank

	UNI	UNI	UNI	UNI
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 3 6G	7G
	nitr. + vap.	TiN	nitr. + vap.	nitr. + vap.
				
	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD
	22 501 ...	**22 503 ...**	**22 508 ...**	**22 510 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M1	0.25	40	2.5	2.1	0.75	5	5	2	140.82	**010** [1]						
M1,2	0.25	40	2.5	2.1	0.95	5	5	2	135.60	**012** [1]						
M1,4	0.30	40	2.5	2.1	1.10	7	7	3	120.67	**014** [1]						
M1,6	0.35	40	2.5	2.1	1.25	8	11	3	85.57	**016**						
M1,7	0.35	40	2.5	2.1	1.35	6	11	2	131.07	**017**						
M1,8	0.35	40	2.5	2.1	1.45	6	11	2	181.71	**018**						
M2	0.40	45	2.8	2.1	1.60	7	12	2			61.50	**020**			75.70	**020**
M2	0.40	45	2.8	2.1	1.60	7	12	3	62.96	**020**						
M2,2	0.45	45	2.8	2.1	1.75	7	12	2	65.21	**022**						
M2,5	0.45	50	2.8	2.1	2.05	9	14	2	61.43	**025**			60.40	**025**	72.98	**025**
M3	0.50	56	3.5	2.7	2.50	11	18	3	40.83	**030**	50.71	**030**	48.86	**030**	56.22	**030**
M3,5	0.60	56	4.0	3.0	2.90	12	20	3	50.32	**035**						
M4	0.70	63	4.5	3.4	3.30	13	21	3	36.01	**040**	48.56	**040**	51.74	**040**	56.22	**040**
M5	0.80	70	6.0	4.9	4.20	15	25	3	37.75	**050**	49.17	**050**	49.79	**050**	57.83	**050**
M6	1.00	80	6.0	4.9	5.00	17	30	3	37.75	**060**	60.01	**060**	53.75	**060**	59.22	**060**
M7	1.00	80	7.0	5.5	6.00	17	30	3	60.84	**070**						
M8	1.25	90	8.0	6.2	6.80	20	35	3	44.70	**080**	65.50	**080**	57.12	**080**	65.91	**080**
M10	1.50	100	10.0	8.0	8.50	22	39	3	53.61	**100**	97.93	**100**	69.57	**100**	79.97	**100**
M12	1.75	110	12.0	9.0	10.20	24	44	3	74.36	**120**						

P	**12**	**15**	**12**	**12**
M	**7**	**9**	**7**	**7**
K	**12**	**18**	**12**	**12**
N		**12**		
S				
H				
O				

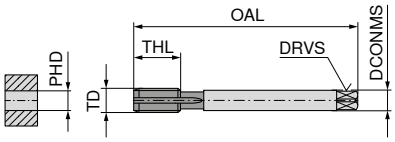
1) Tol. ISO 1 4H ≤ M1.4

Cutting speed v_c (m/min.)

DIN 376 can be found on the next page

Through hole – Machine taps, right hand

TruTap | M



DIN 376 with reduced shank

	UNI	UNI	UNI	UNI
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 3 6G	7G
	nitr. + vap.	TiN	nitr. + vap.	nitr. + vap.
				
	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD
	22 502 ...	**22 504 ...**	**22 509 ...**	**22 511 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M3	0.50	56	2.2		2.5	11	3	82.73	**030**						
M4	0.70	63	2.8	2.1	3.3	13	3	55.05	**040**						
M5	0.80	70	3.5	2.7	4.2	15	3	51.72	**050**						
M6	1.00	80	4.5	3.4	5.0	17	3	51.95	**060**						
M8	1.25	90	6.0	4.9	6.8	20	3	57.60	**080**						
M10	1.50	100	7.0	5.5	8.5	22	3	67.59	**100**						
M12	1.75	110	9.0	7.0	10.2	24	3	66.57	**120**	107.03	**120**	80.76	**120**	89.98	**120**
M14	2.00	110	11.0	9.0	12.0	26	3	84.18	**140**	186.92	**140**				
M16	2.00	110	12.0	9.0	14.0	27	3	93.41	**160**	139.32	**160**	117.87	**160**	158.30	**160**
M18	2.50	125	14.0	11.0	15.5	30	3	175.14	**180**	296.29	**180**				
M20	2.50	140	16.0	12.0	17.5	32	3	138.97	**200**	301.49	**200**	175.07	**200**		
M22	2.50	140	18.0	14.5	19.5	32	3	235.53	**220**	458.04	**220**				
M24	3.00	160	18.0	14.5	21.0	34	3	185.74	**240**	385.84	**240**				
M27	3.00	160	20.0	16.0	24.0	36	3	266.26	**270**						
M30	3.50	180	22.0	18.0	26.5	40	4	302.27	**300**						

P	**12**	**15**	**12**	**12**
M	**7**	**9**	**7**	**7**
K	**12**	**18**	**12**	**12**
N		**12**		
S				
H				
O				

Cutting speed v_c (m/min.)

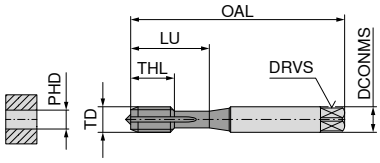
6

Through hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

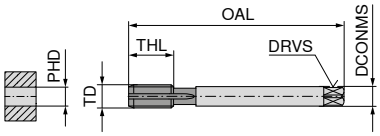
TruTap | M



DIN 371 with reinforced shank

	UNI NCW	UNI CNC	UNI CNC	UNI CNC
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2X 6HX	ISO 3X 6GX	7GX
	TiN	TiN GS	TiN GS	TiN GS
				
	HSS-PM FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD
	22 148 ...	22 542 ...	22 596 ...	22 592 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M3	0.50	56	3.5	2.7	2.5	6	18	3			58.67	**030**				
M3	0.50	70	6.0	4.9	2.5	6	18	3	84.76	**030**						
M4	0.70	63	4.5	3.4	3.3	7	21	3			61.89	**040**	69.51	**040**	75.19	**040**
M4	0.70	70	6.0	4.9	3.3	7	21	3	89.22	**040**						
M5	0.80	70	6.0	4.9	4.2	8	25	3	90.59	**050**	64.65	**050**	70.65	**050**	78.17	**050**
M6	1.00	80	6.0	4.9	5.0	10	30	3	113.00	**060**	82.05	**060**	88.63	**060**	99.86	**060**
M8	1.25	90	8.0	6.2	6.8	14	35	3	124.63	**080**						
M8	1.25	90	8.0	6.2	6.8	14	35	4			87.71	**080**	96.76	**080**	109.52	**080**
M10	1.50	100	10.0	8.0	8.5	16	39	3	150.35	**100**						
M10	1.50	100	10.0	8.0	8.5	16	39	4			111.07	**100**	119.19	**100**	130.45	**100**
M12	1.75	110	10.0	8.0	10.2	18	41	3	184.60	**120**						
M16	2.00	110	12.0	9.0	14.0	22	44	3	259.13	**160**						



DIN 376 with reduced shank

									22 543 ...			22 593 ...	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**		£ U0			£ U0	
M12	1.75	110	9	7	10.2	18	4		127.56	**120**		157.13	**120**
M14	2.00	110	11	9	12.0	20	4		360.48	**140**			
M16	2.00	110	12	9	14.0	22	4		181.32	**160**			
M20	2.50	140	16	12	17.5	25	4		316.80	**200**			

P	**15**	**15**	**15**	**15**
M	**8**	**9**	**9**	**9**
K	**15**	**18**	**18**	**18**
N	**22**	**12**	**12**	**12**
S				
H				
O				

Cutting speed v_c (m/min.)

Through hole – Machine taps

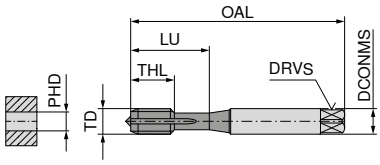
▲ LH = for left hand threads

TruTap | M

ST | ST LH

B 4–5

ISO 2 6H | ISO 2 6H



DIN 371 with reinforced shank

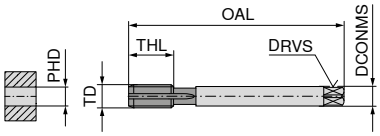




HSS-E
FHA 0°
≤ 750 N/mm²
≤ 4xD

HSS-E
FHA 0°
≤ 750 N/mm²
≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 020 ... £ U0		22 127 ... £ U0	
M2	0.40	45	2.8	2.1	1.60	7	12	2	42.03	**020**		
M2,3	0.40	45	2.8	2.1	1.90	7	12	2	47.22	**023**		
M2,5	0.45	50	2.8	2.1	2.05	9	14	2	42.61	**025**		
M2,6	0.45	50	2.8	2.1	2.15	9	14	2	47.22	**026**		
M3	0.50	56	3.5	2.7	2.50	11	18	3	34.84	**030**	62.53	**030**
M3,5	0.60	56	4.0	3.0	2.90	12	20	3	37.54	**035**		
M4	0.70	63	4.5	3.4	3.30	13	21	3	35.61	**040**	64.38	**040**
M5	0.80	70	6.0	4.9	4.20	15	25	3	37.54	**050**	66.83	**050**
M6	1.00	80	6.0	4.9	5.00	17	30	3	37.54	**060**	66.83	**060**
M8	1.25	90	8.0	6.2	6.80	20	35	3	44.48	**080**	75.70	**080**
M10	1.50	100	10.0	8.0	8.50	22	39	3	52.23	**100**	96.76	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 021 ... £ U0		22 147 ... £ U0	
M5	0.80	70	3.5	2.7	4.2	15	3	44.48	**050**		
M6	1.00	80	4.5	3.4	5.0	17	3	45.11	**060**		
M8	1.25	90	6.0	4.9	6.8	20	3	47.99	**080**		
M10	1.50	100	7.0	5.5	8.5	22	3	54.40	**100**		
M12	1.75	110	9.0	7.0	10.2	24	3	66.37	**120**	114.87	**120**
M14	2.00	110	11.0	9.0	12.0	26	3	83.83	**140**		
M16	2.00	110	12.0	9.0	14.0	27	3	92.83	**160**	173.72	**160**
M18	2.50	125	14.0	11.0	15.5	30	3	135.45	**180**		
M20	2.50	140	16.0	12.0	17.5	32	3	140.70	**200**	256.81	**200**

P	**12**	**12**
M		
K	**12**	**12**
N	**12**	**22**
S		
H		
O		

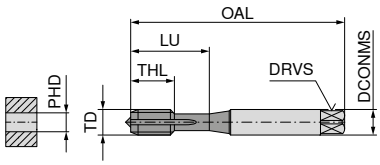
Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

▲ TS = for high-speed machining, up to 100 m/min.

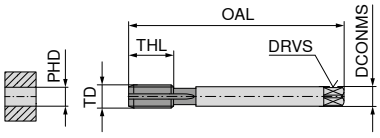
TruTap | M



DIN 371 with reinforced shank

	ST TS	HR	VG
	B 4–5	B 4–5	B 4–5
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	AlTiNHD	TiN
			
	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-PM FHA 0° ≤ 1400 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD
	22 092 ...	**22 468 ...**	**22 120 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0	
M2	0.40	45	2.8	2.1	1.60	7	12	2			92.51	**02000**		
M2	0.40	45	2.8	2.1	1.60	4	12	2	82.03	**020**			72.98	**020**
M2,5	0.45	50	2.8	2.1	2.05	9	14	2			92.51	**02500**		
M2,5	0.45	50	2.8	2.1	2.05	5	15	2	82.03	**025**			72.98	**025**
M3	0.50	56	3.5	2.7	2.50	11	18	2			60.16	**03000**		
M3	0.50	56	3.5	2.7	2.50	6	18	3	64.38	**030**			54.40	**030**
M4	0.70	63	4.5	3.4	3.30	13	21	2			62.77	**04000**		
M4	0.70	63	4.5	3.4	3.30	7	21	3	75.00	**040**			58.85	**040**
M5	0.80	70	6.0	4.9	4.20	15	25	2			64.78	**05000**		
M5	0.80	70	6.0	4.9	4.20	8	25	3	78.79	**050**			61.37	**050**
M6	1.00	80	6.0	4.9	5.00	17	30	3			73.41	**06000**		
M6	1.00	80	6.0	4.9	5.00	10	30	3	101.99	**060**			75.10	**060**
M8	1.25	90	8.0	6.2	6.80	20	35	3			80.65	**08000**		
M8	1.25	90	8.0	6.2	6.80	14	35	4	107.99	**080**			79.33	**080**
M10	1.50	100	10.0	8.0	8.50	22	39	3			113.59	**10000**		
M10	1.50	100	10.0	8.0	8.50	16	39	4	146.29	**100**			113.41	**100**



DIN 376 with reduced shank

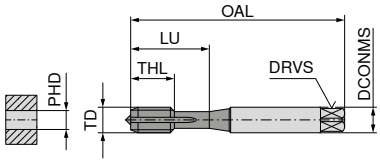
								22 093 ...		22 121 ...	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**	£ U0		£ U0	
M12	1.75	110	9	7	10.2	18	4	159.06	**120**	134.90	**120**
M16	2.00	110	12	9	14.0	22	4	235.53	**160**	184.60	**160**
M20	2.50	140	16	12	17.5	25	4	338.83	**200**	313.89	**200**

P	**65**	**8**	**10**
M		**8**	**8**
K	**65**		
N	**75**	**10**	**22**
S		**4**	
H			
O			

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

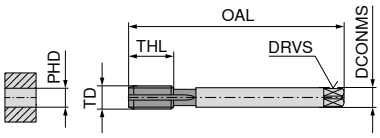
TruTap | M



DIN 371 with reinforced shank

VA	VA
B 4–5	B 4–5
ISO 2 6H	ISO 2 6H
nitr.	TiN GS
	
HSS-E FHA 0° ≤ 900 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 900 N/mm² ≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 056 ... £ U0		22 038 ... £ U0	
M1,6	0.35	40	2.5	2.1	1.25	6	11	2			92.49	**016**
M2	0.40	45	2.8	2.1	1.60	7	12	2	48.56	**020**	76.07	**020**
M2,5	0.45	50	2.8	2.1	2.05	9	14	2	46.69	**025**	72.52	**025**
M3	0.50	56	3.5	2.7	2.50	11	18	3	38.38	**030**	59.82	**030**
M3,5	0.60	56	4.0	3.0	2.90	12	20	3	53.82	**035**		
M4	0.70	63	4.5	3.4	3.30	13	21	3	40.26	**040**	64.65	**040**
M5	0.80	70	6.0	4.9	4.20	15	25	3	42.61	**050**	66.00	**050**
M6	1.00	80	6.0	4.9	5.00	17	30	3	44.48	**060**	83.21	**060**
M8	1.25	90	8.0	6.2	6.80	20	35	3	48.42	**080**	90.59	**080**
M10	1.50	100	10.0	8.0	8.50	22	39	3	59.23	**100**	112.22	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 057 ... £ U0		22 039 ... £ U0	
M12	1.75	110	9	7	10.2	24	3	75.00	**120**	132.76	**120**
M14	2.00	110	11	9	12.0	26	3	103.70	**140**	192.15	**140**
M16	2.00	110	12	9	14.0	27	3	106.11	**160**	188.31	**160**
M18	2.50	125	14	11	15.5	30	3	259.85	**180**		
M20	2.50	140	16	12	17.5	32	3	154.71	**200**	322.02	**200**

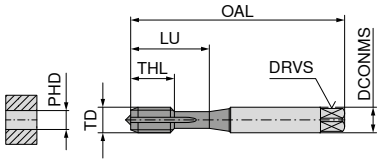
P	**8**	**10**
M	**6**	**8**
K		
N		
S		
H		
O		

Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

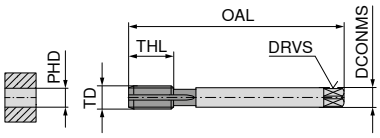
TruTap | M



DIN 371 with reinforced shank

	Ti	Ti	Ti
	B 4–5	B 4–5	B 4–5
	ISO 1X 4HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	vap.	TiN
			
	HSS-PM FHA 0° ≤ 44 HRC ≤ 4xD	HSS-PM FHA 0° ≤ 1400 N/mm² ≤ 4xD	HSS-PM FHA 0° ≤ 44 HRC ≤ 4xD
	22 081 ...	22 075 ...	22 077 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0	
M1,6	0.35	40	2.5	2.1	1.25	8	9.5	3			125.90	**016**		
M2	0.40	45	2.8	2.1	1.60	8	9.5	3	187.44	**020**	160.83	**020**		
M2,5	0.45	50	2.8	2.1	2.05	9	14.0	3			153.16	**025**		
M3	0.50	56	3.5	2.7	2.50	11	18.0	3	113.52	**030**	106.90	**030**	113.52	**030**
M3,5	0.60	56	4.0	3.0	2.90	12	20.0	3			79.25	**035**		
M4	0.70	63	4.5	3.4	3.30	13	21.0	3	115.74	**040**	115.35	**040**	115.74	**040**
M5	0.80	70	6.0	4.9	4.20	15	25.0	3	118.70	**050**	113.52	**050**	118.70	**050**
M6	1.00	80	6.0	4.9	5.00	17	30.0	3	118.70	**060**	113.52	**060**	118.70	**060**
M8	1.25	90	8.0	6.2	6.80	20	35.0	3	136.76	**080**	131.95	**080**	136.76	**080**
M10	1.50	100	10.0	8.0	8.50	22	39.0	3			159.05	**100**	160.34	**100**



DIN 376 with reduced shank

								22 142 ...	
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
M12	1.75	110	9	7	10.2	24	3	191.12	**120**

P	**7**	**5**	**7**
M	**7**	**5**	**7**
K			
N			
S	**5**	**3**	**5**
H			
O			

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

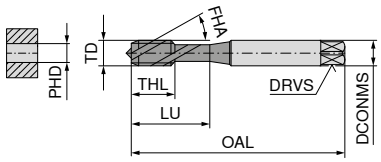
TruTap DL | M

Ti | Ni

D 4–5 | D 4–5

ISO 2X 6HX | ISO 2X 6HX

TiCN | TiCN





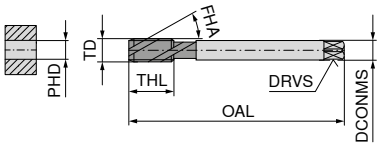


DIN 371 with reinforced shank

HSS-E FHA 15° ≤ 1200 N/mm² ≤ 4xD

HSS-E FHA 15° ≤ 1600 N/mm² ≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 159 ... £ U0		22 297 ... £ U0	
M3	0.50	56	3.5	2.7	2.5	11	18	2	67.16	**030**	86.47	**030**
M4	0.70	63	4.5	3.4	3.3	13	21	3	72.98	**040**	90.04	**040**
M5	0.80	70	6.0	4.9	4.2	15	25	3	73.74	**050**	92.35	**050**
M6	1.00	80	6.0	4.9	5.0	17	30	3	96.62	**060**	116.85	**060**
M8	1.25	90	8.0	6.2	6.8	20	35	3	106.11	**080**	129.67	**080**
M10	1.50	100	10.0	8.0	8.5	22	39	3	132.94	**100**	162.35	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 160 ... £ U0		22 298 ... £ U0	
M12	1.75	110	9	7	10.2	24	3	153.47	**120**	186.97	**120**
M16	2.00	110	12	9	14.0	27	3	216.14	**160**	262.15	**160**

P	**7**	
M	**7**	
K		
N	**22**	**22**
S	**5**	**2**
H		
O		

Cutting speed v_c (m/min.)

6

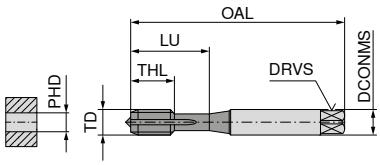
Through hole – Machine taps, right hand

▲ EL = extra long, with double overall length

TruTap | M

UNI EL | B | 4–5 | ISO 2 6H | nitr. + vap.

ST EL | B | 4–5 | ISO 2 6H



DIN 371 with reinforced shank

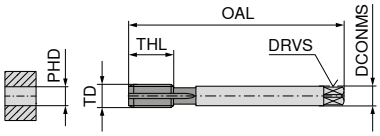


HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD



HSS-E
FHA 0°
≤ 950 N/mm²
≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 514 ... £ U0		22 233 ... £ U0	
M3	0.50	100	3.5	2.7	2.5	11	18	3	90.18	**030**	94.07	**030**
M4	0.70	125	4.5	3.4	3.3	13	21	3	90.18	**040**	90.04	**040**
M5	0.80	140	6.0	4.9	4.2	15	25	3	101.00	**050**	98.25	**050**
M6	1.00	160	6.0	4.9	5.0	17	30	3	109.91	**060**	102.82	**060**
M8	1.25	180	8.0	6.2	6.8	20	35	3	118.06	**080**	122.74	**080**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 515 ... £ U0		22 234 ... £ U0	
M6	1.00	160	4.5	3.4	5.0	17	3	106.61	**060**	102.82	**060**
M8	1.25	180	6.0	4.9	6.8	20	3	131.03	**080**	122.74	**080**
M10	1.50	200	7.0	5.5	8.5	22	3	140.85	**100**	136.57	**100**
M12	1.75	224	9.0	7.0	10.2	24	3	154.71	**120**	164.67	**120**
M14	2.00	224	11.0	9.0	12.0	26	3	271.49	**140**	266.20	**140**
M16	2.00	224	12.0	9.0	14.0	27	3	305.20	**160**	256.06	**160**
M18	2.50	250	14.0	11.0	15.5	30	3	411.02	**180**	384.08	**180**
M20	2.50	280	16.0	12.0	17.5	32	3	363.63	**200**	345.47	**200**

P	**12**	**12**
M	**7**	
K	**12**	**12**
N		**22**
S		
H		
O		

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

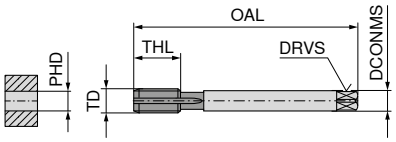
▲ MMB = Nut taps

M

ST
MMB

≈ 20

ISO 2
6H



DIN 357 with reduced shank



HSS-E
FHA 0°
≤ 850 N/mm²
≤ 1xD

22 098 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
M3	0.50	70	2.2		2.5	16	3	67.16	**030**
M4	0.70	90	2.8	2.1	3.3	22	3	67.16	**040**
M5	0.80	100	3.5	2.7	4.2	24	3	70.27	**050**
M6	1.00	110	4.5	3.4	5.0	30	3	70.27	**060**
M8	1.25	125	6.0	4.9	6.8	38	3	86.73	**080**
M10	1.50	140	7.0	5.5	8.5	45	3	98.50	**100**
M12	1.75	180	9.0	7.0	10.2	50	3	132.37	**120**
M16	2.00	200	12.0	9.0	14.0	63	3	189.85	**160**

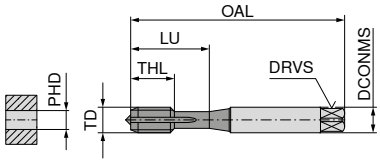
P	**15**
M	
K	
N	
S	
H	
O	

Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

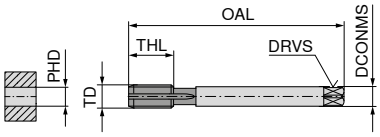
M



DIN 371 with reinforced shank

	UNI	UNI	UNI
	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H
	nitr. + vap.	TiN	TiN
			
	HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD	HSS-PM FHA 0° ≤ 1000 N/mm² ≤ 3xD
	23 110 ...	**23 112 ...**	**23 010 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9		£ T9		£ T9	
M2	0.40	45	2.8	2.1	1.60	4	13.5	2					12.23	**020**
M2	0.40	45	2.8	2.1	1.60	7	12.0	2	36.39	**020**	42.61	**020**		
M2,5	0.45	50	2.8	2.1	2.05	9	14.0	2	35.12	**025**	41.24	**025**		
M3	0.50	56	3.5	2.7	2.50	11	18.0	3	27.71	**030**	34.55	**030**	15.37	**030**
M4	0.70	63	4.5	3.4	3.30	13	21.0	3	28.31	**040**	39.31	**040**	14.01	**040**
M5	0.80	70	6.0	4.9	4.20	15	25.0	3	28.87	**050**	39.67	**050**	15.67	**050**
M6	1.00	80	6.0	4.9	5.00	17	30.0	3	29.06	**060**	50.14	**060**	18.79	**060**
M8	1.25	90	8.0	6.2	6.80	20	35.0	3	33.24	**080**	53.82	**080**	20.85	**080**
M10	1.50	100	10.0	8.0	8.50	22	39.0	3	40.26	**100**	73.56	**100**	27.59	**100**



DIN 376 with reduced shank

									23 111 ...		**23 113 ...**		**23 021 ...**	
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes		£ T9		£ T9		£ T9	
M3	0.50	56	2.2		2.5	11	3		10.90	**030**				
M4	0.70	63	2.8	2.1	3.3	13	3		10.71	**040**				
M5	0.80	70	3.5	2.7	4.2	15	3		10.71	**050**				
M6	1.00	80	4.5	3.4	5.0	17	3		11.17	**060**				
M8	1.25	90	6.0	4.9	6.8	20	3		13.12	**080**				
M10	1.50	100	7.0	5.5	8.5	22	3		15.21	**100**				
M12	1.75	110	9.0	7.0	10.2	24	3		18.20	**120**	81.29	**120**	32.95	**120**
M14	2.00	110	11.0	9.0	12.0	20	4						49.94	**140**
M14	2.00	110	11.0	9.0	12.0	26	3		26.39	**140**	52.76	**14000**		
M16	2.00	110	12.0	9.0	14.0	27	3		26.96	**160**	106.47	**160**	46.38	**160**
M18	2.50	125	14.0	11.0	15.5	25	4						81.23	**180**
M18	2.50	125	14.0	11.0	15.5	30	3				83.72	**18000**		
M20	2.50	140	16.0	12.0	17.5	32	3		42.93	**200**	189.08	**200**	83.93	**200**
M22	2.50	140	18.0	14.5	19.5	32	3				123.99	**22000**		
M24	3.00	160	18.0	14.5	21.0	34	3				200.87	**240**		
M27	3.00	160	20.0	16.0	24.0	36	3				155.04	**27000**		
M30	3.50	180	22.0	18.0	26.5	40	4				173.90	**30000**		
M33	3.50	180	25.0	20.0	29.5	40	4				228.11	**33000**		
M36	4.00	200	28.0	22.0	32.0	50	4				279.39	**36000**		

P	**12**	**15**	**15**
M	**7**	**9**	**9**
K	**12**	**18**	**18**
N		**12**	**12**
S			
H			
O			

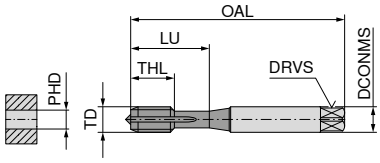
Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

▲ NC = for synchronised CNC machining with minimum length compensation chuck

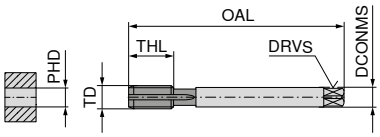
M



DIN 371 with reinforced shank

	UNI NC	UNI NCW	FE	FE-HF
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN GS	TiCN		TiCN
				
	HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD	HSS-PM FHA 0° ≤ 1000 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 850 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 114 ... £ T9		23 116 ... £ T9		23 212 ... £ T9		23 310 ... £ T9	
M1,6	0.35	40	2.5	2.1	1.25	6	11	2					36.98	**016**		
M2	0.40	45	2.8	2.1	1.60	7	12	2					24.49	**020**		
M2,5	0.45	50	2.8	2.1	2.05	9	14	2					21.29	**025**		
M3	0.50	56	3.5	2.7	2.50	11	18	3	36.98	**030**			16.88	**030**	34.84	**030**
M3	0.50	70	6.0	4.9	2.50	6	18	3			44.14	**030**				
M3,5	0.60	56	4.0	3.0	2.90	12	20	3					18.79	**035**		
M4	0.70	63	4.5	3.4	3.30	13	21	3	39.11	**040**			16.88	**040**	36.47	**040**
M4	0.70	70	6.0	4.9	3.30	7	21	3			50.54	**040**				
M5	0.80	70	6.0	4.9	4.20	8	25	3			50.32	**050**				
M5	0.80	70	6.0	4.9	4.20	15	25	3	40.26	**050**			16.93	**050**	37.54	**050**
M6	1.00	80	6.0	4.9	5.00	10	30	3			50.32	**060**				
M6	1.00	80	6.0	4.9	5.00	17	30	3	57.92	**060**			16.93	**060**	50.32	**060**
M8	1.25	90	8.0	6.2	6.80	14	35	3			63.60	**080**				
M8	1.25	90	8.0	6.2	6.80	20	35	3	62.53	**080**			22.03	**080**	54.31	**080**
M10	1.50	100	10.0	8.0	8.50	16	39	3			76.90	**100**				
M10	1.50	100	10.0	8.0	8.50	22	39	3	78.56	**100**			26.40	**100**	68.16	**100**



DIN 376 with reduced shank

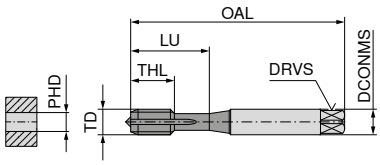
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 115 ... £ T9		23 117 ... £ T9		23 213 ... £ T9		23 311 ... £ T9	
M12	1.75	110	9	7	10.2	24	3	90.59	**120**			35.61	**120**	80.52	**120**
M12	1.75	110	10	8	10.2	18	3			97.55	**120**				
M14	2.00	110	11	9	12.0	26	3					43.17	**140**		
M16	2.00	110	12	9	14.0	22	3			192.40	**160**				
M16	2.00	110	12	9	14.0	27	3	120.54	**160**			54.20	**160**	111.67	**160**
M20	2.50	140	16	12	17.5	32	3	223.51	**200**			84.59	**200**	197.20	**200**
P									**15**		**15**		**12**		**15**
M									**9**		**8**				
K									**18**		**15**		**12**		**15**
N									**12**		**22**		**12**		**15**
S															
H															
O															

Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

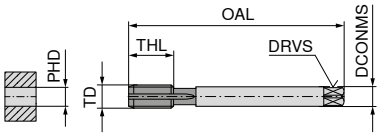
M



DIN 371 with reinforced shank

	VA	VA	VA	AL	AL
	B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN	nitr.	nitr.		CrN
					
	HSS-E FHA 0° ≤ 1200 N/mm² ≤ 3xD	HSS-PM FHA 0° ≤ 1200 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 1200 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 500 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 500 N/mm² ≤ 3xD
	23 412 ...	23 450 ...	23 410 ...	23 610 ...	23 612 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9		£ T9		£ T9		£ T9		£ T9	
M2	0.40	45	2.8	2.1	1.60	7	12	2	43.61	**020**			27.48	**020**				
M2,5	0.45	50	2.8	2.1	2.05	9	14	2	36.90	**025**			35.12	**025**				
M3	0.50	56	3.5	2.7	2.50	11	18	3	34.55	**030**	14.32	**030**	18.43	**030**	16.88	**030**	31.75	**030**
M4	0.70	63	4.5	3.4	3.30	13	21	3	39.31	**040**	14.46	**040**	18.43	**040**	16.88	**040**	32.91	**040**
M5	0.80	70	6.0	4.9	4.20	15	25	3	39.67	**050**	15.67	**050**	19.18	**050**	16.93	**050**	33.66	**050**
M6	1.00	80	6.0	4.9	5.00	17	30	3	51.67	**060**	15.79	**060**	19.18	**060**	16.93	**060**	33.66	**060**
M8	1.25	90	8.0	6.2	6.80	20	35	3	55.43	**080**	17.75	**080**	24.40	**080**	22.03	**080**	37.81	**080**
M10	1.50	100	10.0	8.0	8.50	22	39	3	75.77	**100**	20.13	**100**	29.41	**100**	26.40	**100**	47.22	**100**



DIN 376 with reduced shank

	23 413 ...	23 451 ...	23 411 ...

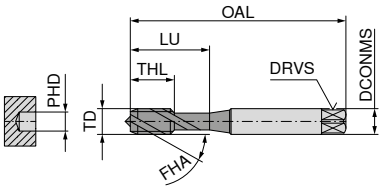
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9		£ T9		£ T9	
M12	1.75	110	9	7.0	10.2	24	3	85.35	**120**	35.94	**120**	39.31	**120**
M14	2.00	110	11	9.0	12.0	26	3			47.56	**140**		
M16	2.00	110	12	9.0	14.0	27	3	106.47	**160**	50.26	**160**	60.01	**160**
M20	2.50	140	16	12.0	17.5	32	3	185.38	**200**	75.13	**200**	91.33	**200**
M24	3.00	160	18	14.5	21.0	34	3					120.78	**240**

P	**10**	**8**	**8**		
M	**8**	**6**	**6**		
K					
N	**24**	**22**	**22**	**15**	**20**
S					
H					
O					

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap | M



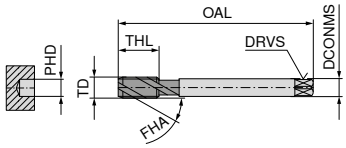
DIN 371 with reinforced shank

UNI	UNI	UNI
C 2–3	C 2–3	C 2–3
ISO 2 6H	ISO 2 6H	ISO 2 6H
vap.	TiN	TiCN



HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	22 518 ... £ U0		22 520 ... £ U0		22 522 ... £ U0	
mm	mm	mm	mm	mm	mm	mm	mm							
M2	0.40	45	2.8	2.1	1.60	4	12	2	49.12	**020**	71.83	**020**		
M2,5	0.45	50	2.8	2.1	2.05	5	15	2	46.07	**025**				
M3	0.50	56	3.5	2.7	2.50	6	18	3	42.03	**030**	51.29	**030**	50.91	**030**
M4	0.70	63	4.5	3.4	3.30	7	21	3	42.79	**040**	54.79	**040**	54.79	**040**
M5	0.80	70	6.0	4.9	4.20	8	25	3	42.72	**050**	56.13	**050**	55.72	**050**
M6	1.00	80	6.0	4.9	5.00	10	30	3	44.48	**060**	66.00	**060**	66.00	**060**
M8	1.25	90	8.0	6.2	6.80	14	35	3	50.53	**080**	72.98	**080**	72.52	**080**
M10	1.50	100	10.0	8.0	8.50	16	39	3	61.92	**100**	87.31	**100**	87.31	**100**



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	22 519 ... £ U0		22 521 ... £ U0	
mm	mm	mm	mm	mm	mm	mm					
M12	1.75	110	9	7.0	10.2	18	3	77.62	**120**	101.57	**120**
M14	2.00	110	11	9.0	12.0	20	3	99.47	**140**	198.18	**140**
M16	2.00	110	12	9.0	14.0	22	3	109.52	**160**	150.35	**160**
M18	2.50	125	14	11.0	15.5	25	3	158.30	**180**	311.39	**180**
M20	2.50	140	16	12.0	17.5	25	3	164.11	**200**	255.44	**200**
M22	2.50	140	18	14.5	19.5	27	4	235.53	**220**	458.04	**220**
M24	3.00	160	18	14.5	21.0	30	4	207.60	**240**	398.64	**240**
M30	3.50	180	22	18.0	26.5	35	4	350.07	**300**		
M33	3.50	180	25	20.0	29.5	35	4	687.91	**330**		
M36	4.00	200	28	22.0	32.0	40	4	569.30	**360**		

P	**12**	**15**	**15**
M	**7**	**9**	**9**
K	**12**	**18**	**18**
N		**12**	**12**
S			
H			
O			

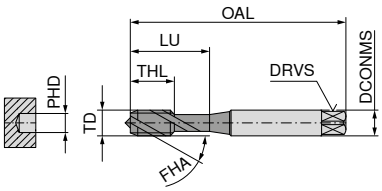
Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

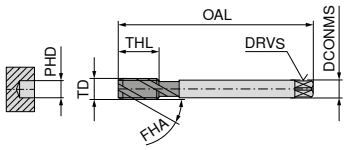
CavTap | M



DIN 371 with reinforced shank

	UNI NCW	UNI	UNI	UNI
	C 2–3	E 1,5–2	E 1,5–2	E 1,5–2
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN	vap.	vap.	TiN
				
	HSS-PM FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD
	22 149 ...	22 524 ...	22 534 ...	22 526 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M3	0.50	56	3.5	2.7	2.5	6	18	3			42.98	030			50.32	030
M3	0.50	70	6.0	4.9	2.5	6	18	3	87.31	030						
M4	0.70	63	4.5	3.4	3.3	7	21	3			43.93	040			54.79	040
M4	0.70	70	6.0	4.9	3.3	7	21	3	94.85	040						
M5	0.80	70	6.0	4.9	4.2	8	25	3	96.62	050	45.11	050	69.69	050	56.13	050
M6	1.00	80	6.0	4.9	5.0	10	30	3	119.81	060	45.69	060	66.79	060	66.00	060
M8	1.25	90	8.0	6.2	6.8	14	35	3	136.03	080	52.23	080	78.56	080	72.98	080
M10	1.50	100	10.0	8.0	8.5	16	39	3	165.86	100	63.67	100	92.09	100	87.31	100



DIN 376 with reduced shank

	22 149 ...	22 525 ...	22 535 ...	22 527 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M12	1.75	110	9	7.0	10.2	18	4			79.57	120	102.77	120	103.55	120
M12	1.75	110	10	8.0	10.2	18	3	196.81	120						
M14	2.00	110	11	9.0	12.0	20	4			150.35	140	152.82	140		
M16	2.00	110	12	9.0	14.0	22	3	269.00	160						
M16	2.00	110	12	9.0	14.0	22	4			113.00	160	153.66	160	150.35	160
M18	2.50	125	14	11.0	15.5	25	4			239.18	180				
M20	2.50	140	16	12.0	17.5	25	4			168.72	200	227.17	200	255.44	200
M22	2.50	140	18	14.5	19.5	27	5			328.54	220				
M24	3.00	160	18	14.5	21.0	30	5			286.62	240				

P	15	12	12	15
M	8	7	7	9
K	15	12	12	18
N	22			12
S				
H				
O				

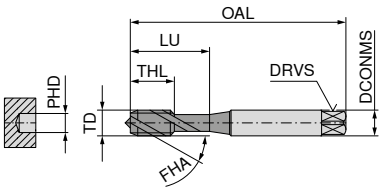
Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

CavTap | M

UNI CNC	UNI CNC	UNI CNC	UNI CNC
C 2–3	C 2–3	E 1,5–2	C 2–3
ISO 2X 6HX	ISO 2 6H	ISO 2 6H	7G
TiN	TiN GS	TiN GS	TiN GS



DIN 371 with reinforced shank



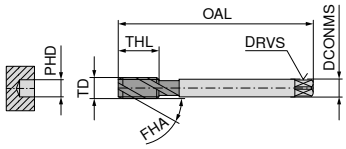
HSS-E
FHA 50°
≤ 1100 N/mm²
≤ 3xD

HSS-E
FHA 45°
≤ 1100 N/mm²
≤ 3xD

HSS-E
FHA 45°
≤ 1100 N/mm²
≤ 3xD

HSS-E
FHA 45°
≤ 1100 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 416 ... £ U0		22 544 ... £ U0		22 546 ... £ U0		22 594 ... £ U0	
M3	0.50	56	3.5	2.7	2.5	6	18	3	77.69	030	68.29	030			81.88	030
M4	0.70	63	4.5	3.4	3.3	7	21	3	81.29	040	69.69	040			83.21	040
M5	0.80	70	6.0	4.9	4.2	8	25	3	83.58	050	71.41	050	101.57	050	86.30	050
M6	1.00	80	6.0	4.9	5.0	10	30	3	101.00	060	74.89	060	102.89	060	92.88	060
M8	1.25	90	8.0	6.2	6.8	14	35	3	112.22	080	94.42	080	132.76	080	113.41	080
M10	1.50	100	10.0	8.0	8.5	16	39	3	139.04	100	107.78	100	153.47	100	127.32	100



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 417 ... £ U0		22 545 ... £ U0			22 595 ... £ U0	
M12	1.75	110	9	7	10.2	18	3	163.68	120					
M12	1.75	110	9	7	10.2	18	4			144.77	120		172.06	120
M14	2.00	110	11	9	12.0	20	3	233.69	140					
M14	2.00	110	11	9	12.0	20	4			174.33	140		203.01	140
M16	2.00	110	12	9	14.0	22	3	455.21	160					
M16	2.00	110	12	9	14.0	22	4			193.12	160		224.30	160
M20	2.50	140	16	12	17.5	25	3	390.15	200					
M20	2.50	140	16	12	17.5	25	4			277.48	200		321.45	200

P	15	15	15	15
M	9	9	9	9
K	18	18	18	18
N	22	12	12	12
S				
H				
O				

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

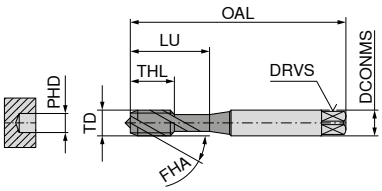
▲ CNC = for synchronised CNC machining with minimum length compensation chuck

CavTap SL | M

ST CNC | C 2–3 | ISO 2X 6HX | TiN

HR | C 2–3 | ISO 2 6H | AlTiNHD

ST CNC | C 2–3 | ISO 2X 6HX | TiN



DIN 371 with reinforced shank



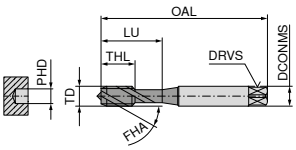


HSS-E
FHA 15°
≤ 1100 N/mm²
≤ 2xD

HSS-PM
FHA 25°
≤ 1400 N/mm²
≤ 2xD

HSS-E
FHA 15°
≤ 1100 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 328 ... £ U0		22 469 ... £ U0		22 443 ... £ U0	
M3	0.50	56	3.5	2.7	2.5	6	18	2	66.73	030				
M3	0.50	56	3.5	2.7	2.5	11	18	3			47.78	03000		
M4	0.70	63	4.5	3.4	3.3	7	21	3	69.57	040				
M4	0.70	63	4.5	3.4	3.3	13	21	3			56.56	04000		
M5	0.80	70	6.0	4.9	4.2	8	25	3	72.36	050			106.36	050
M5	0.80	70	6.0	4.9	4.2	15	25	3			57.84	05000		
M6	1.00	80	6.0	4.9	5.0	10	30	3	89.49	060			123.78	060
M6	1.00	80	6.0	4.9	5.0	17	30	3			59.89	06000		
M8	1.25	90	8.0	6.2	6.8	14	35	3	101.00	080			135.54	080
M8	1.25	90	8.0	6.2	6.8	20	35	3			65.35	08000		
M10	1.50	100	10.0	8.0	8.5	16	39	3	123.78	100			164.67	100
M10	1.50	100	10.0	8.0	8.5	22	39	3			80.09	10000		
M12	1.75	110	12.0	9.0	10.2	24	44	3			95.61	12000		



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 329 ... £ U0	
M12	1.75	110	9	7	10.2	18	3	144.94	120
M16	2.00	110	12	9	14.0	22	3	209.37	160
M20	2.50	140	16	12	17.5	25	3	345.47	200

P	12	8	12
M	8	8	8
K	20		20
N	22	10	22
S		4	
H			
O			

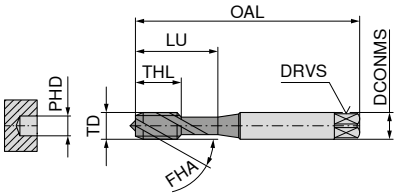
Cutting speed v_c (m/min.)

Blind hole – Machine taps

CavTap | M

ST | C 2–3 | ISO 2 6H

ST | C 2–3 | ISO 2 6H | TiN



DIN 371 with reinforced shank





HSS-E
FHA 42°
≤ 750 N/mm²
≤ 3xD

HSS-E
FHA 42°
≤ 750 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 082 ... £ U0		22 084 ... £ U0	
M2	0.40	45	2.8	2.1	1.60	4	12	2	47.05	**020**	68.16	**020**
M2,5	0.45	50	2.8	2.1	2.05	5	15	2	44.65	**025**		
M3	0.50	56	3.5	2.7	2.50	6	18	3	39.49	**030**	47.99	**030**
M4	0.70	63	4.5	3.4	3.30	7	21	3	39.49	**040**	51.10	**040**
M5	0.80	70	6.0	4.9	4.20	8	25	3	40.26	**050**	51.69	**050**
M6	1.00	80	6.0	4.9	5.00	10	30	3	42.03	**060**	63.47	**060**
M8	1.25	90	8.0	6.2	6.80	14	35	3	49.92	**080**	69.30	**080**
M10	1.50	100	10.0	8.0	8.50	16	39	3	57.35	**100**	95.32	**100**

P	**12**	**15**
M		
K	**12**	**15**
N	**12**	**15**
S		
H		
O		

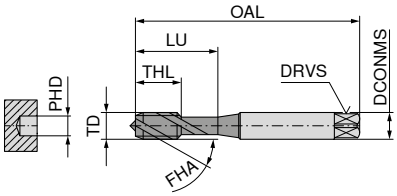
Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap | M

HR | C 2–3 | ISO 2 6H

HR | C 2–3 | ISO 2 6H | OSM



DIN 371 with reinforced shank





HSS-PM
FHA 42°
≤ 1400 N/mm²
≤ 3xD

HSS-PM
FHA 42°
≤ 1400 N/mm²
≤ 3xD

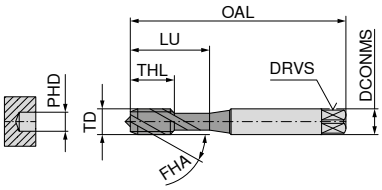
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 498 ... £ U0		22 499 ... £ U0	
M3	0.50	56	3.5	2.7	2.5	6	18	3	46.07	**030**	57.92	**030**
M4	0.70	63	4.5	3.4	3.3	7	21	3	43.17	**040**	57.92	**040**
M5	0.80	70	6.0	4.9	4.2	8	25	3	44.48	**050**	61.71	**050**
M6	1.00	80	6.0	4.9	5.0	10	30	3	44.65	**060**	64.65	**060**
M8	1.25	90	8.0	6.2	6.8	14	35	3	53.55	**080**	80.12	**080**
M10	1.50	100	10.0	8.0	8.5	16	39	3	64.05	**100**	91.53	**100**

P	**6**	**8**
M	**6**	**8**
K		
N	**8**	**12**
S		
H		
O		

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap | M



DIN 371 with reinforced shank

VA	VA	VA
C 2–3	E 1,5–2	C 2–3
ISO 2 6H	ISO 2 6H	ISO 2 6H
vap.	TiN GS	TiN GS

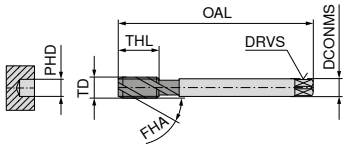


HSS-E
FHA 42°
≤ 900 N/mm²
≤ 3xD

HSS-E
FHA 45°
≤ 900 N/mm²
≤ 3xD

HSS-E
FHA 45°
≤ 900 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 090 ... £ U0		22 042 ... £ U0		22 040 ... £ U0	
M1,6	0.35	40	2.5	2.1	1.25	4	11	2					119.81	**016**
M2	0.40	45	2.8	2.1	1.60	4	12	2	73.83	**020**			66.57	**020**
M2,5	0.45	50	2.8	2.1	2.05	5	15	2	59.44	**025**				
M2,5	0.45	50	2.8	2.1	2.05	5	15	3					63.79	**025**
M3	0.50	56	3.5	2.7	2.50	6	18	3	44.48	**030**			69.69	**030**
M4	0.70	63	4.5	3.4	3.30	7	21	3	46.07	**040**			69.30	**040**
M5	0.80	70	6.0	4.9	4.20	8	25	3	46.65	**050**	102.89	**050**	72.52	**050**
M6	1.00	80	6.0	4.9	5.00	10	30	3	46.53	**060**	106.05	**060**	75.70	**060**
M8	1.25	90	8.0	6.2	6.80	14	35	3	54.31	**080**	133.74	**080**	95.57	**080**
M10	1.50	100	10.0	8.0	8.50	16	39	3	66.37	**100**	155.21	**100**	109.16	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 091 ... £ U0		22 041 ... £ U0	
M12	1.75	110	9	7.0	10.2	18	4	82.05	**120**	147.67	**120**
M14	2.00	110	11	9.0	12.0	20	4	120.78	**140**	177.25	**140**
M16	2.00	110	12	9.0	14.0	22	4	116.31	**160**	196.81	**160**
M20	2.50	140	16	12.0	17.5	25	4	173.78	**200**	282.14	**200**
M22	2.50	140	18	14.5	19.5	27	5	372.66	**220**		
M24	3.00	160	18	14.5	21.0	30	5	220.60	**240**		
M30	3.50	180	22	18.0	26.5	35	5	466.74	**300**		

P	**8**	**10**	**10**
M	**6**	**8**	**8**
K			
N			
S			
H			
O			

Cutting speed v_c (m/min.)

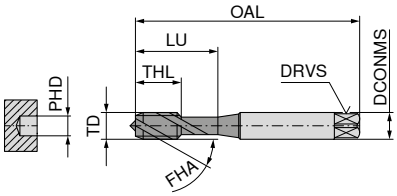
6

Blind hole – Machine taps, right hand

CavTap | M

Soft | C | 2–3 | ISO 2 6H

NW | C | 2–3 | ISO 2 6H | vap.



DIN 371 with reinforced shank



HSS-E
FHA 42°
≤ 500 N/mm²
≤ 3xD



HSS-E
FHA 38°
≤ 500 N/mm²
≤ 3xD

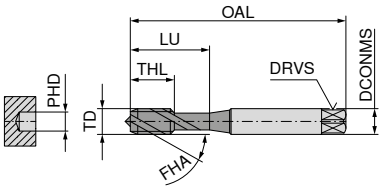
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 326 ... £ U0		22 086 ... £ U0	
M2	0.40	45	2.8	2.1	1.60	4	12	2	64.88	**020**	52.26	**020**
M2,5	0.45	50	2.8	2.1	2.05	5	15	2	60.84	**025**	48.42	**025**
M3	0.50	56	3.5	2.7	2.50	6	18	2	49.65	**030**		
M3	0.50	56	3.5	2.7	2.50	6	18	3			39.49	**030**
M4	0.70	63	4.5	3.4	3.30	7	21	2	49.65	**040**		
M4	0.70	63	4.5	3.4	3.30	7	21	3			39.49	**040**
M5	0.80	70	6.0	4.9	4.20	8	25	2	51.44	**050**		
M5	0.80	70	6.0	4.9	4.20	8	25	3			43.17	**050**
M6	1.00	80	6.0	4.9	5.00	10	30	2	51.44	**060**		
M6	1.00	80	6.0	4.9	5.00	10	30	3			42.03	**060**
M8	1.25	90	8.0	6.2	6.80	14	35	2	61.39	**080**		
M8	1.25	90	8.0	6.2	6.80	14	35	3			49.92	**080**
M10	1.50	100	10.0	8.0	8.50	16	39	2	72.36	**100**		
M10	1.50	100	10.0	8.0	8.50	16	39	3			58.44	**100**

P	**15**	**15**
M		
K		
N	**22**	
S		
H		
O		

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

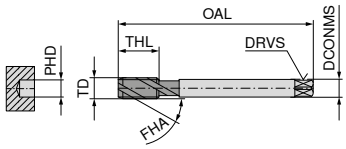
CavTap SL | M



DIN 371 with reinforced shank

	Ti	Ti	Ni
	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	TiCN	TiCN
			
	HSS-PM FHA 30° ≤ 1400 N/mm² ≤ 1,5xD	HSS-PM FHA 15° ≤ 1200 N/mm² ≤ 2xD	HSS-PM FHA 15° ≤ 1600 N/mm² ≤ 2xD
	22 076 ...	22 163 ...	22 424 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0	
M3	0.50	56	3.5	2.7	2.5	11	18	2			64.38	**030**	90.04	**030**
M3	0.50	56	3.5	2.7	2.5	6	18	3	64.38	**030**				
M3,5	0.60	56	4.0	3.0	2.9	12	20	3			70.43	**035**		
M4	0.70	63	4.5	3.4	3.3	7	21	3	67.16	**040**				
M4	0.70	63	4.5	3.4	3.3	13	21	3			71.83	**040**	94.07	**040**
M5	0.80	70	6.0	4.9	4.2	8	25	3	67.72	**050**				
M5	0.80	70	6.0	4.9	4.2	15	25	3			72.39	**050**	97.60	**050**
M6	1.00	80	6.0	4.9	5.0	10	30	3	73.14	**060**				
M6	1.00	80	6.0	4.9	5.0	17	30	3			96.76	**060**	122.74	**060**
M8	1.25	90	8.0	6.2	6.8	14	35	3	79.95	**080**				
M8	1.25	90	8.0	6.2	6.8	20	35	3			105.28	**080**	134.36	**080**
M10	1.50	100	10.0	8.0	8.5	16	39	3	111.45	**100**				
M10	1.50	100	10.0	8.0	8.5	22	39	3			129.67	**100**	168.27	**100**
M12	1.75	110	12.0	9.0	10.2	18	44	3	125.78	**120**				



DIN 376 with reduced shank

		22 164 ...		22 425 ...	

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0	
M12	1.75	110	9	7.0	10.2	24	3	147.07	**120**	195.07	**120**
M14	2.00	110	11	9.0	12.0	26	3			286.61	**140**
M16	2.00	110	12	9.0	14.0	27	3	206.30	**160**	268.24	**160**
M20	2.50	140	16	12.0	17.5	32	3	354.12	**200**	467.34	**200**
M24	3.00	160	18	14.5	21.0	34	3	408.09	**240**		

P	**7**	**7**	
M	**7**	**7**	
K			
N		**22**	**22**
S	**5**	**5**	**2**
H			
O			

Cutting speed v_c (m/min.)

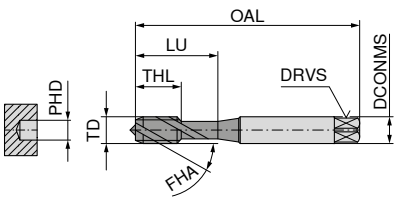
6

Blind hole – Machine taps, right hand

▲ ES = extra short

CavTap | M

UNI ES | E 1,5–2 | ISO 2 6H | vap.



DIN 352 with reinforced shank



HSS-E
FHA 42°
≤ 1100 N/mm²
≤ 3xD

22 500 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
M3	0.50	40	3.5	2.7	2.5	6	18	3	37.54	**030**
M4	0.70	45	4.5	3.4	3.3	7	22	3	38.11	**040**
M5	0.80	50	6.0	4.9	4.2	9	25	3	37.54	**050**
M6	1.00	56	6.0	4.9	5.0	10	28	3	41.24	**060**
M8	1.25	63	6.0	4.9	6.8	14		3	47.22	**080**
M10	1.50	70	7.0	5.5	8.5	16		3	54.20	**100**
M12	1.75	75	9.0	7.0	10.2	18		4	70.04	**120**
M16	2.00	80	12.0	9.0	14.0	22		4	111.07	**160**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

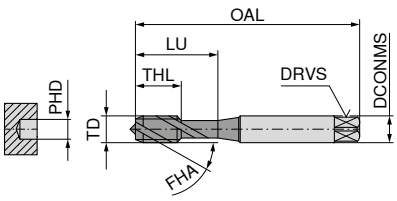
▲ ES = extra short

CavTap SL | M

ST
ES

C
2–3

ISO 2
6H



DIN 352 with reinforced shank



HSS-E
FHA 15°
≤ 750 N/mm²
≤ 2xD

22 016 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
M3	0.50	40	3.5	2.7	2.5	10	18	2	33.66	**030**
M4	0.70	45	4.5	3.4	3.3	12	22	3	33.42	**040**
M5	0.80	50	6.0	4.9	4.2	14	25	3	34.55	**050**
M6	1.00	56	6.0	4.9	5.0	16	28	3	35.31	**060**
M8	1.25	63	6.0	4.9	6.8	20		3	40.26	**080**
M10	1.50	70	7.0	5.5	8.5	22		3	51.69	**100**
M12	1.75	75	9.0	7.0	10.2	24		3	65.70	**120**

P	**12**
M	
K	**12**
N	**12**
S	
H	
O	

Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

▲ EL = extra long, with double overall length

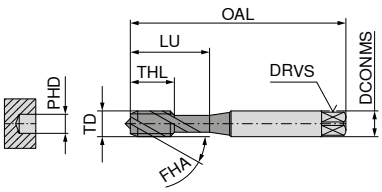
CavTap | M

ST EL | UNI EL

C 2–3

ISO 2 6H | ISO 2 6H

vap.



DIN 371 with reinforced shank

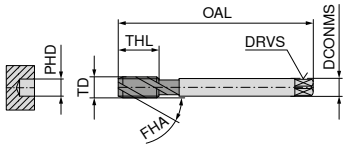




HSS-E
FHA 42°
≤ 750 N/mm²
≤ 3xD

HSS-E
FHA 42°
≤ 1100 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 422 ... £ U0		22 538 ... £ U0	
M3	0.50	100	3.5	2.7	2.5	6	18	3	95.74	**030**	76.43	**030**
M4	0.70	125	4.5	3.4	3.3	7	21	3	93.54	**040**	76.30	**040**
M5	0.80	140	6.0	4.9	4.2	8	25	3	104.51	**050**	85.81	**050**
M6	1.00	160	6.0	4.9	5.0	10	30	3	108.73	**060**	90.18	**060**
M8	1.25	180	8.0	6.2	6.8	14	35	3	130.92	**080**	102.77	**080**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 539 ... £ U0	
M6	1.00	160	4.5	3.4	5.0	10	3	114.74	**060**
M8	1.25	180	6.0	4.9	6.8	14	3	138.56	**080**
M10	1.50	200	7.0	5.5	8.5	16	3	119.81	**100**
M12	1.75	224	9.0	7.0	10.2	18	3	148.83	**120**
M14	2.00	224	11.0	9.0	12.0	20	3	259.13	**140**
M16	2.00	224	12.0	9.0	14.0	22	3	218.50	**160**
M18	2.50	250	14.0	11.0	15.5	25	3	405.80	**180**
M20	2.50	280	16.0	12.0	17.5	25	3	346.37	**200**

P	**12**	**12**
M		**7**
K	**12**	**12**
N	**22**	
S		
H		
O		

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

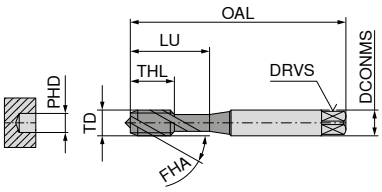
▲ EL = extra long, with double overall length

CavTap SL | M

ST
EL

E
1,5–2

ISO 2
6H



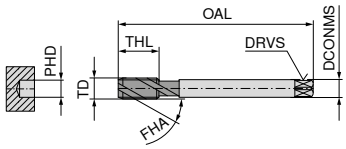
DIN 371 with reinforced shank



HSS-E
FHA 15°
≤ 750 N/mm²
≤ 2xD

22 078 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
M3	0.50	100	3.5	2.7	2.5	11	18	2	73.08	**030**
M4	0.70	125	4.5	3.4	3.3	13	21	3	73.08	**040**
M5	0.80	140	6.0	4.9	4.2	15	25	3	84.00	**050**
M6	1.00	160	6.0	4.9	5.0	17	30	3	88.24	**060**
M8	1.25	180	8.0	6.2	6.8	20	35	3	103.49	**080**



DIN 376 with reduced shank

22 080 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
M6	1.00	160	4.5	3.4	5.0	17	3	90.18	**060**
M8	1.25	180	6.0	4.9	6.8	20	3	107.99	**080**
M10	1.50	200	7.0	5.5	8.5	22	3	115.73	**100**
M12	1.75	224	9.0	7.0	10.2	24	3	147.07	**120**
M14	2.00	224	11.0	9.0	12.0	26	3	213.08	**140**
M16	2.00	224	12.0	9.0	14.0	27	3	212.65	**160**
M20	2.50	280	16.0	12.0	17.5	32	3	294.50	**200**

P	**12**
M	
K	**12**
N	**12**
S	
H	
O	

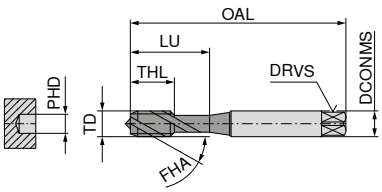
Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

▲ NC = for synchronised CNC machining with minimum length compensation chuck

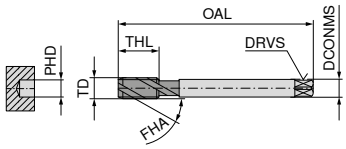
M



DIN 371 with reinforced shank

	UNI	UNI	UNI	UNI	UNI NC
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	vap.	TiN	TiN	TiCN	TiN GS
					
	HSS-E FHA 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E FHA 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-PM FHA 50° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E FHA 45° ≤ 1000 N/mm² ≤ 3xD	HSS-E FHA 45° ≤ 1000 N/mm² ≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	23 118 ... £ T9		23 120 ... £ T9		23 026 ... £ T9		23 122 ... £ T9		23 124 ... £ T9	
mm	mm	mm	mm	mm	mm	mm	mm											
M2	0.40	45	2.8	2.1	1.60	4	12	2	38.11	020	43.49	020						
M2,5	0.45	50	2.8	2.1	2.05	5	14	2	36.64	025	42.79	025						
M3	0.50	56	3.5	2.7	2.50	6	18	3	29.06	030	36.47	030	17.43	030	38.38	030	41.24	030
M4	0.70	63	4.5	3.4	3.30	7	21	3	30.21	040	40.83	040	17.43	040	41.24	040	42.72	040
M5	0.80	70	6.0	4.9	4.20	8	25	3	31.17	050	42.18	050	18.79	050	42.79	050	45.86	050
M6	1.00	80	6.0	4.9	5.00	10	30	3	32.91	060	52.53	060	21.76	060	54.31	060	61.92	060
M8	1.25	90	8.0	6.2	6.80	14	35	3	37.24	080	57.35	080	25.82	080	59.44	080	66.57	080
M10	1.50	100	10.0	8.0	8.50	16	39	3	42.61	100	76.87	100	32.51	100	75.10	100	84.59	100



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	23 119 ... £ T9		23 121 ... £ T9		23 027 ... £ T9		23 123 ... £ T9		23 125 ... £ T9	
mm	mm	mm	mm	mm	mm	mm											
M3	0.50	56	2.2		2.5	6	3	12.67	030								
M4	0.70	63	2.8	2.1	3.3	7	3	11.49	040								
M5	0.80	70	3.5	2.7	4.2	8	3	11.17	050								
M6	1.00	80	4.5	3.4	5.0	10	3	11.02	060								
M8	1.25	90	6.0	4.9	6.8	14	3	11.62	080								
M10	1.50	100	7.0	5.5	8.5	16	3	15.67	100								
M12	1.75	110	9.0	7.0	10.2	18	3	17.75	120	83.51	120						
M12	1.75	110	9.0	7.0	10.2	18	4					38.46	120	89.02	120	98.33	120
M14	2.00	110	11.0	9.0	12.0	20	3			57.23	14000						
M14	2.00	110	11.0	9.0	12.0	20	4					55.31	140				
M16	2.00	110	12.0	9.0	14.0	22	3	26.09	160	106.67	160						
M16	2.00	110	12.0	9.0	14.0	22	4					55.31	160	118.80	160	130.82	160
M18	2.50	125	14.0	11.0	15.5	25	3			90.51	18000						
M20	2.50	140	16.0	12.0	17.5	25	3	39.36	200	207.33	200	63.37	200				
M20	2.50	140	16.0	12.0	17.5	25	4							215.38	200	239.76	200
M22	2.50	140	18.0	14.5	19.5	27	4			132.67	22000						
M24	3.00	160	18.0	14.5	21.0	34	4			200.87	240						
M27	3.00	160	20.0	16.0	24.0	30	4			165.94	27000						
M30	3.50	180	22.0	18.0	26.5	35	4			184.27	30000						
M33	3.50	180	25.0	20.0	29.5	35	4			265.70	33000						
M36	4.00	200	28.0	22.0	32.0	40	4			288.70	36000						

P	12	15	15	15	15
M	7	9	9	9	9
K	12	18	18	18	18
N		12	12	12	12
S					
H					
O					

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

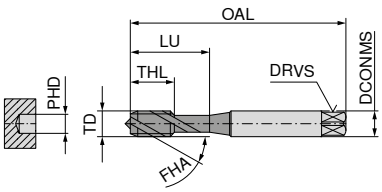
M

UNI NCW | FE | FE-HF | VA

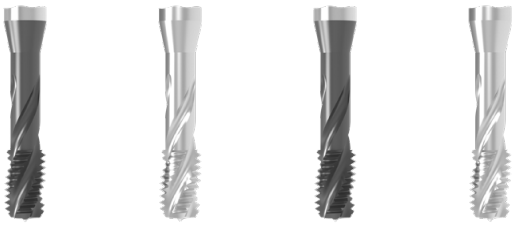
C 2–3

ISO 2 6H

TiCN (UNI NCW, FE-HF)



DIN 371 with reinforced shank



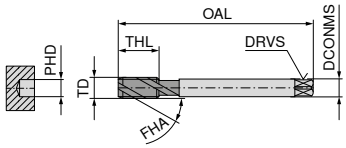
HSS-PM FHA 35° ≤ 1000 N/mm² ≤ 2,5xD

HSS-E FHA 35° ≤ 850 N/mm² ≤ 2,5xD

HSS-E FHA 35° ≤ 1100 N/mm² ≤ 2,5xD

HSS-E FHA 35° ≤ 1200 N/mm² ≤ 2,5xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 126 ... £ T9		23 216 ... £ T9		23 312 ... £ T9		23 414 ... £ T9	
M2	0.40	45	2.8	2.1	1.60	4	12	2			16.69	**020**			27.69	**020**
M2,5	0.45	50	2.8	2.1	2.05	5	14	2			33.66	**025**			36.64	**025**
M3	0.50	56	3.5	2.7	2.50	6	18	3			16.88	**030**	35.12	**030**	18.43	**030**
M3	0.50	70	6.0	4.9	2.50	6	18	3	44.14	**030**						
M4	0.70	63	4.5	3.4	3.30	7	21	3			16.88	**040**	38.38	**040**	18.43	**040**
M4	0.70	70	6.0	4.9	3.30	7	21	3	50.54	**040**						
M5	0.80	70	6.0	4.9	4.20	8	25	3	50.32	**050**	16.93	**050**	39.49	**050**	19.18	**050**
M6	1.00	80	6.0	4.9	5.00	10	30	3	50.32	**060**	16.93	**060**	54.40	**060**	19.18	**060**
M8	1.25	90	8.0	6.2	6.80	14	35	3	63.60	**080**	22.03	**080**	59.44	**080**	24.40	**080**
M10	1.50	100	10.0	8.0	8.50	16	39	3	76.90	**100**	26.40	**100**	74.12	**100**	29.41	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 127 ... £ T9		23 217 ... £ T9		23 313 ... £ T9		23 415 ... £ T9	
M12	1.75	110	10	8.0	10.2	18	3	97.55	**120**						
M12	1.75	110	9	7.0	10.2	18	3			35.61	**120**	85.76	**120**	39.31	**120**
M14	2.00	110	11	9.0	12.0	20	3			43.17	**140**				
M16	2.00	110	12	9.0	14.0	22	3	192.40	**160**	54.20	**160**	115.73	**160**	60.01	**160**
M20	2.50	140	16	12.0	17.5	25	3			85.16	**200**	207.27	**200**	91.33	**200**
M24	3.00	160	18	14.5	21.0	30	4							124.63	**240**

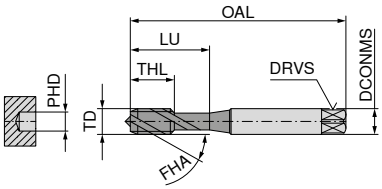
P	**15**	**12**	**15**	**8**
M	**8**			**6**
K	**15**	**12**	**15**	
N	**22**	**22**	**24**	**22**
S				
H				
O				

Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

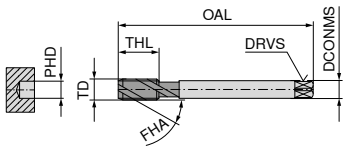
M



DIN 371 with reinforced shank

	VA	VA	VA	AL	AL
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN		TiN		CrN
					
	HSS-E FHA 45° ≤ 1200 N/mm² ≤ 3xD	HSS-PM FHA 40° ≤ 1200 N/mm² ≤ 2,5xD	HSS-PM FHA 40° ≤ 1200 N/mm² ≤ 2,5xD	HSS-E FHA 35° ≤ 500 N/mm² ≤ 2,5xD	HSS-E FHA 35° ≤ 500 N/mm² ≤ 2,5xD
	23 416 ...	**23 426 ...**	**23 456 ...**	**23 616 ...**	**23 614 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9		£ T9		£ T9		£ T9		£ T9	
M2	0.40	45	2.8	2.1	1.60	4	12	2	44.70	**020**								
M2,5	0.45	50	2.8	2.1	2.05	5	14	2	42.79	**025**								
M3	0.50	56	3.5	2.7	2.50	6	18	3	36.47	**030**	15.67	**030**	17.43	**030**	16.88	**030**	35.87	**030**
M4	0.70	63	4.5	3.4	3.30	7	21	3	40.83	**040**	15.79	**040**	19.08	**040**	16.88	**040**	35.87	**040**
M5	0.80	70	6.0	4.9	4.20	8	25	3	42.18	**050**	16.25	**050**	19.39	**050**	16.93	**050**	37.24	**050**
M6	1.00	80	6.0	4.9	5.00	10	30	3	54.11	**060**	16.54	**060**	24.89	**060**	16.93	**060**	37.24	**060**
M8	1.25	90	8.0	6.2	6.80	14	35	3	57.35	**080**	19.39	**080**	26.69	**080**	22.03	**080**	43.93	**080**
M10	1.50	100	10.0	8.0	8.50	16	39	3	80.68	**100**	23.26	**100**	36.81	**100**	26.40	**100**	53.80	**100**



DIN 376 with reduced shank

									23 417 ...		**23 427 ...**		**23 457 ...**			**23 615 ...**	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**		**£ T9**		**£ T9**		**£ T9**			**£ T9**	
M12	1.75	110	9	7.0	10.2	18	3				38.46	**120**	52.78	**120**		66.57	**120**
M12	1.75	110	9	7.0	10.2	18	4		87.69	**120**							
M14	2.00	110	11	9.0	12.0	20	4				50.70	**140**					
M16	2.00	110	12	9.0	14.0	22	3				55.16	**160**	66.33	**160**			
M16	2.00	110	12	9.0	14.0	22	4		106.67	**160**							
M20	2.50	140	16	12.0	17.5	25	3				82.15	**200**	131.76	**200**			
M20	2.50	140	16	12.0	17.5	25	4		167.98	**200**							
M24	3.00	160	18	14.5	21.0	30	4				103.90	**240**					

P	**10**	**8**	**10**			
M	**8**	**6**	**8**			
K						
N	**24**	**22**	**24**	**15**	**20**	
S						
H						
O						

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine taps, right hand

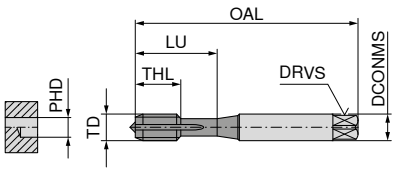
DuoTap | M

ST | HR

C 2–3 | C 2–3

ISO 2X 6HX | ISO 2X 6HX

nitr.



DIN 371 with reinforced shank





HSS-E
FHA 0°
≤ 750 N/mm²
≤ 2xD

HSS-E
FHA 0°
≤ 1400 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 028 ... £ U0		22 006 ... £ U0	
M1,2	0.25	40	2.5	2.1	0.95	5	5	2	64.38	**012** 1)		
M1,4	0.30	40	2.5	2.1	1.10	6	6	2	52.23	**014** 1)		
M1,6	0.35	40	2.5	2.1	1.25	6	11	2	46.69	**016**		
M1,7	0.35	40	2.5	2.1	1.35	6	11	2	51.69	**017**		
M1,8	0.35	40	2.5	2.1	1.45	6	11	2	47.99	**018**		
M2	0.40	45	2.8	2.1	1.60	7	12	3	40.26	**020**		
M2,2	0.45	45	2.8	2.1	1.75	7	12	3	41.02	**022**		
M2,3	0.40	45	2.8	2.1	1.90	7	12	3	46.65	**023**		
M2,5	0.45	50	2.8	2.1	2.05	9	14	3	39.49	**025**		
M2,6	0.45	50	2.8	2.1	2.15	9	14	3	42.61	**026**		
M3	0.50	56	3.5	2.7	2.50	11	18	3	32.91	**030**	46.69	**030**
M3,5	0.60	56	4.0	3.0	2.90	12	20	3	33.66	**035**		
M4	0.70	63	4.5	3.4	3.30	13	21	3	32.83	**040**	47.86	**040**
M5	0.80	70	6.0	4.9	4.20	15	25	3	33.66	**050**	51.10	**050**
M6	1.00	80	6.0	4.9	5.00	17	30	3	33.42	**060**	50.53	**060**
M7	1.00	80	7.0	5.5	6.00	17	30	3	48.40	**070**		
M8	1.25	90	8.0	6.2	6.80	20	35	3	37.81	**080**	55.43	**080**
M10	1.50	100	10.0	8.0	8.50	22	39	3	48.42	**100**	70.27	**100**

P	**12**	**6**
M		
K	**12**	**16**
N		**12**
S		
H		
O		

1) Tol. 4H/5H ≤ M1.4

Cutting speed v_c (m/min.)

DIN 376 can be found on the next page

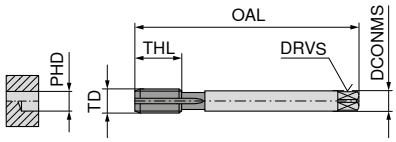
6

Through hole / Blind hole – Machine taps, right hand

DuoTap | M

ST | C | 2–3 | ISO 2X 6HX

HR | C | 2–3 | ISO 2X 6HX | nitr.



DIN 376 with reduced shank



HSS-E
FHA 0°
≤ 750 N/mm²
≤ 2xD



HSS-E
FHA 0°
≤ 1400 N/mm²
≤ 2xD

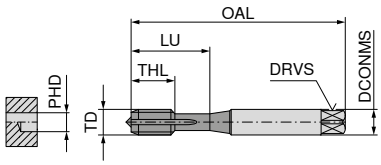
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 029 ... £ U0		22 007 ... £ U0	
M4	0.70	63	2.8	2.1	3.3	13	3	42.79	**040**		
M5	0.80	70	3.5	2.7	4.2	15	3	43.17	**050**		
M6	1.00	80	4.5	3.4	5.0	17	3	43.17	**060**		
M8	1.25	90	6.0	4.9	6.8	20	3	54.40	**080**		
M10	1.50	100	7.0	5.5	8.5	22	3	61.50	**100**		
M12	1.75	110	9.0	7.0	10.2	24	3	62.53	**120**	87.71	**120**
M14	2.00	110	11.0	9.0	12.0	26	3	86.52	**140**		
M16	2.00	110	12.0	9.0	14.0	27	3	92.31	**160**	127.76	**160**

P	**12**	**6**
M		
K	**12**	**16**
N		**12**
S		
H		
O		

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine taps, right hand

DuoTap | M



DIN 371 with reinforced shank





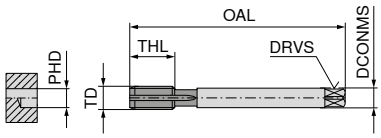




HSS-E
FHA 0°
≤ 1050 N/mm²
≤ 2xD

HSS-E
FHA 0°
≤ 1050 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 036 ... £ U0		22 032 ... £ U0	
M2	0.40	45	2.8	2.1	1.60	7	12	3			42.03	**020**
M2,5	0.45	50	2.8	2.1	2.05	9	14	3			43.17	**025**
M3	0.50	56	3.5	2.7	2.50	11	18	3			36.21	**030**
M3,5	0.60	56	4.0	3.0	2.90	12	20	3			39.49	**035**
M4	0.70	63	4.5	3.4	3.30	13	21	3			37.02	**040**
M5	0.80	70	6.0	4.9	4.20	15	25	3	58.26	**050**	39.49	**050**
M6	1.00	80	6.0	4.9	5.00	17	30	3	58.10	**060**	39.49	**060**
M8	1.25	90	8.0	6.2	6.80	20	35	3	65.43	**080**	45.40	**080**
M10	1.50	100	10.0	8.0	8.50	22	39	3	77.99	**100**	54.31	**100**



DIN 376 with reduced shank

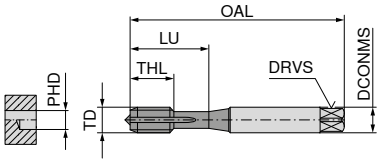
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 033 ... £ U0	
M6	1.00	80	4.5	3.4	5.0	17	3	46.53	**060**
M8	1.25	90	6.0	4.9	6.8	20	3	50.91	**080**
M10	1.50	100	7.0	5.5	8.5	22	3	57.64	**100**
M12	1.75	110	9.0	7.0	10.2	24	3	69.69	**120**
M14	2.00	110	11.0	9.0	12.0	26	3	85.81	**140**
M16	2.00	110	12.0	9.0	14.0	27	3	99.29	**160**

P		
M		
K	**16**	**16**
N	**12**	**12**
S		
H		
O		

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine taps, right hand

DuoTap | M



DIN 371 with reinforced shank

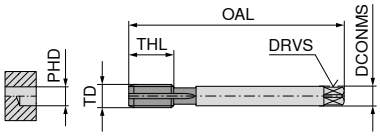
HT	HT
D 4–5	C 2–3
ISO 2X 6HX	ISO 2X 6HX
OSM	TiCN




Solid carbide
FHA 0°
≤ 63 HRC
≤ 1,5xD

HSS-PM
FHA 0°
44 - 52 HRC
≤ 1,5xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 806 ... £ U0		22 227 ... £ U0	
M3	0.50	63	4.5	3.4	2.55	6	18	4	232.98	**030**		
M4	0.70	63	4.5	3.4	3.40	8	20	4	232.98	**040**		
M5	0.80	70	6.0	4.9	4.30	10	26	4	267.43	**050**		
M6	1.00	80	6.0	4.9	5.00	10	30	4			202.00	**060**
M6	1.00	80	6.0	4.9	5.10	12	28	4	281.57	**060**		
M8	1.25	90	8.0	6.2	6.80	14	35	5			217.47	**080**
M8	1.25	90	8.0	6.2	6.90	15	35	5	322.58	**080**		
M10	1.50	100	10.0	8.0	8.50	18	38	5	409.06	**100**		
M10	1.50	100	10.0	8.0	8.50	16	39	5			272.30	**100**
M12	1.75	110	12.0	9.0	10.40	21	41	5	756.80	**120**		
M16	2.00	110	16.0	12.0	14.20	24	44	6	1,075.10	**160**		



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 228 ... £ U0	
M12	1.75	110	9	7	10.4	18	5	339.39	**120**
M16	2.00	110	12	9	14.2	22	6	467.34	**160**

P		
M		
K		
N		**22**
S		
H	**2**	**2**
O		

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine taps, right hand

▲ EL = extra long, with double overall length

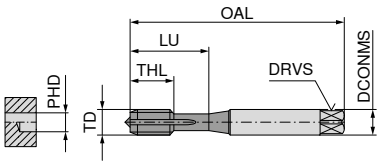
DuoTap | M

HR
EL

C
2–3

ISO 2X
6HX

nitr.



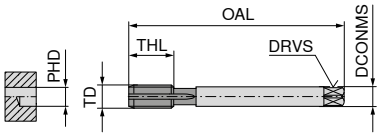
DIN 371 with reinforced shank



HSS-E
FHA 0°
≤ 1400 N/mm²
≤ 2xD

22 122 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
M3	0.50	100	3.5	2.7	2.5	11	18	3	92.09	**030**
M4	0.70	125	4.5	3.4	3.3	13	21	3	92.09	**040**
M5	0.80	140	6.0	4.9	4.2	15	25	3	99.29	**050**
M6	1.00	160	6.0	4.9	5.0	17	30	3	104.10	**060**
M8	1.25	180	8.0	6.2	6.8	20	35	3	119.98	**080**



DIN 376 with reduced shank

22 123 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
M10	1.50	200	7	5.5	8.5	22	3	138.56	**100**
M12	1.75	224	9	7.0	10.2	24	3	164.47	**120**
M16	2.00	224	12	9.0	14.0	27	3	256.81	**160**
M20	2.50	280	16	12.0	17.5	32	4	353.54	**200**

P	**6**
M	
K	**16**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

6

Through hole / Blind hole – Machine taps, right hand

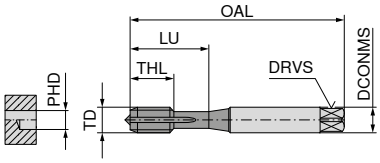
M

GG

C
2–3

ISO 2X
6HX

TiCN



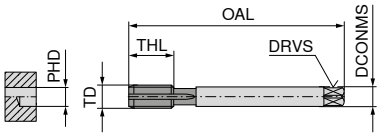
DIN 371 with reinforced shank



HSS-E
FHA 0°
≤ 900 N/mm²
≤ 2xD

23 512 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9	
M5	0.80	70	6	4.9	4.2	15	25	3	39.67	**050**
M6	1.00	80	6	4.9	5.0	17	30	3	51.67	**060**
M8	1.25	90	8	6.2	6.8	20	35	3	55.43	**080**
M10	1.50	100	10	8.0	8.5	22	39	3	75.77	**100**



DIN 376 with reduced shank

23 513 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9	
M12	1.75	110	9	7	10.2	24	3	85.35	**120**

P	
M	
K	**20**
N	**24**
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ HML = with soldered-in carbide strips for a higher cutting speed

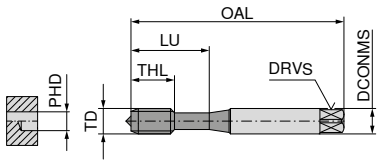
DuoForm | M

NW HML | EC

C 2–3 | C 2–3

ISO 2X 6HX | ISO 2X 6HX

TiN



DIN 2174 with reinforced shank



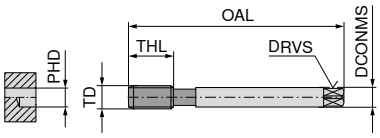
HSS-E / HM
≤ 880 N/mm²
≤ 3xD



HSS-E
≤ 1100 N/mm²
≤ 1,5xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	22 473 ... £ U0/4G		22 100 ... £ U0	
M1	0.25	40	2.5	2.1	0.90	5	6.5			106.61	**010** 1)
M1,2	0.25	40	2.5	2.1	1.10	5	6.5			97.78	**012** 1)
M1,4	0.30	40	2.5	2.1	1.28	6	9.0			92.09	**014** 1)
M1,6	0.35	40	2.5	2.1	1.47	6	9.0			89.58	**016**
M1,7	0.35	40	2.5	2.1	1.57	6	9.0			92.09	**017**
M2	0.40	45	2.8	2.1	1.85	7	10.0			59.82	**020**
M2,5	0.45	50	2.8	2.1	2.33	9	14.0			60.57	**025**
M2,6	0.45	50	2.8	2.1	2.43	9	14.0			63.67	**026**
M3	0.50	56	3.5	2.7	2.80	11	18.0			55.16	**030**
M3,5	0.60	56	4.0	3.0	3.25	12	20.0			52.97	**035**
M4	0.70	63	4.5	3.4	3.70	13	21.0			56.52	**040**
M5	0.80	70	6.0	4.9	4.65	15	25.0			59.22	**050**
M6	1.00	80	6.0	5.0	5.60	18	30.0	338.91	**06000**		
M6	1.00	80	6.0	4.9	5.60	17	30.0			67.92	**060**
M8	1.25	90	8.0	6.2	7.40	20	35.0			74.70	**080**
M8	1.25	90	8.0	6.0	7.45	18	35.0	389.82	**08000**		
M10	1.50	100	10.0	8.0	9.35	22	39.0			94.27	**100**

1) Tol. ISO 1X 4HX ≤ M1.4



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	22 101 ... £ U0	
M12	1.75	110	9	7	11.25	24	115.73	**120**
M16	2.00	110	12	9	15.10	27	173.72	**160**

P		**18**
M		**10**
K		**10**
N	**30**	**22**
S		
H		
O		

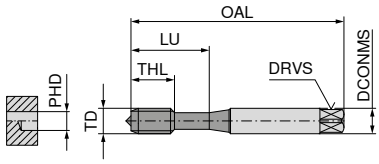
Cutting speed v_c (m/min.)

6

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

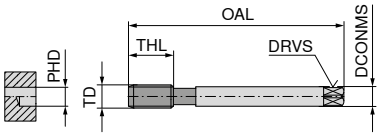
DuoForm | M



DIN 2174 with reinforced shank

	EC SN	EC SN	EC SN	EC SN
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 3X 6GX	ISO 2X 6HX	ISO 2X 6HX
	nitr.	TiN	TiN GS	TiN
				
	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD
	22 104 ...	**22 108 ...**	**22 154 ...**	**22 105 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0		£ U0		£ U0		£ U0	
M2	0.40	45	2.8	2.1	1.85	7	10	3							70.27	**020**
M2,5	0.45	50	2.8	2.1	2.33	9	14	3							65.50	**025**
M3	0.50	56	3.5	2.7	2.80	11	18	3	42.98	**030**	57.50	**030**	86.37	**030**	60.58	**030**
M3,5	0.60	56	4.0	3.0	3.25	12	20	3							65.50	**035**
M4	0.70	63	4.5	3.4	3.70	13	21	4	50.91	**040**	61.71	**040**	90.59	**040**	62.91	**040**
M5	0.80	70	6.0	4.9	4.65	15	25	4	52.42	**050**	65.50	**050**	94.04	**050**		
M5	0.80	70	6.0	4.9	4.65	15	25	4							65.02	**050**
M6	1.00	80	6.0	4.9	5.60	17	30	4	53.55	**060**	73.56	**060**	103.70	**060**	74.31	**060**
M8	1.25	90	8.0	6.2	7.45	20	35	5	64.38	**080**	84.00	**080**	112.44	**080**	82.05	**080**
M10	1.50	100	10.0	8.0	9.35	22	39	6	83.41	**100**	101.99	**100**	136.82	**100**	102.38	**100**



DIN 2174 with reduced shank

22 106 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
M12	1.75	110	9	7	11.25	24	6	141.08	**120**
M14	2.00	110	11	9	13.10	26	5	246.16	**140**
M16	2.00	110	12	9	15.10	27	7	206.68	**160**

P	**12**	**18**	**18**	**18**
M		**10**	**10**	**10**
K	**8**	**10**	**10**	**10**
N	**12**	**22**	**22**	**22**
S				
H				
O				

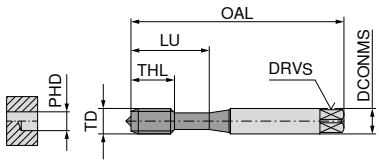
Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

DuoForm | M

NEO SN | C 2–3 | ISO 2X 6HX | TiN



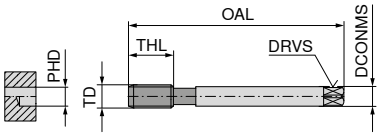
DIN 2174 with reinforced shank





HSS-PM
≤ 1100 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 452 ... £ U0		22 453 ... £ U0	
M3	0.50	56	3.5	2.7	2.80	11	18	4	95.10	**030**		
M4	0.70	63	4.5	3.4	3.70	13	21	4	97.78	**040**		
M5	0.80	70	6.0	4.9	4.65	15	25	4	104.02	**050**	130.11	**050**
M6	1.00	80	6.0	4.9	5.60	17	30	5	131.15	**060**	158.50	**060**
M8	1.25	90	8.0	6.2	7.45	20	35	5	146.99	**080**	177.64	**080**
M10	1.50	100	10.0	8.0	9.35	22	39	5	190.19	**100**	227.58	**100**



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 452 ... £ U0		22 454 ... £ U0	
M12	1.75	110	9	7	11.25	24	6	221.51	**120**	266.20	**120**
M16	2.00	110	12	9	15.10	27	6	359.63	**160**	406.37	**160**

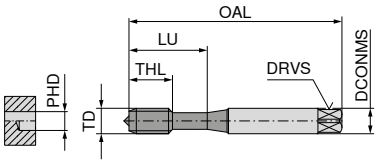
P	**18**	**18**
M	**10**	**10**
K	**10**	**10**
N	**22**	**22**
S		
H		
O		

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

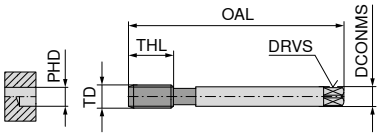
M



DIN 2174 with reinforced shank

	UNI	UNI	UNI SN	UNI SN
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	CrN	TiN	CrN
				
	HSS-E ≤ 850 N/mm² ≤ 3xD	HSS-E ≤ 850 N/mm² ≤ 3xD	HSS-E ≤ 850 N/mm² ≤ 3xD	HSS-E ≤ 850 N/mm² ≤ 3xD
	23 810 ...	23 812 ...	23 814 ...	23 816 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9		£ T9		£ T9		£ T9	
M2	0.40	45	2.8	2.1	1.85	7	12		52.82	**020**	59.23	**020**				
M2	0.40	45	2.8	2.1	1.85	7	12	3					60.01	**020**	67.60	**020**
M2,5	0.45	50	2.8	2.1	2.33	9	14		47.05	**025**	52.26	**025**				
M2,5	0.45	50	2.8	2.1	2.33	9	14	3					54.40	**025**	59.23	**025**
M3	0.50	56	3.5	2.7	2.80	11	18		34.25	**030**	38.11	**030**				
M3	0.50	56	3.5	2.7	2.80	11	18	3					36.47	**030**	42.89	**030**
M4	0.70	63	4.5	3.4	3.70	13	21		34.74	**040**	38.92	**040**				
M4	0.70	63	4.5	3.4	3.70	13	21	4					78.14	**040**	42.89	**040**
M5	0.80	70	6.0	4.9	4.65	15	25		37.24	**050**	40.26	**050**				
M5	0.80	70	6.0	4.9	4.65	15	25	4					82.40	**050**	46.44	**050**
M6	1.00	80	6.0	4.9	5.60	17	30		44.70	**060**	40.26	**060**				
M6	1.00	80	6.0	4.9	5.60	17	30	4					94.58	**060**	46.44	**060**
M8	1.25	90	8.0	6.2	7.45	20	35		49.92	**080**	45.97	**080**				
M8	1.25	90	8.0	6.2	7.45	20	35	5					98.79	**080**	54.97	**080**
M10	1.50	100	10.0	8.0	9.35	22	39		66.57	**100**	59.23	**100**				
M10	1.50	100	10.0	8.0	9.35	22	39	5					63.75	**100**	68.73	**100**



DIN 2174 with reduced shank

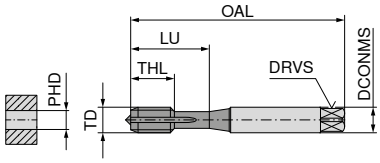
								23 811 ...		23 813 ...		23 815 ...		23 817 ...	
TD mm	**TP mm**	**OAL mm**	**DCONMS mm**	**DRVS mm**	**PHD mm**	**THL mm**	**Flutes**	**£ T9**		**£ T9**		**£ T9**		**£ T9**	
M12	1.75	110	9	7.0	11.25	24		76.07	**120**	74.12	**120**				
M12	1.75	110	9	7.0	11.25	24	5					83.35	**120**	83.35	**120**
M16	2.00	110	12	9.0	15.10	27		143.02	**160**	145.20	**160**				
M16	2.00	110	12	9.0	15.10	27	6					159.06	**160**	169.92	**160**
M18	2.50	125	14	11.0	16.80	30	6					184.53	**18000**		
M20	2.50	140	16	12.0	18.80	32	6					171.63	**20000**		
M24	3.00	160	18	14.5	22.60	34	6					229.31	**24000**		
P									**18**		**18**		**18**		**18**
M									**10**		**10**		**10**		**10**
K									**10**				**10**		
N									**22**		**18**		**22**		**18**
S															
H															
O															

Cutting speed v_c (m/min.)

Through hole – machine taps for wire thread inserts, right hand

TruTap | EG M

UNI | B 4–5 | 6H mod | nitr. + vap.



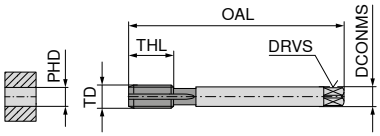
DIN 40435 with reinforced shank



HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD

22 662 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
EG-M2,5	0.45	56	3.5	2.7	2.65	11	18	3	67.39	**025**
EG-M3	0.50	63	4.5	3.4	3.15	10	21	3	56.79	**030**
EG-M4	0.70	70	6.0	4.9	4.20	12	25	3	59.50	**040**
EG-M5	0.80	80	6.0	4.9	5.25	13	30	3	57.26	**050**
EG-M6	1.00	90	8.0	6.2	6.30	17	35	3	58.39	**060**
EG-M8	1.25	100	10.0	8.0	8.40	18	39	3	68.49	**080**



DIN 40435 with reduced shank

22 663 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
EG-M10	1.50	100	9	7.0	10.50	22	3	92.68	**100**
EG-M12	1.75	110	11	9.0	12.50	26	3	108.62	**120**
EG-M16	2.00	125	14	11.0	16.50	27	3	153.26	**160**
EG-M20	2.50	160	18	14.5	20.75	34	3	216.49	**200**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

6

Blind hole – machine taps for wire thread inserts, right hand

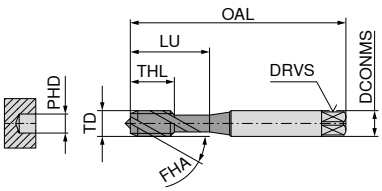
CavTap | EG M

UNI

C
2–3

6H mod

vap.



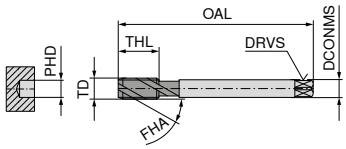


DIN 40435 with reinforced shank

HSS-E
FHA 42°
≤ 1100 N/mm²
≤ 3xD

22 664 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
EG-M2,5	0.45	56	3.5	2.7	2.65	5	18	3	64.65	**025**
EG-M3	0.50	63	4.5	3.4	3.15	5	21	3	57.87	**030**
EG-M4	0.70	70	6.0	4.9	4.20	8	25	3	59.04	**040**
EG-M5	0.80	80	6.0	4.9	5.25	8	30	3	55.72	**050**
EG-M6	1.00	90	8.0	6.2	6.30	10	35	3	61.50	**060**
EG-M8	1.25	100	10.0	8.0	8.40	16	39	3	67.71	**080**



DIN 40435 with reduced shank

22 665 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
EG-M10	1.50	100	9	7.0	10.50	15	5	90.36	**100**
EG-M12	1.75	110	11	9.0	12.50	20	4	110.90	**120**
EG-M16	2.00	125	14	11.0	16.50	20	5	155.80	**160**
EG-M20	2.50	160	18	14.5	20.75	30	4	225.83	**200**

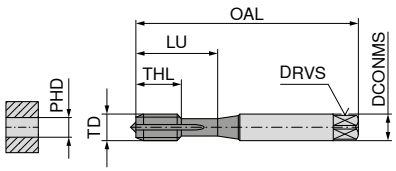
P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

TruTap | MF

UNI | B 4–5 | ISO 2 6H | TiN





DIN 371 with reinforced shank

HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD

22 550 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
M5x0,5	0.50	70	6	4.9	4.5	11	25	3	96.76	**050**
M6x0,5	0.50	80	6	4.9	5.5	13	30	3	119.81	**060**
M6x0,75	0.75	80	6	4.9	5.2	13	30	3	119.81	**062**
M8x1	1.00	90	8	6.2	7.0	17	35	3	114.87	**080**
M10x1	1.00	90	10	8.0	9.0	18	35	4	131.03	**100**

P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

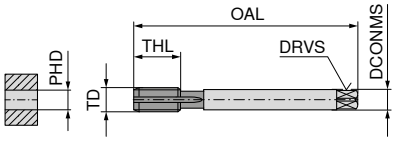
Cutting speed v_c (m/min.)

DIN 374 can be found on the next page

Through hole – Machine taps, right hand

▲ TS = for high-speed machining, up to 100 m/min.

TruTap | MF



DIN 374 with reduced shank

	ST TS	UNI	UNI
	B 4–5	B 4–5	B 4–5
	ISO 2X 6HX	ISO 2 6H	ISO 2 6H
	TiN	nitr. + vap.	TiN
			
	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 4xD
	22 193 ...	**22 551 ...**	**22 552 ...**

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0		£ U0	
M8x0,75	0.75	80	6	4.9	7.2	14	3			66.96	**082**		
M8x1	1.00	90	6	4.9	7.0	10	4	131.03	**080**				
M8x1	1.00	90	6	4.9	7.0	17	3			63.10	**084**	101.99	**080**
M10x0,75	0.75	90	7	5.5	9.2	18	4			92.72	**100**		
M10x1	1.00	90	7	5.5	9.0	10	4	140.87	**100**				
M10x1	1.00	90	7	5.5	9.0	18	4			63.86	**102**	109.52	**100**
M10x1,25	1.25	100	7	5.5	8.8	22	3			139.55	**104**		
M12x1	1.00	100	9	7.0	11.0	18	4			75.70	**120**	148.22	**121**
M12x1,25	1.25	100	9	7.0	10.8	22	3			101.39	**122**		
M12x1,5	1.50	100	9	7.0	10.5	15	4	162.55	**120**				
M12x1,5	1.50	100	9	7.0	10.5	22	3			71.04	**124**	110.68	**120**
M14x1	1.00	100	11	9.0	13.0	18	4			194.07	**140**		
M14x1,5	1.50	100	11	9.0	12.5	15	4	226.68	**140**				
M14x1,5	1.50	100	11	9.0	12.5	22	3			99.29	**144**	150.19	**140**
M16x1,5	1.50	100	12	9.0	14.5	15	4	229.32	**160**				
M16x1,5	1.50	100	12	9.0	14.5	22	3			112.64	**162**	154.71	**160**
M18x1	1.00	110	14	11.0	17.0	20	5			307.09	**180**		
M18x1,5	1.50	110	14	11.0	16.5	25	4			137.21	**182**		
M18x2	2.00	125	14	11.0	16.0	26	3			255.84	**184**		
M20x1	1.00	125	16	12.0	19.0	20	5			342.10	**200**		
M20x1,5	1.50	125	16	12.0	18.5	25	4			150.19	**202**	231.44	**200**
M22x1,5	1.50	125	18	14.5	20.5	25	4			156.74	**222**	338.83	**220**
M24x1,5	1.50	140	18	14.5	22.5	27	4			180.73	**242**		
M24x2	2.00	140	18	14.5	22.0	27	4			327.45	**244**		
M25x1,5	1.50	140	18	14.5	23.5	28	4			552.29	**250**		
M26x1,5	1.50	140	18	14.5	24.5	28	4			234.90	**260**		
M27x2	2.00	140	20	16.0	25.0	28	4			579.18	**272**		
M28x1,5	1.50	140	20	16.0	26.5	28	5			264.16	**280**		
M30x1,5	1.50	150	22	18.0	28.5	28	5			285.45	**302**		

P	**65**	**12**	**15**
M		**7**	**9**
K	**65**	**12**	**18**
N	**22**		**12**
S			
H			
O			

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

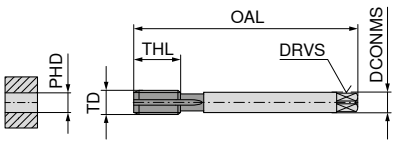
MF

UNI

B
4–5

ISO 2
6H

TiN



DIN 374 with reduced shank



HSS-PM
FHA 0°
≤ 1000 N/mm²
≤ 3xD

23 041 ...

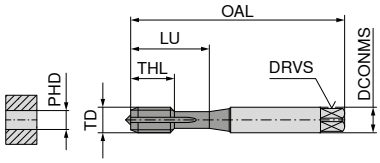
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9	
M8x1	1.00	90	6	4.9	7.0	17	3	27.28	**081**
M10x1	1.00	90	7	5.5	9.0	18	4	31.16	**102**
M10x1,25	1.25	100	7	5.5	8.8	22	3	33.39	**104**
M12x1	1.00	100	9	7.0	11.0	18	4	38.46	**120**
M12x1,25	1.25	100	9	7.0	10.8	22	3	40.11	**122**
M12x1,5	1.50	100	9	7.0	10.5	22	3	35.77	**121**
M14x1,25	1.25	100	11	9.0	12.8	22	3	46.38	**142**
M14x1,5	1.50	100	11	9.0	12.5	22	3	44.14	**144**
M16x1,5	1.50	100	12	9.0	14.5	22	3	49.94	**162**
M18x1,5	1.50	110	14	11.0	16.5	17	4	66.05	**182**
M20x1,5	1.50	125	16	12.0	18.5	17	4	89.15	**202**
M22x1,5	1.50	125	18	14.5	20.5	25	4	83.93	**222**
M24x1,5	1.50	140	18	14.5	22.5	27	4	96.33	**242**
M24x2	2.00	140	18	14.5	22.0	27	4	109.75	**244**

P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

Cutting speed v_c (m/min.)

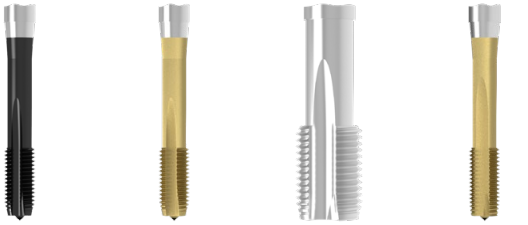
Through hole – Machine taps, right hand

MF



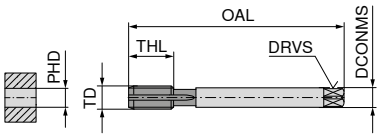
DIN 371 with reinforced shank

UNI	UNI	FE	VA
B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
nitr. + vap.	TiN		TiN



HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD | HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD | HSS-E FHA 0° ≤ 850 N/mm² ≤ 3xD | HSS-E FHA 0° ≤ 1200 N/mm² ≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 140 ... £ T9		23 142 ... £ T9			23 440 ... £ T9	
M4x0,5	0.50	63	4.5	3.4	3.5	10	21	3	46.65	**040**	52.97	**040**			
M5x0,5	0.50	70	6.0	4.9	4.5	11	25	3	47.05	**050**	54.40	**050**		54.40	**050**
M6x0,75	0.75	80	6.0	4.9	5.2	13	30	3	49.76	**062**	65.70	**062**		66.37	**062**
M6x0,5	0.50	80	6.0	4.9	5.5	13	30	3	49.76	**060**	65.70	**060**			



DIN 374 with reduced shank

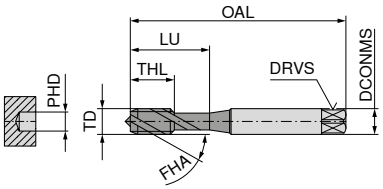
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 141 ... £ T9		23 143 ... £ T9		23 241 ... £ T9		23 441 ... £ T9	
M8x0,5	0.50	80	6	4.9	7.5	14	3					36.98	**080**		
M8x0,75	0.75	80	6	4.9	7.2	14	3	52.42	**082**	68.73	**082**	31.37	**082**	73.27	**082**
M8x1	1.00	90	6	4.9	7.0	17	3	47.86	**084**			29.63	**084**	70.27	**084**
M8x1	1.00	90	6	4.9	7.0	17	4			66.00	**084**				
M10x0,75	0.75	90	7	5.5	9.2	18	4	75.10	**100**	93.48	**100**	43.93	**100**		
M10x1	1.00	90	7	5.5	9.0	18	4	49.76	**102**	70.63	**102**	35.05	**102**	75.00	**102**
M10x1,25	1.25	100	7	5.5	8.8	22	3	63.60	**104**	86.37	**104**	36.21	**104**		
M12x1	1.00	100	9	7.0	11.0	18	4	57.35	**120**	82.63	**120**	39.67	**120**	86.37	**120**
M12x1,25	1.25	100	9	7.0	10.8	22	3	64.38	**122**	87.71	**122**	42.18	**122**		
M12x1,5	1.50	100	9	7.0	10.5	22	3	54.40	**124**	75.00	**124**	38.72	**124**	80.12	**124**
M14x1	1.00	100	11	9.0	13.0	18	4	77.99	**140**	99.29	**140**	49.76	**140**		
M14x1,5	1.50	100	11	9.0	12.5	22	3	72.39	**144**	99.67	**144**	47.83	**144**	107.99	**144**
M16x1	1.00	100	12	9.0	15.0	18	4	87.69	**160**	115.73	**160**	66.00	**160**		
M16x1,5	1.50	100	12	9.0	14.5	22	3	87.69	**162**	115.73	**162**	60.58	**162**	123.50	**162**
M18x1	1.00	110	14	11.0	17.0	20	5					86.52	**180**		
M18x1,5	1.50	110	14	11.0	16.5	25	4	99.29	**182**	143.02	**182**	78.79	**182**		
M20x1	1.00	125	16	12.0	19.0	20	5					93.28	**200**		
M20x1,5	1.50	125	16	12.0	18.5	25	4	115.73	**202**	181.13	**202**	87.31	**202**		
M22x1,5	1.50	125	18	14.5	20.5	25	4	122.46	**222**	188.10	**222**	100.24	**222**		
M24x1,5	1.50	140	18	14.5	22.5	27	4	143.98	**242**	197.20	**242**	116.87	**242**		
M26x1,5	1.50	140	18	14.5	24.5	28	4					149.98	**260**		
M28x1,5	1.50	140	20	16.0	26.5	28	5					170.28	**280**		
M30x1,5	1.50	150	22	18.0	28.5	28	5					191.79	**300**		

P	**12**	**15**	**12**	**10**
M	**7**	**9**		**8**
K	**12**	**18**	**12**	
N		**12**	**12**	**24**
S				
H				
O				

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

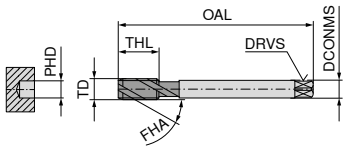
CavTap | MF



DIN 371 with reinforced shank

UNI	UNI	UNI
E 1,5–2	E 1,5–2	E 1,5–2
ISO 2 6H	ISO 2 6H	ISO 3 6G
vap.	TiN	vap.
		
HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 441 ... £ U0	
M4x0,5	0.50	63	4.5	3.4	3.50	5	21	3	91.16	**040**
M6x0,75	0.75	80	6.0	4.9	5.25	8	30	3	91.16	**062**
M5x0,5	0.50	70	6.0	4.9	4.50	5	25	3	82.47	**050**



DIN 374 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 555 ... £ U0		22 556 ... £ U0		22 490 ... £ U0	
M8x1	1.0	90	6	4.9	7.0	10	3	68.14	**080**	92.88	**080**	91.16	**080**
M10x1	1.0	90	7	5.5	9.0	10	4	77.99	**100**	119.58	**100**	99.29	**100**
M12x1,5	1.5	100	9	7.0	10.5	15	5	87.71	**120**	135.45	**120**	109.52	**120**
M14x1,5	1.5	100	11	9.0	12.5	15	5	108.96	**140**	170.69	**140**	140.85	**140**
M16x1,5	1.5	100	12	9.0	14.5	15	5	133.15	**160**	182.11	**160**	172.06	**160**
M18x1,5	1.5	110	14	11.0	16.5	17	5					195.82	**180**
M20x1,5	1.5	125	16	12.0	18.5	17	5					229.32	**200**
P									**12**		**15**		**12**
M									**7**		**9**		**7**
K									**12**		**18**		**12**
N											**12**		
S													
H													
O													

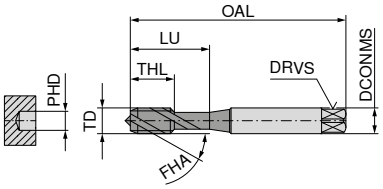
Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

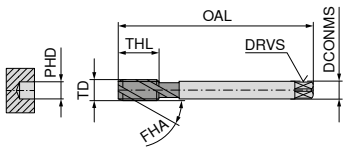
CavTap | MF



DIN 371 with reinforced shank

	UNI	UNI	UNI CNC	UNI CNC
	C 2–3	C 2–3	E 1,5–2	E 1,5–2
	ISO 2 6H	ISO 2 6H	7G	ISO 2 6H
	vap.	TiN	TiN GS	TiN GS
				
	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 45° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 45° ≤ 1100 N/mm² ≤ 3xD
				22 548 ...
				£ U0

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes		
mm	mm	mm	mm	mm	mm	mm	mm			
M5x0,5	0.50	70	6	4.9	4.5	5	25	3	96.97	**050**
M6x0,5	0.50	80	6	4.9	5.5	5	30	3	96.97	**060**
M6x0,75	0.75	80	6	4.9	5.2	8	30	3	96.97	**062**



DIN 374 with reduced shank

								22 553 ...		22 554 ...		22 563 ...		22 549 ...	
TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	£ U0		£ U0		£ U0		£ U0	
mm	mm	mm	mm	mm	mm	mm									
M8x0,75	0.75	80	6	4.9	7.2	8	3							101.99	**082**
M8x1	1.00	90	6	4.9	7.0	10	3	66.83	**082**	92.88	**080**	140.85	**084**	119.98	**084**
M10x1	1.00	90	7	5.5	9.0	10	3	71.41	**100**	119.58	**100**				
M10x1	1.00	90	7	5.5	9.0	10	4					156.62	**102**	138.76	**102**
M12x1	1.00	100	9	7.0	11.0	11	4	92.88	**120**	158.30	**121**			162.35	**120**
M12x1,5	1.50	100	9	7.0	10.5	15	4	87.71	**124**	135.45	**120**				
M12x1,5	1.50	100	9	7.0	10.5	15	5					183.27	**124**	155.21	**124**
M14x1,5	1.50	100	11	9.0	12.5	15	4	108.96	**140**	158.50	**140**				
M14x1,5	1.50	100	11	9.0	12.5	15	5					228.14	**144**	198.18	**144**
M16x1,5	1.50	100	12	9.0	14.5	15	4	133.15	**160**	182.11	**160**				
M16x1,5	1.50	100	12	9.0	14.5	15	5					261.62	**162**	229.32	**162**
M18x1,5	1.50	110	14	11.0	16.5	17	4	162.96	**180**	266.65	**182**				
M18x1,5	1.50	110	14	11.0	16.5	17	5							277.48	**182**
M20x1,5	1.50	125	16	12.0	18.5	17	4	221.20	**200**	338.83	**202**				
M20x1,5	1.50	125	16	12.0	18.5	17	5					391.08	**202**	341.74	**202**
M22x1,5	1.50	125	18	14.5	20.5	17	4	215.77	**220**						
M24x1,5	1.50	140	18	14.5	22.5	20	5	238.02	**240**						

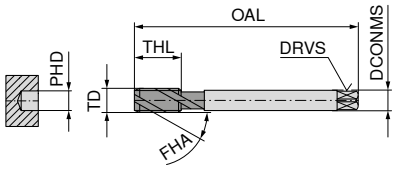
P	**12**	**15**	**15**	**15**
M	**7**	**9**	**9**	**9**
K	**12**	**18**	**18**	**18**
N		**12**	**12**	**12**
S				
H				
O				

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap SL | MF

ST | C 2–3 | ISO 2 6H



DIN 374 with reduced shank



HSS-E
FHA 15°
≤ 750 N/mm²
≤ 2xD

6

22 182 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
M6x0,75	0.75	80	4.5	3.4	5.2	13	3	72.39	**062**
M8x0,75	0.75	80	6.0	4.9	7.2	14	3	72.98	**082**
M8x1	1.00	90	6.0	4.9	7.0	17	3	65.70	**084**
M9x1	1.00	90	7.0	5.5	8.0	17	3	99.86	**090**
M10x1	1.00	90	7.0	5.5	9.0	18	3	70.27	**102**
M10x1,25	1.25	100	7.0	5.5	8.8	22	3	101.24	**104**
M11x1	1.00	90	8.0	6.2	10.0	18	3	109.17	**110**
M12x1	1.00	100	9.0	7.0	11.0	18	3	86.30	**120**
M12x1,25	1.25	100	9.0	7.0	10.8	22	3	111.45	**122**
M12x1,5	1.50	100	9.0	7.0	10.5	22	3	82.05	**124**
M14x1	1.00	100	11.0	9.0	13.0	18	4	113.62	**140**
M14x1,5	1.50	100	11.0	9.0	12.5	22	3	110.31	**144**
M15x1	1.00	100	12.0	9.0	14.0	18	4	147.07	**150**
M16x1	1.00	100	12.0	9.0	15.0	18	4	133.15	**160**
M16x1,5	1.50	100	12.0	9.0	14.5	22	3	130.45	**162**
M18x1	1.00	110	14.0	11.0	17.0	20	4	183.27	**180**

P	**12**
M	
K	**12**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap | MF

VA | E 1,5–2 | ISO 2 6H | vap.

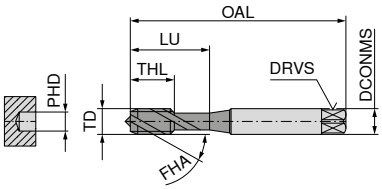


HSS-E
FHA 42°
≤ 750 N/mm²
≤ 3xD

VA | E 1,5–2 | ISO 2 6H | TiN GS

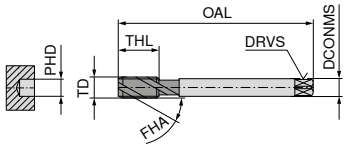


HSS-E
FHA 45°
≤ 900 N/mm²
≤ 3xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 176 ... £ U0	
M4x0,5	0.50	63	4.5	3.4	3.5	5	21	3	118.80	**040**
M5x0,5	0.50	70	6.0	4.9	4.5	5	25	3	98.11	**050**
M6x0,5	0.50	80	6.0	4.9	5.5	5	30	3	98.11	**060**
M6x0,75	0.75	80	6.0	4.9	5.2	8	30	3	98.11	**062**



DIN 374 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 189 ... £ U0		22 177 ... £ U0	
M8x0,75	0.75	80	6	4.9	7.2	8	3			103.16	**082**
M8x1	1.00	90	6	4.9	7.0	10	3	71.04	**082**	123.50	**084**
M10x1	1.00	90	7	5.5	9.0	10	4	83.41	**100**	137.63	**102**
M12x1	1.00	100	9	7.0	11.0	11	4	109.16	**121**	164.68	**120**
M12x1,5	1.50	100	9	7.0	10.5	15	5	92.88	**120**	157.33	**124**
M14x1,5	1.50	100	11	9.0	12.5	15	5	114.19	**140**	200.67	**144**
M16x1,5	1.50	100	12	9.0	14.5	15	5	138.76	**160**	232.83	**162**
M20x1,5	1.50	125	16	12.0	18.5	17	5	193.50	**200**		
M26x1,5	1.50	140	18	14.5	24.5	20	6	460.55	**260**		
M28x1,5	1.50	140	20	16.0	26.5	20	6	542.73	**280**		
M30x1,5	1.50	150	22	18.0	28.5	22	6	533.73	**300**		

P	**8**	**10**
M	**6**	**8**
K		
N	**22**	**22**
S		
H		
O		

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

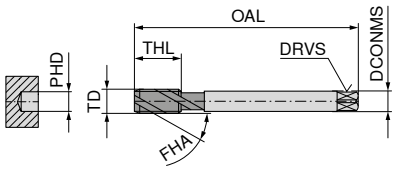
MF

UNI

C
2–3

ISO 2
6H

TiN



DIN 374 with reduced shank



HSS-PM
FHA 40°
≤ 1000 N/mm²
≤ 2,5xD

6

23 047 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9	
M8x1	1.00	90	6	4.9	7.0	10	35	3	26.69	**081**
M10x1	1.00	90	7	5.5	9.0	10	35	4	34.90	**102**
M10x1,25	1.25	100	7	5.5	8.8	16	39	4	34.00	**104**
M12x1	1.00	100	9	7.0	11.0	11	40	4	39.65	**120**
M12x1,25	1.25	100	9	7.0	10.8	15	40	5	43.23	**122**
M12x1,5	1.50	100	9	7.0	10.5	15	40	5	38.46	**121**
M14x1	1.00	100	11	9.0	12.8	11	40	4	46.38	**140**
M14x1,5	1.50	100	11	9.0	12.5	15	40	5	45.47	**144**
M16x1,5	1.50	100	12	9.0	14.5	15	44	5	58.89	**162**
M18x1,5	1.50	110	14	11.0	16.5	17	44	5	76.64	**182**
M20x1,5	1.50	125	16	12.0	18.5	17	44	5	87.51	**202**
M22x1,5	1.50	125	18	14.5	20.5	17	44	5	96.33	**222**
M24x1,5	1.50	140	18	14.5	22.5	20	48	5	98.09	**242**
M24x2	2.00	140	18	14.5	22.0	20	48	5	114.20	**244**

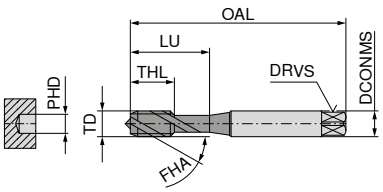
P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

▲ NC = for synchronised CNC machining with minimum length compensation chuck

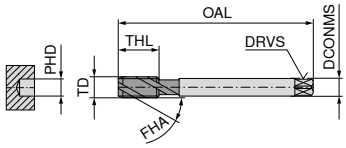
MF



DIN 371 with reinforced shank

	FE	UNI NC	UNI	UNI
	C 2–3	E 1,5–2	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
		TiN GS	vap.	TiN
				
	HSS-E FHA 35° ≤ 850 N/mm² ≤ 2,5xD	HSS-E FHA 45° ≤ 1000 N/mm² ≤ 3xD	HSS-E FHA 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E FHA 35° ≤ 1000 N/mm² ≤ 2,5xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	23 144 ... £ T9		23 146 ... £ T9	
mm	mm	mm	mm	mm	mm	mm	mm					
M4x0,5	0.50	63	4.5	3.4	3.5	5	21	3	50.91	**040**	58.08	**040**
M5x0,5	0.50	70	6.0	4.9	4.5	5	25	3	50.91	**050**	58.08	**050**
M6x0,5	0.50	80	6.0	4.9	5.5	5	30	3	50.91	**060**	66.28	**060**
M6x0,75	0.75	80	6.0	4.9	5.2	8	30	3	50.91	**062**	66.28	**062**



DIN 374 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	23 243 ... £ T9		23 149 ... £ T9		23 145 ... £ T9		23 147 ... £ T9	
mm	mm	mm	mm	mm	mm	mm									
M4x0,5	0.50	63	2.8	2.1	3.5	5	3					18.79	**040**		
M5x0,5	0.50	70	3.5	2.7	4.5	5	3					18.79	**050**		
M6x0,75	0.75	80	4.5	3.4	5.2	8	3					19.98	**062**		
M8x0,5	0.50	80	6.0	8.0	7.5	6	3	71.04	**080**						
M8x0,75	0.75	80	6.0	4.9	7.2	8	3	33.42	**082**	86.30	**082**	22.66	**082**	70.63	**082**
M8x1	1.00	90	6.0	4.9	7.0	10	3	31.51	**084**	80.89	**084**	16.54	**084**	66.28	**084**
M10x0,75	0.75	90	7.0	5.5	9.2	10	4	78.17	**100**			36.53	**100**	109.52	**100**
M10x1	1.00	90	7.0	5.5	9.0	10	3	36.64	**102**			17.30	**102**	75.47	**102**
M10x1	1.00	90	7.0	5.5	9.0	10	4			93.41	**102**				
M10x1,25	1.25	100	7.0	5.5	8.8	16	3	67.35	**104**			19.23	**104**	95.57	**104**
M12x1	1.00	100	9.0	7.0	11.0	11	4	43.17	**120**	106.11	**120**	23.26	**120**	88.63	**120**
M12x1,25	1.25	100	9.0	7.0	10.8	15	4	75.47	**122**			27.42	**122**	107.78	**122**
M12x1,5	1.50	100	9.0	7.0	10.5	15	4	40.83	**124**			20.56	**124**	85.76	**124**
M12x1,5	1.50	100	9.0	7.0	10.5	15	5			102.77	**124**				
M14x1	1.00	100	11.0	9.0	13.0	11	4	75.47	**140**			30.70	**140**	115.73	**140**
M14x1,5	1.50	100	11.0	9.0	12.5	15	4	50.91	**144**			27.87	**144**	107.78	**144**
M14x1,5	1.50	100	11.0	9.0	12.5	15	5			131.79	**144**				
M16x1	1.00	100	12.0	9.0	15.0	12	4	87.13	**160**			32.95	**160**	126.93	**160**
M16x1,5	1.50	100	12.0	9.0	14.5	15	4	64.43	**162**			31.90	**162**	126.93	**162**
M16x1,5	1.50	100	12.0	9.0	14.5	15	5			147.07	**162**				
M18x1,5	1.50	110	14.0	11.0	16.5	17	4	83.61	**182**			44.29	**182**	145.20	**182**
M18x1,5	1.50	110	14.0	11.0	16.5	17	5			186.17	**182**				
M20x1,5	1.50	125	16.0	12.0	18.5	17	4	93.28	**202**			40.70	**202**	188.10	**202**
M20x1,5	1.50	125	16.0	12.0	18.5	17	5			243.81	**202**				
M22x1,5	1.50	125	18.0	14.5	20.5	17	4	107.99	**222**			60.39	**222**	209.39	**222**
M24x1,5	1.50	140	18.0	14.5	22.5	20	5	125.78	**242**			65.90	**242**	223.51	**242**

P	**12**	**15**	**12**	**15**
M		**9**	**7**	**9**
K	**12**	**18**	**12**	**18**
N	**22**	**12**		**12**
S				
H				
O				

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

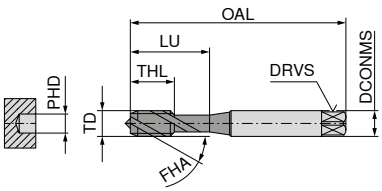
MF

VA

E
1,5–2

ISO 2
6H

TiN



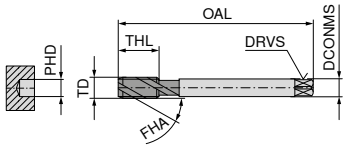
DIN 371 with reinforced shank



HSS-E
FHA 45°
≤ 1200 N/mm²
≤ 3xD

23 442 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9	
M5x0,5	0.50	70	6	4.9	4.5	5	25	3	57.50	**050**
M6x0,75	0.75	80	6	4.9	5.2	8	30	3	66.28	**062**



DIN 374 with reduced shank

23 443 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9	
M8x0,75	0.75	80	6	4.9	7.2	8	3	70.63	**082**
M8x1	1.00	90	6	4.9	7.0	10	3	66.28	**084**
M10x1	1.00	90	7	5.5	9.0	10	4	76.07	**102**
M12x1	1.00	100	9	7.0	11.0	11	4	89.02	**120**
M12x1,5	1.50	100	9	7.0	10.5	15	5	85.76	**124**
M14x1,5	1.50	100	11	9.0	12.5	15	5	108.60	**144**
M16x1,5	1.50	100	12	9.0	14.5	15	5	122.46	**162**

P	**10**
M	**8**
K	
N	**24**
S	
H	
O	

Cutting speed v_c (m/min.)

6

Through hole / Blind hole – Machine taps, right hand

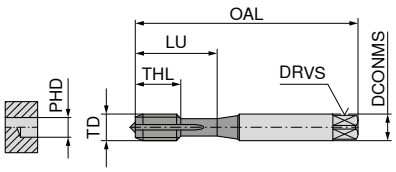
DuoTap | MF

HR

C
2–3

ISO 2X
6HX

nitr.



DIN 371 with reinforced shank



HSS-E
FHA 0°
≤ 1400 N/mm²
≤ 2xD

22 146 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
M4x0,5	0.50	63	4.5	3.4	3.5	10	21	3	78.17	**040**
M5x0,5	0.50	70	6.0	4.9	4.5	11	25	3	78.17	**050**
M6x0,5	0.50	80	6.0	4.9	5.5	13	30	3	78.17	**060**
M6x0,75	0.75	80	6.0	4.9	5.2	13	30	3	78.17	**062**

P	**6**
M	
K	**16**
N	**22**
S	
H	
O	

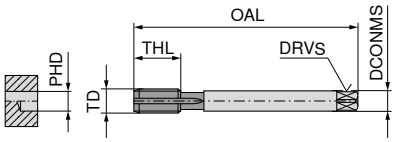
Cutting speed v_c (m/min.)

DIN 374 can be found on the next page

Through hole / Blind hole – Machine taps, right hand

DuoTap | MF

HR | C 2–3 | ISO 2X 6HX | nitr.



DIN 374 with reduced shank



HSS-E
FHA 0°
≤ 1400 N/mm²
≤ 2xD

22 209 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
M8x1	1.0	90	6	4.9	7.0	17	3	78.17	**082**
M10x1	1.0	90	7	5.5	9.0	18	4	78.17	**100**
M12x1,5	1.5	100	9	7.0	10.5	22	4	92.09	**120**
M14x1,5	1.5	100	11	9.0	12.5	22	4	119.81	**140**
M16x1,5	1.5	100	12	9.0	14.5	22	4	131.03	**160**
M18x1,5	1.5	110	14	11.0	16.5	25	4	152.82	**180**
M20x1,5	1.5	125	16	12.0	18.5	25	4	195.82	**200**

P	**6**
M	
K	**16**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

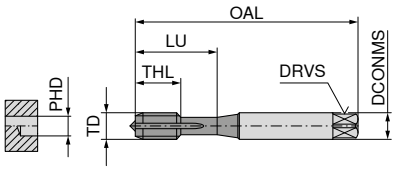
6

Through Hole / Blind Hole – Machine taps

▲ ES = extra short

▲ LH = for left hand threads; ES = extra short

DuoTap | MF



DIN 2181 with reinforced shank

ST ES | C 2–3 | ISO 2X 6HX



HSS-E
FHA 0°
≤ 750 N/mm²
≤ 2xD

ST LH/ES | C 2–3 | ISO 2X 6HX



HSS-E
FHA 0°
≤ 750 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 179 ... £ U0		22 200 ... £ U0	
M3x0,35	0.35	40	3.5	2.7	2.65	8	18	3	66.83	**030**		
M4x0,35	0.35	45	4.5	3.4	3.65	9	22	3	96.76	**040**		
M4x0,5	0.50	45	4.5	3.4	3.50	9	22	3	66.83	**042**		
M4,5x0,5	0.50	50	6.0	4.9	4.00	10	24	3	112.22	**045**		
M5x0,5	0.50	50	6.0	4.9	4.50	11	25	3	66.83	**050**		
M6x0,5	0.50	56	6.0	4.9	5.50	12	27	3	69.30	**060**		
M6x0,75	0.75	56	6.0	4.9	5.20	12	27	3	66.83	**062**	92.09	**062**
M7x0,75	0.75	56	6.0	4.9	6.20	14		3	75.70	**070**		
M8x0,5	0.50	56	6.0	4.9	7.50	14		4	92.09	**080**		
M8x0,75	0.75	56	6.0	4.9	7.20	14		3	75.70	**082**		
M8x1	1.00	63	6.0	4.9	7.00	17		3	66.83	**084**	92.09	**084**
M9x1	1.00	63	7.0	5.5	8.00	17		4	92.09	**090**		
M10x0,75	0.75	63	7.0	5.5	9.20	18		4	99.29	**100**		
M10x1	1.00	63	7.0	5.5	9.00	18		4	69.30	**102**	96.76	**102**
M10x1,25	1.25	70	7.0	5.5	8.80	22		3	91.16	**104**		
M11x1	1.00	63	8.0	6.2	10.00	18		4	109.52	**110**		
M12x1	1.00	70	9.0	7.0	11.00	18		4	82.03	**120**	114.87	**120**
M12x1,25	1.25	70	9.0	7.0	10.80	20		4	92.09	**122**		
M12x1,5	1.50	70	9.0	7.0	10.50	20		4	79.57	**124**	112.22	**124**
M13x1	1.00	70	11.0	9.0	12.00	18		4	119.98	**130**		
M14x1	1.00	70	11.0	9.0	13.00	18		4	109.52	**140**		
M14x1,25	1.25	70	11.0	9.0	12.80	20		4	109.52	**142**		
M14x1,5	1.50	70	11.0	9.0	12.50	20		4	104.10	**144**	148.22	**144**
M15x1	1.00	70	12.0	9.0	14.00	18		5	133.37	**150**		
M16x1	1.00	70	12.0	9.0	15.00	18		5	124.63	**160**		
M16x1,5	1.50	70	12.0	9.0	14.50	20		4	114.87	**162**	162.16	**162**
M18x1	1.00	80	14.0	11.0	17.00	18		5	162.16	**180**		
M18x1,5	1.50	80	14.0	11.0	16.50	22		4	136.03	**182**	186.98	**182**
M18x2	2.00	80	14.0	11.0	16.00	22		4	162.16	**184**		
M20x1,5	1.50	80	16.0	12.0	18.50	22		4	158.30	**202**	219.04	**202**
M20x2	2.00	80	16.0	12.0	18.00	22		4	172.06	**204**		

P	**12**	**12**
M		
K	**12**	**12**
N	**22**	**22**
S		
H		
O		

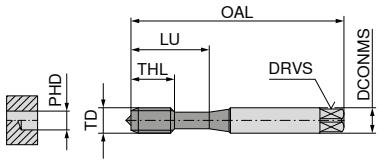
Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

▲ HML = with soldered-in carbide strips for a higher cutting speed

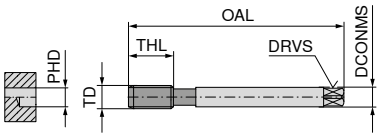
DuoForm | MF



DIN 2174 with reinforced shank

UNI HML	UNI HML	EC SN
C 2–3	C 2–3	C 2–3
ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
TiN	TiN	TiN
		
		
HSS-E / HM ≤ 1100 N/mm² ≤ 3xD	HSS-E / HM ≤ 1100 N/mm² ≤ 3xD	HSS-E ≤ 1100 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 205 ... £ U0	
M4x0,5	0.50	63	4.5	3.4	3.8	10	21	4	167.01	**040**
M5x0,5	0.50	70	6.0	4.9	4.8	11	25	4	148.22	**050**
M6x0,5	0.50	80	6.0	4.9	5.8	13	30	5	167.01	**060**
M6x0,75	0.75	80	6.0	4.9	5.7	13	30	4	133.37	**062**
M8x0,75	0.75	80	8.0	6.2	7.7	14	30	5	148.22	**080**
M8x1	1.00	90	8.0	6.2	7.6	17	35	5	158.30	**082**
M10x1	1.00	90	10.0	8.0	9.6	18	35	5	145.95	**100**



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 474 ... £ U0/4G		22 474 ... £ U0/4G		22 197 ... £ U0	
M12x1	1.0	100	9	7	11.60	18	6					130.95	**120**
M12x1,5	1.5	100	9	7	11.35	13				515.01	**12000**		
M12x1,5	1.5	100	9	7	11.35	22	6					138.18	**124**
M14x1,5	1.5	100	11	9	13.35	22	6					193.12	**140**
M16x1,5	1.5	100	12	9	15.35	18		736.00	**16100**	587.73	**16000**		
M16x1,5	1.5	100	12	9	15.35	22	6					206.88	**160**
M20x1,5	1.5	125	16	12	19.35	25	6					283.90	**200**
P								**30**		**30**		**18**	
M								**20**		**20**		**10**	
K								**30**		**30**		**10**	
N								**40**		**40**		**22**	
S													
H													
O													

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

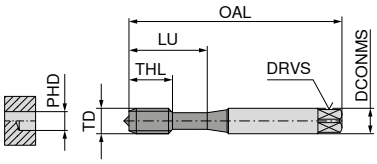
MF

UNI
SN

C
2–3

ISO 2X
6HX

TiN



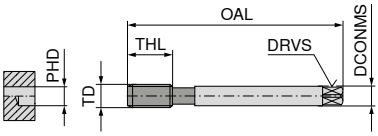
DIN 2174 with reinforced shank



HSS-E
≤ 850 N/mm²
≤ 3xD

23 842 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9	
M4x0,5	0.50	63	4.5	3.4	3.80	10	21	4	92.49	**040**
M5x0,5	0.50	70	6.0	4.9	4.80	11	25	4	82.03	**050**
M6x0,5	0.50	80	6.0	4.9	5.80	13	30	5	93.12	**060**
M8x1	1.00	90	8.0	6.2	7.60	17	35	5	88.63	**084**
M10x1	1.00	90	10.0	8.0	9.60	18	35	5	98.33	**102**
M10x1,25	1.25	100	10.0	8.0	9.45	18	39	5	119.81	**104**



DIN 2174 with reduced shank

23 843 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9	
M12x1,25	1.25	100	9	7	11.45	22	6	130.82	**122**
M12x1,5	1.50	100	9	7	11.35	22	6	116.71	**124**
M14x1,5	1.50	100	11	9	13.35	22	6	144.94	**144**
M16x1,5	1.50	100	12	9	15.35	22	6	168.96	**162**

P	**18**
M	**10**
K	**10**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

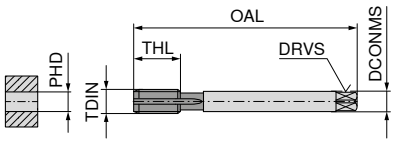
TruTap | G

UNI | VA

B 4–5 | B 4–5

ISO 228 | ISO 228

TiN | nitr.



DIN 5156 with reduced shank





HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD

HSS-E
FHA 0°
≤ 900 N/mm²
≤ 4xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 630 ... £ U0		22 352 ... £ U0	
1/8-28	0.907	90	7	5.5	8.80	18	3	136.03	**012**	82.58	**012**
1/4-19	1.337	100	11	9.0	11.80	22	3	179.60	**025**	108.62	**025**
3/8-19	1.337	100	12	9.0	15.25	22	3	208.03	**037**	137.21	**037**
1/2-14	1.814	125	16	12.0	19.00	25	4	321.45	**050**	180.73	**050**
3/4-14	1.814	140	20	16.0	24.50	28	4			268.01	**075**
1-11	2.309	160	25	20.0	30.75	30	4			414.10	**100**

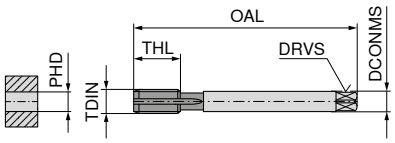
P	**15**	**8**
M	**9**	**6**
K	**18**	
N	**12**	**22**
S		
H		
O		

Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

G



DIN 5156 with reduced shank

UNI | B | 4–5 | ISO 228 | nitr. + vap.



HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 3xD

UNI | B | 4–5 | ISO 228 | TiN



HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 3xD

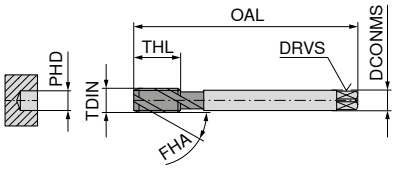
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 161 ... £ T9		23 160 ... £ T9	
1/8-28	0.907	90	7	5.5	8.80	18	3	51.09	**012**	75.10	**012**
1/4-19	1.337	100	11	9.0	11.80	22	3	68.73	**025**	99.29	**025**
3/8-19	1.337	100	12	9.0	15.25	22	3	87.69	**037**	116.71	**037**
1/2-14	1.814	125	16	12.0	19.00	25	4	114.87	**050**	179.19	**050**
3/4-14	1.814	140	20	16.0	24.50	28	4	187.73	**075**	233.75	**075**
1-11	2.309	160	25	20.0	30.75	30	4	256.02	**100**	432.89	**100**

P	**12**	**15**
M	**7**	**9**
K	**12**	**18**
N		**12**
S		
H		
O		

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap | G



DIN 5156 with reduced shank



HSS-E
FHA 42°
≤ 1100 N/mm²
≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 633 ... £ U0		22 634 ... £ U0		22 635 ... £ U0		22 636 ... £ U0		22 639 ... £ U0	
1/8-28	0.907	90	7	5.5	8.80	10	3	82.29	012	121.89	012						
1/8-28	0.907	90	7	5.5	8.80	10	4					84.57	012	121.89	012	133.37	012
1/4-19	1.337	100	11	9.0	11.80	15	4	117.98	025	154.80	025						
1/4-19	1.337	100	11	9.0	11.80	15	5					113.51	025	154.80	025	173.72	025
3/8-19	1.337	100	12	9.0	15.25	15	4	143.27	037	216.52	037						
3/8-19	1.337	100	12	9.0	15.25	15	5					139.49	037	216.52	037	215.38	037
1/2-14	1.814	125	16	12.0	19.00	17	4	189.35	050	306.92	050						
1/2-14	1.814	125	16	12.0	19.00	17	5					180.73	050	306.92	050	281.57	050
3/4-14	1.814	140	20	16.0	24.50	20	4	293.75	075								
3/4-14	1.814	140	20	16.0	24.50	20	5									420.89	075
1-11	2.309	160	25	20.0	30.75	24	6									642.43	100
P									12		15		12		15		12
M									7		9		7		9		7
K									12		18		12		18		12
N											12				12		
S																	
H																	
O																	

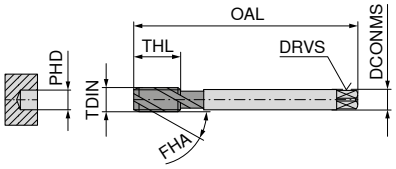
Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

CavTap | G



DIN 5156 with reduced shank

	UNI CNC	ST	VA	VA
	E 1,5–2	C 2–3	E 1,5–2	E 1,5–2
	ISO 228	ISO 228	ISO 228	ISO 228
	TiN GS		vap.	TiN GS
				
	HSS-E FHA 45° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 750 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 900 N/mm² ≤ 3xD	HSS-E FHA 45° ≤ 900 N/mm² ≤ 3xD
	22 624 ...	**22 354 ...**	**22 355 ...**	**22 358 ...**

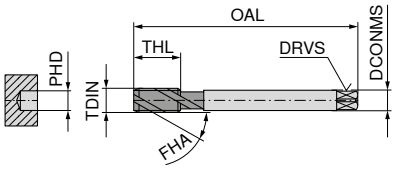
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0		£ U0		£ U0		£ U0	
1/8-28	0.907	90	7	5.5	8.80	10	3			75.70	**012**			149.77	**012**
1/8-28	0.907	90	7	5.5	8.80	10	4	147.67	**012**			85.16	**012**		
1/4-19	1.337	100	11	9.0	11.80	15	4			103.91	**025**				
1/4-19	1.337	100	11	9.0	11.80	15	5	194.29	**025**			115.55	**025**	196.81	**025**
3/8-19	1.337	100	12	9.0	15.25	15	4			127.54	**037**				
3/8-19	1.337	100	12	9.0	15.25	15	5	229.32	**037**			138.76	**037**	232.83	**037**
1/2-14	1.814	125	16	12.0	19.00	17	4			163.72	**050**				
1/2-14	1.814	125	16	12.0	19.00	17	5	344.04	**050**			188.45	**050**	348.92	**050**
5/8-14	1.814	125	18	14.5	21.00	17	5					259.13	**062**		
3/4-14	1.814	140	20	16.0	24.50	20	4			261.24	**075**				
3/4-14	1.814	140	20	16.0	24.50	20	5					290.86	**075**		
1-11	2.309	160	25	20.0	30.75	24	5			404.07	**100**				
1-11	2.309	160	25	20.0	30.75	24	6					448.75	**100**		

P	**15**	**12**	**8**	**10**
M	**9**		**6**	**8**
K	**18**	**12**		
N	**12**	**22**	**22**	**22**
S				
H				
O				

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

G



DIN 5156 with reduced shank

UNI | C 2–3 | ISO 228 | vap.



HSS-E
FHA 35°
≤ 1100 N/mm²
≤ 2,5xD

23 163 ...

UNI | C 2–3 | ISO 228 | TiN



HSS-E
FHA 35°
≤ 1100 N/mm²
≤ 2,5xD

23 162 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9		£ T9	
1/8-28	0.907	90	7	5.5	8.80	10	3	57.64	**012**	78.17	**012**
1/4-19	1.337	100	11	9.0	11.80	15	4	75.77	**025**	107.78	**025**
3/8-19	1.337	100	12	9.0	15.25	15	4	96.76	**037**	126.93	**037**
1/2-14	1.814	125	16	12.0	19.00	17	4	120.54	**050**	191.00	**050**
3/4-14	1.814	140	20	16.0	24.50	20	4	200.29	**075**	245.93	**075**
1-11	2.309	160	25	20.0	30.75	24	5	302.87	**100**	475.44	**100**

P	**12**	**15**
M	**7**	**9**
K	**12**	**18**
N		**12**
S		
H		
O		

Cutting speed v_c (m/min.)

6

Through hole / Blind hole – Machine taps, right hand

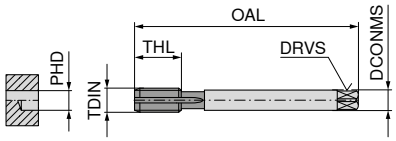
DuoTap | G

HR

C
2–3

ISO 228
X

nitr.



DIN 5156 with reduced shank



HSS-E
FHA 0°
≤ 1400 N/mm²
≤ 2xD

22 339 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
1/8-28	0.907	90	7	5.5	8.80	18	4	82.03	**012**
1/4-19	1.337	100	11	9.0	11.80	22	4	112.22	**025**
3/8-19	1.337	100	12	9.0	15.25	22	4	140.87	**037**
1/2-14	1.814	125	16	12.0	19.00	25	4	193.12	**050**

P	**6**
M	
K	**16**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

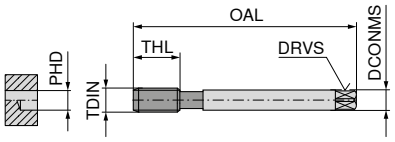
DuoForm | G

EC
SN

C
2–3

ISO 228

TiN



DIN 2189 with reduced shank



HSS-E
≤ 1100 N/mm²
≤ 3xD

22 359 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
1/8-28	0.907	90	7	5.5	9.25	18	5	137.59	**012**
1/4-19	1.337	100	11	9.0	12.55	22	6	175.73	**025**
3/8-19	1.337	100	12	9.0	16.05	22	6	235.28	**037**
1/2-14	1.814	125	16	12.0	20.10	25	6	316.58	**050**

P	**18**
M	**10**
K	**10**
N	**22**
S	
H	
O	

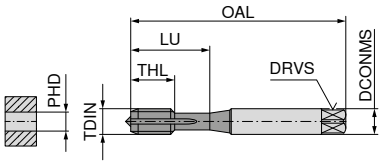
Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

TruTap | UNC

VA	Ti	UNI
B	B	B
4–5	4–5	4–5
2B	2BX	2B
nitr.	TiN	nitr. + vap.



DIN 371 with reinforced shank

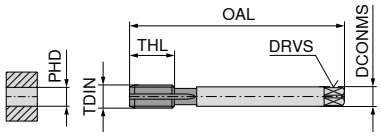


HSS-E
FHA 0°
≤ 900 N/mm²
≤ 4xD

HSS-PM
FHA 0°
≤ 44 HRC
≤ 4xD

HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 250 ... £ U0		22 269 ... £ U0		22 572 ... £ U0	
Nr. 2-56	0.454	45	2.8	2.1	1.85	7	12	2					110.68	**002**
Nr. 4-40	0.635	56	3.5	2.7	2.35	11	18	2					60.96	**004**
Nr. 4-40	0.635	56	3.5	2.7	2.35	11	18	3			137.67	**004**		
Nr. 6-32	0.794	56	4.0	3.0	2.85	12	20	3	52.97	**006**	123.51	**006**	51.72	**006**
Nr. 8-32	0.794	63	4.5	3.4	3.50	13	21	3	52.45	**008**	123.51	**008**	52.23	**008**
Nr. 10-24	1.058	70	6.0	4.9	3.90	15	25	3	52.23	**010**	131.95	**010**	56.49	**010**
Nr. 12-24	1.058	80	6.0	4.9	4.50	16	30	3					68.28	**012**
1/4-20	1.270	80	7.0	5.5	5.10	17	30	3	66.28	**025**	137.67	**025**	59.58	**025**
5/16-18	1.411	90	8.0	6.2	6.60	20	35	3	67.92	**031**	148.36	**031**	71.01	**031**
3/8-16	1.588	100	10.0	8.0	8.00	22	39	3	69.09	**037**	174.55	**037**	78.36	**037**



DIN 376 with reduced shank

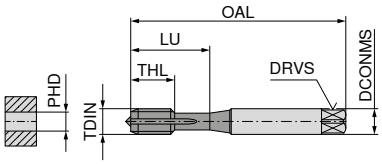
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 573 ... £ U0	
1/2-13	1.954	110	9	7.0	10.80	25	3	96.11	**050**
5/8-11	2.309	110	12	9.0	13.50	27	3	130.95	**062**
3/4-10	2.540	125	14	11.0	16.50	30	3	160.97	**075**
7/8-9	2.822	140	18	14.5	19.50	32	3	206.99	**087**
1-8	3.175	160	18	14.5	22.25	36	3	265.97	**100**

P	**8**	**7**	**12**
M	**6**	**7**	**7**
K			**12**
N	**22**		
S		**5**	
H			
O			

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

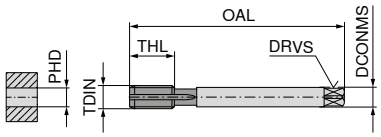
UNC



DIN 371 with reinforced shank

	UNI	FE-HF	VA
	B 4–5	B 4–5	B 4–5
	2B	2B	2B
	TiN	TiCN	nitr.
			
	HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 0° ≤ 1000 N/mm² ≤ 3xD
	23 170 ...	**23 370 ...**	**23 470 ...**

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9		£ T9		£ T9	
Nr. 4-40	0.635	56	3.5	2.7	2.30	11	18	2	40.26	**004**	43.17	**004**	38.92	**004**
Nr. 6-32	0.794	56	4.0	3.0	2.85	12	20	3	38.92	**006**	41.01	**006**	35.31	**006**
Nr. 8-32	0.794	63	4.5	3.4	3.50	13	21	3	38.92	**008**	41.01	**008**	34.55	**008**
Nr. 10-24	1.058	70	6.0	4.9	3.90	15	25	3	40.26	**010**	43.36	**010**	38.92	**010**
1/4-20	1.270	80	7.0	5.5	5.10	17	30	3	52.82	**025**	60.01	**025**	40.83	**025**
5/16-18	1.411	90	8.0	6.2	6.60	20	35	3	58.08	**031**	64.38	**031**	46.53	**031**
3/8-16	1.588	100	10.0	8.0	8.00	22	39	3	67.60	**037**	77.62	**037**	53.80	**037**



DIN 376 with reduced shank

	23 171 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9	
7/16-14	1.814	100	8	6.2	9.40	22	3	80.12	**043**
1/2-13	1.954	110	9	7.0	10.75	25	3	87.71	**050**
5/8-11	2.309	110	12	9.0	13.50	27	3	111.67	**062**
3/4-10	2.540	125	14	11.0	16.50	30	3	168.96	**075**

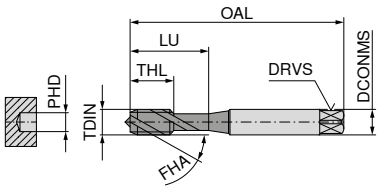
P	**15**	**15**	**8**
M	**9**		**6**
K	**18**	**15**	
N	**12**	**15**	**22**
S			
H			
O			

Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

CavTap | UNC



DIN 371 with reinforced shank

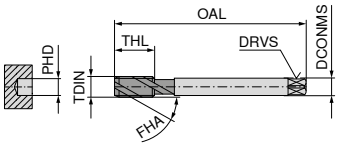
UNI	VA
C 2–3	C 2–3
2B	2B
vap.	vap.



HSS-E
FHA 42°
≤ 1100 N/mm²
≤ 3xD

HSS-E
FHA 42°
≤ 900 N/mm²
≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 582 ... £ U0		22 266 ... £ U0	
Nr. 4-40	0.635	56	3.5	2.7	2.35	6	18	2	54.20	**004**		
Nr. 6-32	0.794	56	4.0	3.0	2.85	7	20	3	49.76	**006**	52.45	**006**
Nr. 8-32	0.794	63	4.5	3.4	3.50	8	21	3	51.29	**008**	55.95	**008**
Nr. 10-24	1.058	70	6.0	4.9	3.90	10	25	3	54.57	**010**	61.71	**010**
1/4-20	1.270	80	7.0	5.5	5.10	13	30	3	59.23	**025**	62.14	**025**
5/16-18	1.411	90	8.0	6.2	6.60	14	35	3	62.45	**031**	71.41	**031**
3/8-16	1.588	100	10.0	8.0	8.00	16	39	3	69.09	**037**	73.83	**037**



DIN 376 with reduced shank

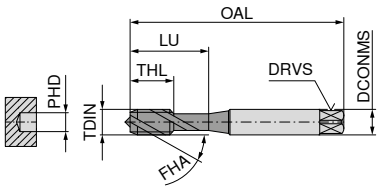
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 583 ... £ U0		22 267 ... £ U0	
7/16-14	1.814	100	8	6.2	9.40	18	3	131.95	**043**		
7/16-14	1.814	100	8	6.2	9.40	18	4			155.76	**043**
1/2-13	1.954	110	9	7.0	10.80	20	3	96.97	**050**		
1/2-13	1.954	110	9	7.0	10.80	20	4			108.62	**050**
9/16-12	2.117	110	11	9.0	12.25	20	3	139.91	**056**		
5/8-11	2.309	110	12	9.0	13.50	22	3	126.93	**062**		
5/8-11	2.309	110	12	9.0	13.50	22	4			137.85	**062**
3/4-10	2.540	125	14	11.0	16.50	25	3	164.11	**075**		
3/4-10	2.540	125	14	11.0	16.50	25	4			171.84	**075**
1-8	3.175	160	18	14.5	22.25	30	4	265.49	**100**		
1-8	3.175	160	18	14.5	22.25	30	5			290.86	**100**

P	**12**	**8**
M	**7**	**6**
K	**12**	
N		**22**
S		
H		
O		

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

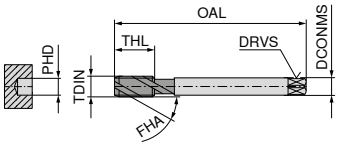
UNC



DIN 371 with reinforced shank

	UNI	FE-HF	VA
	C 2–3	C 2–3	C 2–3
	2B	2B	2B
	TiN	TiCN	
			
	HSS-E FHA 35° ≤ 1000 N/mm² ≤ 2,5xD	HSS-E FHA 35° ≤ 1100 N/mm² ≤ 2,5xD	HSS-E FHA 35° ≤ 1000 N/mm² ≤ 2,5xD
	23 172 ...	23 372 ...	23 472 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9		£ T9		£ T9	
Nr. 4-40	0.635	56	3.5	2.7	2.30	6	18	2	42.72	**004**			40.83	**004**
Nr. 4-40	0.635	56	3.5	2.7	2.30	11	18	2			44.81	**004**		
Nr. 6-32	0.794	56	4.0	3.0	2.85	7	20	3	40.06	**006**			38.38	**006**
Nr. 6-32	0.794	56	4.0	3.0	2.85	12	20	3			43.36	**006**		
Nr. 8-32	0.794	63	4.5	3.4	3.50	8	21	3	43.17	**008**			39.67	**008**
Nr. 8-32	0.794	63	4.5	3.4	3.50	13	21	3			45.86	**008**		
Nr. 10-24	1.058	70	6.0	4.9	3.90	10	25	3	44.48	**010**			42.18	**010**
Nr. 10-24	1.058	70	6.0	4.9	3.90	15	25	3			46.53	**010**		
1/4-20	1.270	80	7.0	5.5	5.20	13	30	3	57.50	**025**			47.22	**025**
1/4-20	1.270	80	7.0	5.5	5.20	17	30	3			63.86	**025**		
5/16-18	1.411	90	8.0	6.2	6.60	14	35	3	57.50	**031**			49.92	**031**
5/16-18	1.411	90	8.0	6.2	6.60	20	35	3			66.57	**031**		
3/8-16	1.588	100	10.0	8.0	8.00	16	39	3	70.43	**037**			55.72	**037**
3/8-16	1.588	100	10.0	8.0	8.00	22	39	3			77.67	**037**		



DIN 376 with reduced shank

	23 173 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9	
7/16-14	1.814	100	8	6.2	9.40	18	3	89.02	**043**
1/2-13	1.954	110	9	7.0	10.75	20	3	94.27	**050**
5/8-11	2.309	110	12	9.0	13.50	22	3	115.73	**062**
3/4-10	2.540	125	14	11.0	16.50	25	3	171.82	**075**

P	**15**	**15**	**8**
M	**9**		**6**
K	**18**	**15**	
N	**12**	**24**	**22**
S			
H			
O			

Cutting speed v_c (m/min.)

6

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

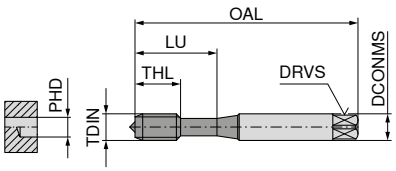
DuoForm | UNC

EC
SN

C
2–3

2BX

TiN



DIN 2174 with reinforced shank



HSS-E
≤ 1100 N/mm²
≤ 3xD

22 271 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
Nr. 4-40	0.635	56	3.5	2.7	2.55	11	18	3	82.47	**004**
Nr. 6-32	0.794	56	4.0	3.0	3.15	12	20	3	76.43	**006**
Nr. 8-32	0.794	63	4.5	3.4	3.80	13	21	4	76.43	**008**
Nr. 10-24	1.058	70	6.0	4.9	4.35	15	25	4	84.59	**010**
1/4-20	1.270	80	7.0	5.5	5.75	17	30	4	97.93	**025**
5/16-18	1.411	90	8.0	6.2	7.30	20	35	5	105.21	**031**
3/8-16	1.588	100	10.0	8.0	8.80	22	39	5	123.07	**037**

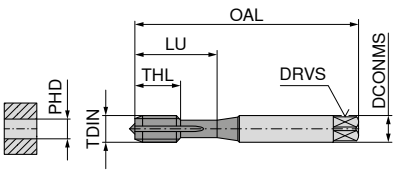
P	**18**
M	**10**
K	**10**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole – machine taps for wire thread inserts, right hand

TruTap | EG UNC

UNI | B 4–5 | 2B mod | nitr. + vap.



DIN 371 with reinforced shank



HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD

22 668 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
EG Nr. 4-40	0.635	63	4.5	3.4	3.1	13	21	3	78.94	**004**
EG Nr. 6-32	0.794	70	6.0	4.9	3.8	14	25	3	82.73	**006**
EG Nr. 8-32	0.794	80	6.0	4.9	4.4	16	30	3	81.44	**008**
EG Nr. 10-24	1.058	80	7.0	5.5	5.2	17	30	3	87.69	**010**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

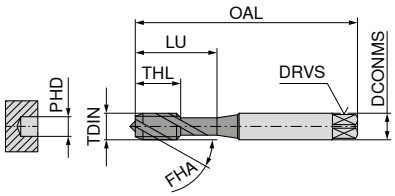
Cutting speed v_c (m/min.)

6

Blind hole – machine taps for wire thread inserts, right hand

CavTap | EG UNC

UNI | E 1,5–2 | 2B mod | vap.



DIN 371 with reinforced shank



HSS-E
FHA 42°
≤ 1100 N/mm²
≤ 3xD

22 672 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
EG Nr. 4-40	0.635	63	4.5	3.4	3.1	7	21	3	79.57	**004**
EG Nr. 6-32	0.794	70	6.0	4.9	3.8	8	25	3	78.94	**006**
EG Nr. 8-32	0.794	80	6.0	4.9	4.4	8	30	3	81.44	**008**
EG Nr. 10-24	1.058	80	7.0	5.5	5.2	10	30	3	87.69	**010**

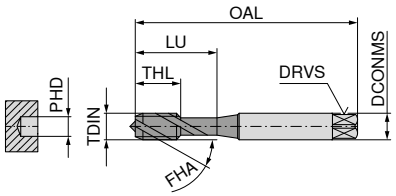
P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap SL | UNJC

Ti | C 2–3 | 3BX | TiCN





DIN 371 with reinforced shank

HSS-E
FHA 15°
≤ 1200 N/mm²
≤ 2xD

22 166 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
Nr. 4-40	0.635	56	3.5	2.7	2.30	11	18	2	107.78	**004**
Nr. 6-32	0.794	56	4.0	3.0	2.85	12	20	3	109.77	**006**
Nr. 8-32	0.794	63	4.5	3.4	3.50	13	21	3	106.67	**008**
Nr. 10-24	1.058	70	6.0	4.9	3.90	15	25	3	114.35	**010**
1/4-20	1.270	80	7.0	5.5	5.25	17	30	3	146.29	**025**
3/8-16	1.588	100	10.0	8.0	8.10	22	39	3	176.68	**037**

P	**7**
M	**7**
K	
N	**22**
S	**5**
H	
O	

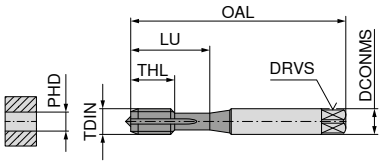
Cutting speed v_c (m/min.)

6

Through hole – Machine taps, right hand

TruTap | UNF

UNI | B 4–5 | 2B | nitr. + vap.



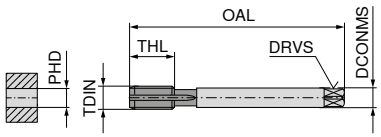
DIN 371 with reinforced shank



HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD

22 602 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
Nr. 4-48	0.529	56	3.5	2.7	2.40	11	18	2	72.07	**004**
Nr. 6-40	0.635	56	4.0	3.0	2.95	12	20	3	64.62	**006**
Nr. 8-36	0.706	63	4.5	3.4	3.50	13	21	3	62.96	**008**
Nr. 10-32	0.794	70	6.0	4.9	4.10	15	25	3	64.66	**010**
1/4-28	0.907	80	7.0	5.5	5.50	17	30	3	73.64	**025**
5/16-24	1.058	90	8.0	6.2	6.90	17	35	3	88.63	**031**



DIN 374 with reduced shank

22 603 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ U0	
7/16-20	1.270	100	8	6.2	9.90	22	3	99.35	**043**
1/2-20	1.270	100	9	7.0	11.50	22	3	96.11	**050**
9/16-18	1.411	100	11	9.0	12.90	22	3	144.37	**056**
5/8-18	1.411	100	12	9.0	14.50	22	3	133.18	**062**
3/4-16	1.588	110	14	11.0	17.50	25	4	165.96	**075**
7/8-14	1.814	125	18	14.5	20.50	25	4	216.49	**087**
1-12	2.117	140	18	14.5	23.25	28	4	282.89	**100**
1 1/8-12	2.117	150	22	18.0	26.50	28	4	731.45	**112**
1 1/4-12	2.117	150	22	18.0	29.75	28	4	816.15	**125**
1 3/8-12	2.117	170	28	22.0	33.00	30	5	900.77	**137**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Through hole – Machine taps, right hand

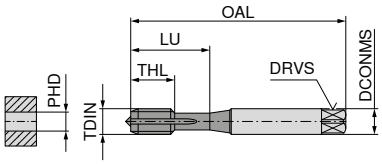
UNF

UNI

B
4–5

2B

TiN



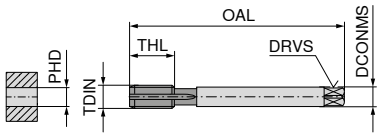
DIN 371 with reinforced shank



HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 3xD

23 180 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ T9	
Nr. 10-32	0.794	70	6	4.9	4.1	15	25	3	46.65	**010**
1/4-28	0.907	80	7	5.5	5.5	17	30	3	59.44	**025**
5/16-24	1.058	90	8	6.2	6.9	17	35	3	66.00	**031**
3/8-24	1.058	90	10	8.0	8.5	18	35	4	70.63	**037**



DIN 374 with reduced shank

23 181 ...

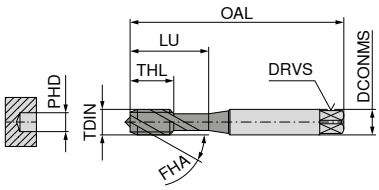
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	£ T9	
7/16-20	1.270	100	8	6.2	9.9	22	3	86.73	**043**
1/2-20	1.270	100	9	7.0	11.5	22	3	87.71	**050**
9/16-18	1.411	100	11	9.0	12.9	22	3	121.75	**056**
5/8-18	1.411	100	12	9.0	14.5	22	3	110.48	**062**
3/4-16	1.588	110	14	11.0	17.5	25	4	171.06	**075**

P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

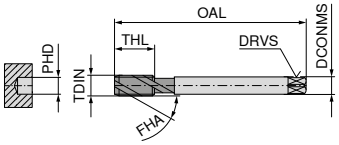
CavTap | UNF



DIN 371 with reinforced shank

	VA	UNI	UNI
	E 1,5–2	C 2–3	E 1,5–2
	2B	2B	2B +0,05
	vap.	vap.	vap.
			
	HSS-E FHA 42° ≤ 900 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD	HSS-E FHA 42° ≤ 1100 N/mm² ≤ 3xD
	22 308 ...	**22 606 ...**	**22 307 ...**
	£ U0	£ U0	£ U0

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes						
Nr. 2-64	0.397	45	2.8	2.1	1.85	4.5	12	2	116.85	**002**				
Nr. 4-48	0.529	56	3.5	2.7	2.40	6.0	18	2	79.57	**004**				
Nr. 6-40	0.635	56	4.0	3.0	2.95	7.0	20	3	78.17	**006**				
Nr. 6-40	0.635	56	4.0	3.0	3.00	7.0	20	3					109.52	**006**
Nr. 8-36	0.706	63	4.5	3.4	3.50	8.0	21	3	97.15	**008**				
Nr. 10-32	0.794	70	6.0	4.9	4.10	10.0	25	3	82.03	**010**	62.45	**010**		
Nr. 10-32	0.794	70	6.0	4.9	4.15	10.0	25	3					114.87	**010**
1/4-28	0.907	80	7.0	5.5	5.50	10.0	30	3	86.30	**025**	66.37	**025**		
1/4-28	0.907	80	7.0	5.5	5.55	10.0	30	3					119.81	**025**
5/16-24	1.058	90	8.0	6.2	6.90	10.0	35	3	95.43	**031**	91.16	**031**		
5/16-24	1.058	90	8.0	6.2	6.95	10.0	35	3					138.56	**031**
3/8-24	1.058	90	10.0	8.0	8.50	10.0	35	3	98.50	**037**				
3/8-24	1.058	90	10.0	8.0	8.55	10.0	35	3					138.56	**037**



DIN 374 with reduced shank

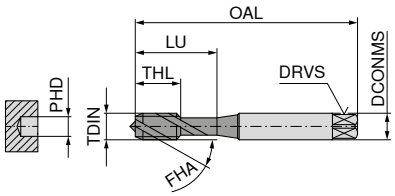
									22 607 ...		**22 409 ...**	
									£ U0		£ U0	
7/16-20	1.270	100	8	6.2	9.90	13	3		96.97	**043**		
7/16-20	1.270	100	8	6.2	9.95	13	4				174.33	**043**
1/2-20	1.270	100	9	7.0	11.50	13	4		98.33	**050**		
1/2-20	1.270	100	9	7.0	11.55	13	5				167.01	**050**
9/16-18	1.411	100	11	9.0	12.90	15	4		145.71	**056**		
9/16-18	1.411	100	11	9.0	12.95	15	5				236.83	**056**
5/8-18	1.411	100	12	9.0	14.50	15	4		129.67	**062**		
5/8-18	1.411	100	12	9.0	14.55	15	5				215.38	**062**
3/4-16	1.588	110	14	11.0	17.50	17	4		178.80	**075**		
3/4-16	1.588	110	14	11.0	17.55	17	5				289.09	**075**
1-12	2.117	140	18	14.5	23.30	20	5				463.05	**100**

P	**8**	**12**	**12**
M	**6**	**7**	**7**
K		**12**	**12**
N	**22**		**22**
S			
H			
O			

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap SL | UNF



DIN 371 with reinforced shank

	Ti	Ti
	C 2–3	C 2–3
	2BX	3BX
	vap.	vap.
		
	HSS-PM FHA 30° ≤ 1400 N/mm² ≤ 1,5xD	HSS-PM FHA 30° ≤ 1400 N/mm² ≤ 1,5xD
	22 302 ...	**22 303 ...**
	£ U0	£ U0

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes				
Nr. 10-32	0.794	70	6	4.9	4.1	10	25	3	131.19	**010**	131.19	**010**
1/4-28	0.907	80	7	5.5	5.5	10	30	3	143.42	**025**	143.42	**025**
5/16-24	1.058	90	8	6.2	6.9	10	35	3	163.20	**031**	152.82	**031**
3/8-24	1.058	90	10	8.0	8.5	10	35	3	167.98	**037**	167.98	**037**

P	**5**	**5**
M	**5**	**5**
K		
N	**22**	**22**
S	**3**	**3**
H		
O		

Cutting speed v_c (m/min.)

6

Blind hole – Machine taps, right hand

UNF

UNI

C
2–3

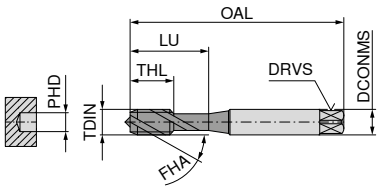
2B

TiN

VA

C
2–3

2B



DIN 371 with reinforced shank

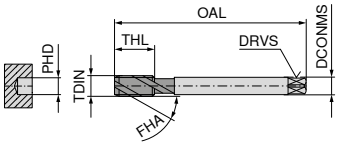




HSS-E
FHA 35°
≤ 1100 N/mm²
≤ 2,5xD

HSS-E
FHA 35°
≤ 1100 N/mm²
≤ 2,5xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 182 ... £ T9		23 482 ... £ T9	
Nr. 10-32	0.794	70	6	4.9	4.1	10	25	3	49.12	**010**	48.57	**010**
1/4-28	0.907	80	7	5.5	5.5	10	30	3	61.71	**025**	53.80	**025**
5/16-24	1.058	90	8	6.2	6.9	10	35	3	66.57	**031**	56.18	**031**
3/8-24	1.058	90	10	8.0	8.5	10	35	3	74.12	**037**	62.14	**037**



DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 183 ... £ T9		23 483 ... £ T9	
7/16-20	1.270	100	8	6.2	9.9	13	3	89.02	**043**	77.01	**043**
1/2-20	1.270	100	9	7.0	11.5	13	4	94.27	**050**	77.99	**050**
9/16-18	1.411	100	11	9.0	12.9	15	4	126.93	**056**	108.96	**056**
5/8-18	1.411	100	12	9.0	14.5	15	4	114.74	**062**	93.99	**062**
3/4-16	1.588	110	14	11.0	17.5	17	4	182.11	**075**	129.48	**075**

P	**15**	**8**
M	**9**	**6**
K	**18**	
N	**12**	**22**
S		
H		
O		

Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

DuoForm | UNF

EC
SN

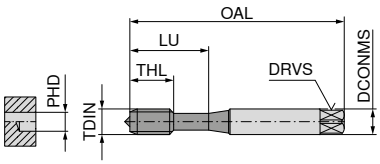
C
2–3

2BX

TiN

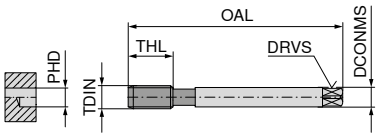


HSS-E
≤ 1100 N/mm²
≤ 3xD



DIN 2174 with reinforced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 312 ... £ U0	
Nr. 4-48	0.529	56	3.5	2.7	2.62	11	18	3	91.56	**004**
Nr. 6-40	0.635	56	4.0	3.0	3.22	12	20	3	85.35	**006**
Nr. 8-36	0.706	63	4.5	3.4	3.85	13	21	4	88.24	**008**
Nr. 10-32	0.794	70	6.0	4.9	4.45	15	25	4	94.27	**010**
1/4-28	0.907	80	7.0	5.5	5.95	17	30	4	110.51	**025**



DIN 2174 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 313 ... £ U0	
7/16-20	1.27	100	8	6.2	10.55	22	6	164.68	**043**
1/2-20	1.27	100	9	7.0	12.15	22	6	169.34	**050**

P	**18**
M	**10**
K	**10**
N	**22**
S	
H	
O	

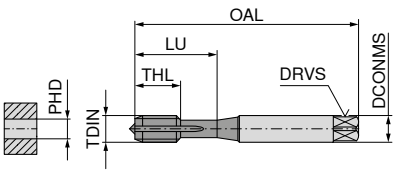
Cutting speed v_c (m/min.)

6

Through hole – machine taps for wire thread inserts, right hand

TruTap | EG UNF

UNI | B 4–5 | 2B | nitr. + vap.



DIN 371 with reinforced shank



HSS-E
FHA 0°
≤ 1100 N/mm²
≤ 4xD

22 676 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
EG Nr. 4-48	0.529	56	4	3.0	3.0	9	20	3	100.76	**004**
EG Nr. 6-40	0.635	70	6	4.9	3.7	11	25	3	99.35	**006**
EG Nr. 8-36	0.706	80	6	4.9	4.4	13	30	3	97.12	**008**
EG Nr. 10-32	0.794	80	6	4.9	5.1	13	30	3	103.55	**010**
EG 1/4-28	0.907	90	8	6.2	6.6	17	35	3	110.48	**025**

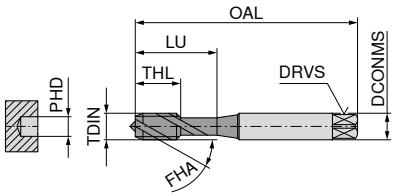
P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – machine taps for wire thread inserts, right hand

CavTap | EG UNF

UNI | E 1,5–2 | 2B | vap.



DIN 371 with reinforced shank



HSS-E
FHA 42°
≤ 1100 N/mm²
≤ 3xD

22 680 ...

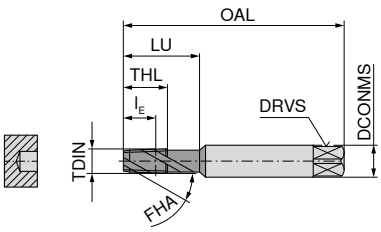
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	£ U0	
EG Nr. 4-48	0.529	56	4	3.0	3.0	7	20	3	101.99	**004**
EG Nr. 6-40	0.635	70	6	4.9	3.7	8	25	3	99.10	**006**
EG Nr. 8-36	0.706	80	6	4.9	4.4	8	30	3	101.57	**008**
EG Nr. 10-32	0.794	80	6	4.9	5.1	8	30	3	109.52	**010**
EG 1/4-28	0.907	90	8	6.2	6.6	10	35	3	120.78	**025**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Cutting speed v_c (m/min.)

Blind hole – Machine taps, right hand

CavTap | NPT



DIN 371 with reinforced shank

VA | C | 2–3 | vap.



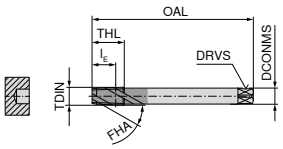
HSS-E
FHA 35°
≤ 900 N/mm²

VA | E | 1,5–2 | TiN



HSS-E
FHA 42°
≤ 1100 N/mm²

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	LU mm	Flutes	22 364 ... £ U0		22 365 ... £ U0	
1/16-27	0.941	90	8	6.2	9.24	13.0	26.0	3	131.17	**006**		
1/8-27	0.941	90	10	8.0	9.28	13.0	26.0	3	151.70	**012**		
1/8-27	0.941	90	10	8.0	9.28	12.0	26.0	4			204.93	**012**
1/4-18	1.411	100	14	11.0	13.55	19.5	34.5	3	177.20	**025**		
1/4-18	1.411	100	14	11.0	13.55	18.0	34.5	4			210.90	**025**



DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	22 371 ... £ U0		22 372 ... £ U0	
3/8-18	1.411	110	14	11	13.86	18.0	5			403.64	**037**
3/8-18	1.411	110	14	11	13.86	19.5	3	241.51	**037**		
1/2-14	1.814	140	16	12	18.11	23.0	5			467.01	**050**
1/2-14	1.814	140	16	12	18.11	25.0	5	351.00	**050**		
3/4-14	1.814	150	20	16	18.59	26.0	5	507.97	**075**		

P	**4**	**5**
M	**3**	**4**
K		
N	**22**	**22**
S		
H		
O		

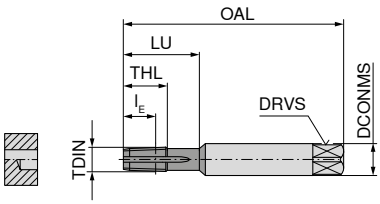
Cutting speed v_c (m/min.)

Through hole / Blind hole – Machine taps, right hand

DuoTap | NPT

VG

C
2–3



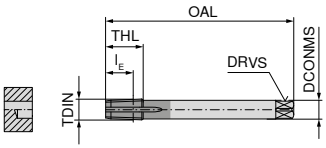
DIN 371 with reinforced shank



HSS-E
FHA 0°
≤ 1100 N/mm²

6

TDIN	TP	OAL	DCONMS	DRVS	l_E	THL	LU	Flutes	22 374 ... £ U0	
	mm	mm	mm	mm	mm	mm	mm			
1/16-27	0.941	90	8	6.2	9.24	13.0	26.0	3	114.74	**006**
1/8-27	0.941	90	10	8.0	9.28	13.0	26.0	3	147.27	**012**
1/4-18	1.411	100	14	11.0	13.55	19.5	34.5	3	152.82	**025**



DIN 374 with reduced shank

TDIN	TP	OAL	DCONMS	DRVS	l_E	THL	Flutes	22 375 ... £ U0	
	mm	mm	mm	mm	mm	mm			
3/8-18	1.411	110	14	11	13.86	19.5	3	191.98	**037**
1/2-14	1.814	140	16	12	18.11	25.0	5	259.13	**050**
3/4-14	1.814	150	20	16	18.59	26.0	5	336.13	**075**
1-11,5	2.209	170	25	20	22.31	30.0	5	468.11	**100**

P	**4**
M	
K	**6**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

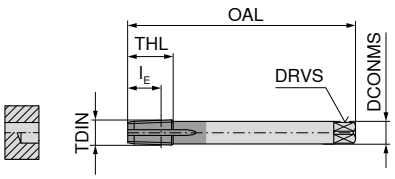
Through hole / Blind hole – Machine taps, right hand

▲ ES = extra short

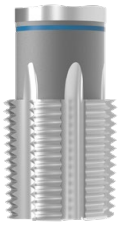
DuoTap | NPT

ST
ES

C
2–3



DIN 2181 with reduced shank



HSS-E
FHA 0°
≤ 750 N/mm²

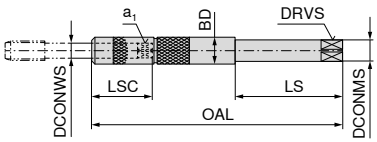
22 361 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	£ U0	
1/16-27	0.941	63	6	4.9	9.24	13.0	4	82.58	**006**
1/8-27	0.941	63	7	5.5	9.28	13.0	5	87.71	**012**
1/4-18	1.411	63	11	9.0	13.55	19.5	5	105.28	**025**
3/8-18	1.411	70	12	9.0	13.86	19.5	5	131.62	**037**
1/2-14	1.814	80	16	12.0	18.11	23.0	5	176.31	**050**
3/4-14	1.814	100	20	16.0	18.59	26.0	6	222.72	**075**
1-11,5	2.209	110	25	20.0	22.31	32.0	6	329.18	**100**

P	**6**
M	
K	**6**
N	**22**
S	
H	
O	

Cutting speed v_c (m/min.)

Shank extensions for taps



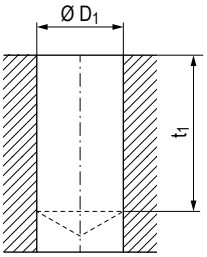


20 450 ...

DIN 371	DIN 374 / 376	DCONWS mm	a_1 mm	LSC mm	BD mm	LS mm	OAL mm	DRVS mm	DCONMS mm	£ U0	
M3	M4,5 - M5	3.5	2.7	23	7.5	60	130	4.9	6	411.62	**020**
M3,5	M5,5	4.0	3.0	23	8.4	60	130	4.9	6	458.33	**030**
M4	M6	4.5	3.4	23	8.4	60	130	4.9	6	458.33	**040**
M4,5 - M6	M8	6.0	4.9	26	12.1	60	130	5.5	7	463.57	**050**
M7	M9 - M10	7.0	5.5	26	12.1	60	130	5.5	7	521.62	**060**
M8	M11	8.0	6.2	30	13.0	60	130	6.2	8	513.37	**070**
M9	M12	9.0	7.0	31	15.0	60	130	7.0	9	513.37	**080**
M10		10.0	8.0	33	15.0	60	130	8.0	10	526.63	**090**
	M14	11.0	9.0	36	18.0	90	180	9.0	11	705.44	**100**
(M12)	M16	12.0	9.0	36	18.0	90	180	9.0	12	705.44	**110**

Core hole diameters for taper threads (taper 1:16)

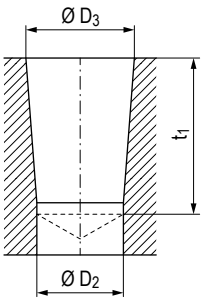
Pre-drilling of cylindrical holes without reamer



		NPT		NPTF				Rc	
Ø D inch	P Gg/1"	Ø D_1 mm	t_1 min. mm	Ø D_1 mm	t_1 min. mm	Ø D inch	P Gg/1"	Ø D_1 mm	t_1 min. mm
1/16	27	6,15	12	6,1	12	1/16	28	6,2	11,9
1/8	27	8,5	12	8,45	12	1/8	28	8,2	11,9
1/4	18	11	17,5	10,9	17,5	1/4	19	10,85	16,3
3/8	18	14,5	17,6	14,3	17,6	3/8	19	14,5	18,1
1/2	14	17,85	22,9	17,6	22,9	1/2	14	18	24
3/4	14	23,2	23	23	23	3/4	14	23,5	25,3
1	11½	29,5	27,4	28,75	27,4	1	11	29,5	30,6
1¼	11½	37,8	28,1	37,5	28,1				
1½	11½	44	28,4	43,75	28,4				
2	11½	56	28,4	55,75	28,4				

P = Pitch

Pre-drilling of cylindrical holes and conical boring with reamer



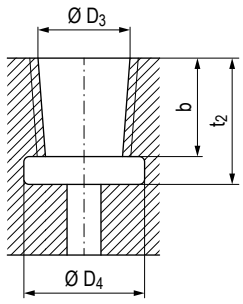
Taper 1:16

		NPT			NPTF		
Ø D inch	P Gg/1"	Ø D_2 mm	Ø D_3 mm	t_1 min. mm	Ø D_2 mm	Ø D_3 mm	t_1 min. mm
1/16	27	5,95	6,39	12	5,95	6,41	12
1/8	27	8,25	8,74	12	8,25	8,76	12
1/4	18	10,75	11,36	17,5	10,75	11,4	17,5
3/8	18	14,1	14,8	17,6	14,1	14,84	17,6
1/2	14	17,5	18,32	22,9	17,5	18,33	22,9
3/4	14	22,7	23,67	23	22,7	23,68	23
1	11½	28,6	29,69	27,4	28,6	29,72	27,4
1¼	11½	37,3	38,45	28,1	37,3	38,48	28,1
1½	11½	43,4	44,52	28,4	43,4	44,5	28,4
2	11½	55,5	56,56	28,4	55,5	56,59	28,4

		Rc		
Ø D inch	P Gg/1"	Ø D_2 mm	Ø D_3 mm	t_1 min. mm
1/16	28	6,1	6,56	11,9
1/8	28	8,1	8,57	11,9
1/4	19	10,75	11,45	17,7
3/8	19	14,25	14,95	18,1
1/2	14	17,75	18,63	24
3/4	14	23	24,12	25,3
1	11	29	30,29	30,6

P = Pitch

Recommendation for the pre-drilling of blind hole threads



Taper 1:16

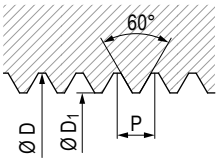
		NPT				NPTF			
Ø D inch	P Gg/1"	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm
1/16	27	6,39	7	10	7,6	6,41	8	11	7,4
1/8	27	8,74	7	10	10	8,76	8	11	9,8
1/4	18	11,36	10,2	14,5	13,1	11,4	11,6	15,5	12,9
3/8	18	14,8	10,6	15	16,5	14,84	12	16	16,3
1/2	14	18,32	13,8	19	20,5	18,33	15,6	20,5	20,3
3/4	14	23,67	14,2	20	25,8	23,68	16	21,5	25,6
1	11½	29,69	17	24	32,2	29,72	19,2	26	32
1¼	11½	38,45	17,5	24,5	41	38,48	19,7	26,5	40,8
1½	11½	44,52	17,5	24,5	47,2	44,5	19,7	26,5	47
2	11½	56,56	18	25	59,2	56,59	20,2	27	59

		Rc			
Ø D inch	P Gg/1"	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm
1/16	28	6,56	5,6	9,5	7,6
1/8	28	8,57	5,6	9,5	9,6
1/4	19	11,45	8,4	14	13
3/8	19	14,95	8,8	14,4	16,5
1/2	14	18,63	11,4	19	20,6
3/4	14	24,12	12,7	20,3	26
1	11	30,29	14,5	24,3	32,8

P = Pitch

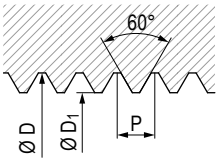
Tapped hole pilot diameter

M ISO metric coarse threads 6H to DIN 13 and DIN ISO 965-1 (M1-M1,4 = 5H)



Thread nominal Ø		Ø D_1		Core hole	Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.		D	P	min.	max.	
M1	0,25	0,729	0,785	0,75	M12	1,75	10,106	10,441	10,2
M1,1	0,25	0,829	0,885	0,85	M14	2	11,835	12,210	12
M1,2	0,25	0,929	0,985	0,95	M16	2	13,835	14,210	14
M1,4	0,3	1,075	1,142	1,1	M18	2,5	15,294	15,744	15,5
M1,6	0,35	1,221	1,321	1,25	M20	2,5	17,294	17,744	17,5
M1,8	0,35	1,421	1,521	1,45	M22	2,5	19,294	19,744	19,5
M2	0,4	1,567	1,679	1,6	M24	3	20,752	21,252	21
M2,2	0,45	1,713	1,838	1,75	M27	3	23,752	24,252	24
M2,5	0,45	2,013	2,138	2,05	M30	3,5	26,211	26,771	26,5
M3	0,5	2,459	2,599	2,5	M33	3,5	29,211	29,771	29,5
M3,5	0,6	2,850	3,01	2,9	M36	4	31,67	32,270	32
M4	0,7	3,242	3,422	3,3	M39	4	34,67	35,270	35
M4,5	0,75	3,688	3,878	3,7	M42	4,5	37,129	37,799	37,5
M5	0,8	4,134	4,334	4,2	M45	4,5	40,129	40,799	40,5
M6	1	4,917	5,153	5	M48	5	42,587	43,297	43
M7	1	5,917	6,153	6	M52	5	46,587	47,297	47
M8	1,25	6,647	6,912	6,8	M56	5,5	50,046	50,796	50,5
M9	1,25	7,647	7,912	7,8	M60	5,5	54,046	54,796	54,5
M10	1,5	8,376	8,676	8,5	M64	6	57,505	58,305	58
M11	1,5	9,376	9,676	9,5	M68	6	61,505	62,305	62

MF ISO metric fine threads 6H to DIN 13 and DIN ISO 965-1

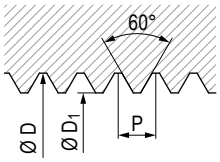


Thread nominal Ø			Ø D_1		Core hole	Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.		D	x	P	min.	max.	
M2	x	0,25	1,729	1,774	1,75	M20	x	1,0	18,917	19,153	19
M2,2	x	0,25	1,929	1,974	1,95	M20	x	1,5	18,376	18,676	18,5
M2,5	x	0,35	2,121	2,221	2,15	M20	x	2,0	17,835	18,210	18
M3	x	0,35	2,621	2,721	2,65	M24	x	1,5	22,376	22,676	22,5
M3,5	x	0,35	3,121	3,221	3,15	M30	x	2,0	27,835	28,210	28
M4	x	0,35	3,621	3,721	3,65	M36	x	1,5	34,376	34,676	34,5
M4	x	0,5	3,459	3,599	3,5	M36	x	3,0	32,752	33,252	33
M4,5	x	0,5	3,959	4,099	4	M42	x	2,0	39,835	40,210	40
M5	x	0,5	4,459	4,599	4,5	M48	x	1,5	46,376	46,676	46,5
M6	x	0,5	5,459	5,599	5,5	M48	x	3,0	44,752	45,252	45
M6	x	0,75	5,188	5,378	5,2	M48	x	4,0	43,67	44,270	44
M8	x	0,75	7,188	7,378	7,2	M56	x	1,5	54,376	54,676	54,5
M8	x	1,0	6,917	7,153	7	M56	x	2,0	53,835	54,210	54
M10	x	0,75	9,188	9,378	9,2	M56	x	3,0	52,752	53,252	53
M10	x	1,0	8,917	9,153	9	M56	x	4,0	51,670	52,270	52
M10	x	1,25	8,647	8,912	8,8	M64	x	3,0	60,752	61,252	61
M12	x	1,0	10,917	11,153	11	M64	x	4,0	59,670	60,270	60
M12	x	1,5	10,376	10,676	10,5	M72	x	4,0	67,670	68,270	68
M14	x	1,25	12,647	12,912	12,8	M80	x	6,0	73,505	74,305	74
M16	x	1,0	14,917	15,153	15	M95	x	6,0	88,505	89,305	89
M16	x	1,5	14,376	14,676	14,5	M110	x	6,0	103,505	104,305	104

Dimensions in mm; P=Pitch

Thread former pilot hole diameter

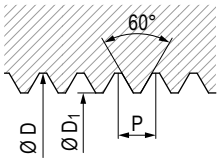
M ISO metric coarse threads 6H to DIN 13 and DIN ISO 965-1 (M1-M1,4 = 5H)



Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M1	0,25	0,89		0,9
M1,2	0,25	1,09		1,1
M1,4	0,3	1,26		1,28
M1,6	0,35	1,45		1,47
M1,8	0,35	1,65		1,67
M2	0,4	1,83	1,86	1,85
M2,2	0,45	2	2,04	2,03
M2,5	0,45	2,3	2,34	2,33
M3	0,5	2,77	2,82	2,8
M3,5	0,6	3,23	3,28	3,25
M4	0,7	3,68	3,73	3,7
M4,5	0,75	4,15	4,21	4,2
M5	0,8	4,63	4,68	4,65

Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M6	1	5,51	5,59	5,6
M7	1	6,51	6,59	6,6
M8	1,25	7,39	7,48	7,45
M9	1,25	8,39	8,48	8,45
M10	1,5	9,25	9,35	9,35
M11	1,5	10,25	10,35	10,35
M12	1,75	11,12	11,25	11,25
M14	2	13	13,15	13,1
M16	2	15	15,15	15,1
M18	2,5	16,72	16,9	16,85
M20	2,5	18,72	18,9	18,85
M22	2,5	20,72	20,9	20,85
M24	3	22,46	22,7	22,65

MF ISO metric fine threads 6H to DIN 13 and DIN ISO 965-1

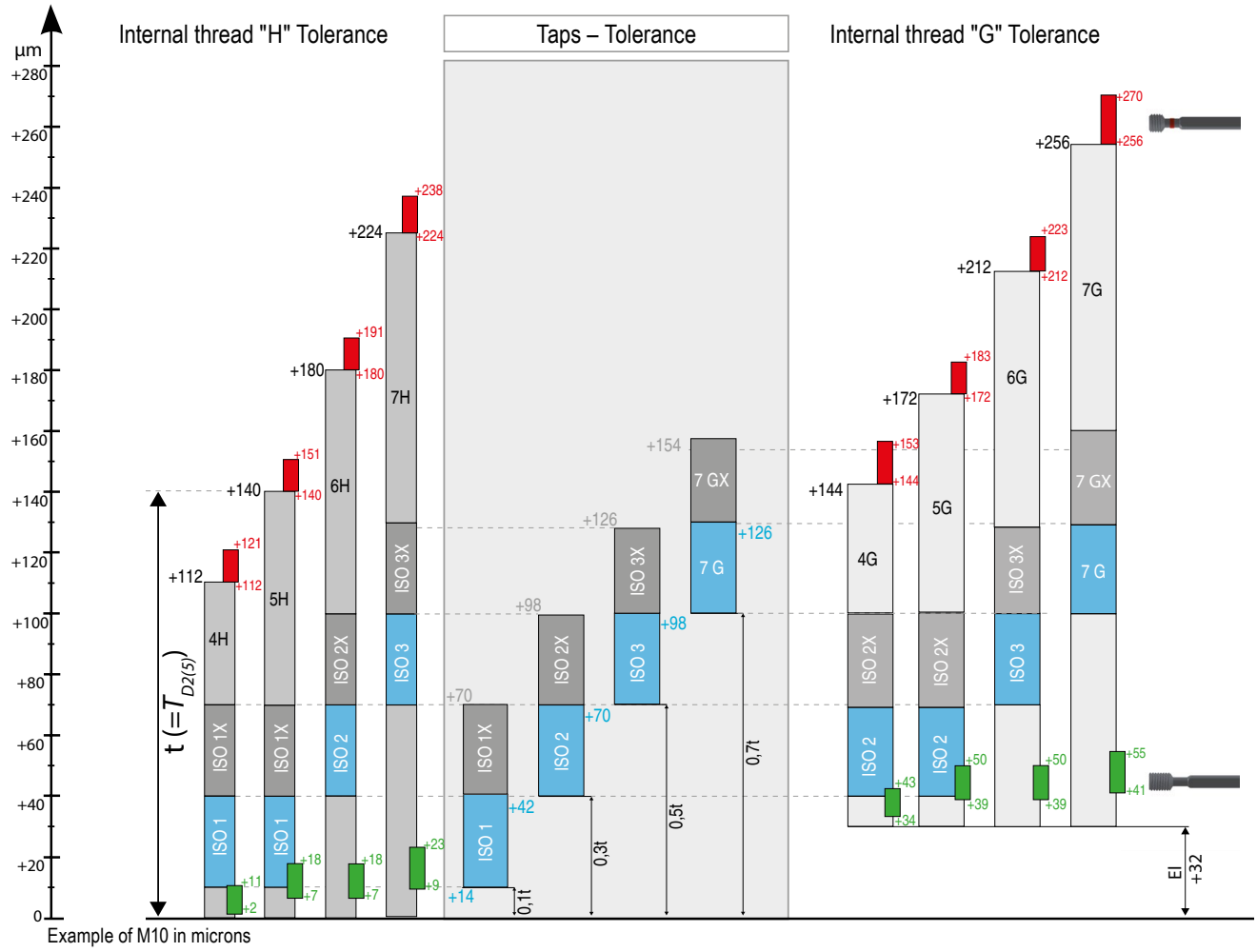


Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M2	x	0,25	1,89		1,9
M2,2	x	0,25	2,09		2,1
M2,5	x	0,25	2,39		2,4
M2,5	x	0,35	2,35		2,37
M3	x	0,25	2,89		2,9
M3	x	0,35	2,85		2,88
M3,5	x	0,35	3,35		3,38
M3,5	x	0,5	3,27	3,32	3,3
M4	x	0,35	3,85		3,88
M4	x	0,5	3,77	3,82	3,8
M4,5	x	0,5	4,27	4,32	4,3
M5	x	0,5	4,77	4,82	4,8
M5	x	0,75	4,65	4,71	4,7
M5,5	x	0,5	5,27	5,32	5,3
M6	x	0,5	5,78	5,83	5,8
M6	x	0,75	5,65	5,71	5,7
M7	x	0,5	6,78	6,83	6,8
M7	x	0,75	6,65	6,71	6,7
M8	x	0,5	7,78	7,83	7,8
M8	x	0,75	7,65	7,71	7,7
M8	x	1,0	7,51	7,59	7,6
M9	x	0,5	8,78	8,83	8,8
M9	x	0,75	8,65	8,71	8,7
M9	x	1,0	8,51	8,59	8,6
M10	x	0,5	9,78	9,83	9,8
M10	x	0,75	9,65	9,71	9,7
M10	x	1,0	9,51	9,59	9,6
M10	x	1,25	9,39	9,48	9,45
M11	x	0,75	10,65	10,71	10,7
M11	x	1,0	10,51	10,59	10,6
M12	x	0,75	11,66	11,72	11,7

Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M12	x	1,0	11,52	11,6	11,6
M12	x	1,25	11,4	11,49	11,45
M12	x	1,5	11,26	11,36	11,35
M13	x	0,75	12,66	12,72	12,7
M13	x	1,0	12,52	12,6	12,6
M13	x	1,5	12,26	12,36	12,35
M14	x	0,75	13,66	13,72	13,7
M14	x	1,0	13,52	13,6	13,6
M14	x	1,25	13,4	13,49	13,45
M14	x	1,5	13,26	13,36	13,35
M15	x	0,75	14,66	14,72	14,7
M15	x	1,0	14,52	14,6	14,6
M15	x	1,5	14,26	14,36	14,35
M16	x	0,75	15,66	15,72	15,7
M16	x	1,0	15,52	15,6	15,6
M16	x	1,5	15,26	15,36	15,35
M18	x	1,0	17,52	17,6	17,6
M18	x	1,5	17,26	17,36	17,35
M18	x	2,0	17	17,15	17,1
M20	x	1,0	19,52	19,6	19,6
M20	x	1,5	19,26	19,36	19,35
M20	x	2,0	19	19,15	19,1
M22	x	1,5	21,26	21,36	21,35
M22	x	2,0	21	21,15	21,1
M24	x	1,5	23,26	23,38	23,35
M24	x	2,0	23,01	23,16	23,1
M25	x	1,5	24,26	24,38	24,35
M26	x	1,5	25,26	25,38	25,35
M27	x	2,0	26,01	26,16	26,1
M28	x	1,5	27,26	27,38	27,35
M30	x	1,5	29,26	29,38	29,35
M30	x	2,0	29,01	29,16	29,1

Dimensions in mm; P=Pitch

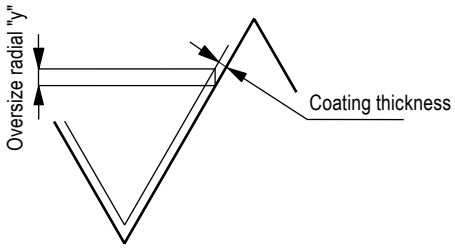
Thread tolerances and recommended manufacturing tolerances



Workpieces to be plated require oversize taps.
The interference depends on the coating thickness and the flank angle.

at

60° Flank angle	Oversize = 4 x coating thickness
55° Flank angle	Oversize = 4.331 x coating thickness
30° Flank angle	Oversize = 7.727 x coating thickness

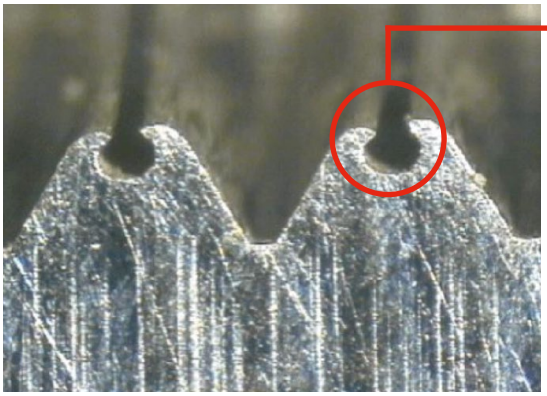


Application class of the tap Designation according to		Tolerance class of the internal thread to be cut				
DIN	ISO					
4H	ISO1	4H	5H	–	–	–
6H	ISO2	4G	5G	6H	–	–
6G	ISO3	–	(4E)	6G	7H	8H
7G	–	–	–	(6E)	7G	8G

For special applications, e.g. abrasive cast iron materials or plastics other dimensions have to be chosen which are determined on previous experience. In such cases an „X“ is added to the short designation of the tolerance, e.g. ISO 2X, however the tolerance zone assignment may be limited (6HX for tolerance zone 6H and 5G). In addition it should be taken into account that the dimensions of the internal thread do not only depend on the dimensions of the tap but on the material to be machined and all production conditions.
For first taps and intermediate taps no thread dimensions are determined.

Thread formers

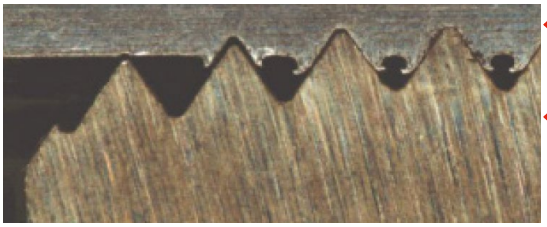
DuoForm thread forming taps for cold-formable materials up to 1400 N/mm² or at least 5 % elongation.
The thread is produced by plastic deformation. The molded thread has very high strength.



Important

Prior to forming a thread, you should ensure that a molded thread is acceptable. In certain sectors, the forming of a thread is **not** permitted. Dirt or bacteria can settle in the formed crown.

Incremental pressure forming



Workpiece

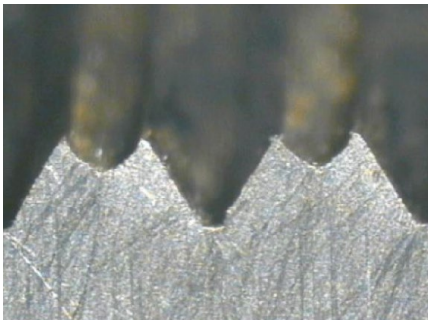
Thread formers



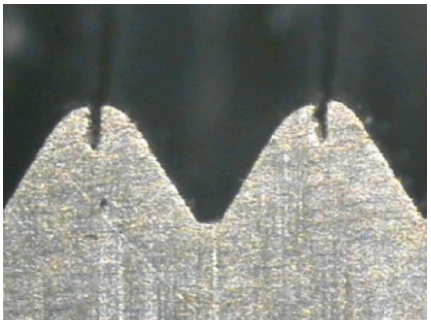
The thread profile is pressed gradually into the material via the start (leading edge) of the tap.

Properties

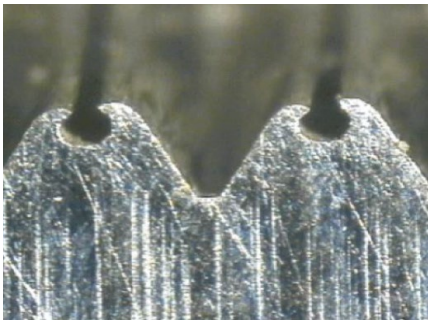
- One type can be used in different materials
- For through and blind holes
- Very good thread surface quality
- High static and dynamic strength thread
- Secure machining of deep and counterbored threads
- Short machining times
- No chip problems
- No swarf
- High process security
- HSS-E and HSS-PM taps for materials up to 33 HRC with a minimum elongation of 5 %



Underformed – core hole too large



Overformed – core hole too small



Perfect form – Core hole correct

Troubleshooting

Poor tool life

Cause

- Overload fractures of the cutting edge on the lead
- Hardness or tool material not suitable for the application
- Core hole too small, or work hardened
- Insufficient lubrication or incorrect application parameters

Remedy

- A longer lead or more flutes for the same lead length, giving a greater number of cutting teeth
- In reground tools the hardness can be reduced, apply correct parameters for regrinding
- Increase frequency of changes or regrinding of the drill
- Use the correct operating parameters for drilling
- Select the correct lubricant and ensure adequate supply

Axial thread error

Cause

- Selected geometry is not suitable
- Spindle speed is wrong compared with feed (synchronisation error)
- Blind hole taps are used with high feed pressure
- Through hole taps are used with low feed pressure

Remedy

- Check programming and pitch control or machine synchronisation
- Use tapping chuck with length compensation
- Increase retraction feed pessure
- Increase feed pessure

Oversize thread

Cause

- Thread tolerances of tool and thread gauge do not match
- Burred tool edges after regrinding
- Cold pressure welding

Remedy

- Check the correct tolerances for tool and thread gauge
- Carefully deburr
- Use appropriate (positive) geometry
- Reduce cutting speed
- Use different surface treatment or coating
- Use tapping chuck with length compensation
- Use appropriate lubricant

Broken tool

Cause

- Tool is worn
- Tool has hit the bottom of the hole
- Weld deposits
- Core hole too small
- Chip trapping
- Incorrect cutting speed
- Chip trapping in the flute
- Insufficient cooling / lubrication

Remedy

- Employ set taps
- Use a tool with lower helix
- Use tools with a shorter / longer lead
- Check the pre-drilling depth and the thread depth
- Drill core hole deeper
- Correct cutting speed
- Use a different coating or surface treatment
- Use tool holder with length compensation
- Use suitable lubricant
- Use correct core hole
- Change geometry and / or flute type
- Note chip shape and chip formation

Coatings

vap.
- Vaporised
- Vaporisation (vapour-deposition) prevents cold welds from forming on the tool and increases the surface hardness and thus the wear resistance

nitr.
- Nitrided
- Nitriding increases wear resistance and offers low friction properties

vap. + nitr.
- Vaporized + Nitrated
- Combination of increased surface hardness and lubricant carrier

TiN
- TiN coating
- Maximum application temperature: 450 °C

TiN GS
- Titanium nitride low friction layer
- High wear resistance with low friction properties
- Maximum application temperature: 450 °C

TiCN
- TiCN multilayer coating
- Maximum application temperature: 450 °C

DLC
- Diamond-like carbon coating
- Specifically for machining non-ferrous metals
- Maximum application temperature: 400 °C

Ti200
- TiN coating
- Well suited for high cutting speeds during thread forming
- Maximum application temperature: 450 °C

OSM
- Hard material layer and anti-friction layer
- For use in high-strength steels

CH
- Amorphous carbon layer
- For use in non-ferrous metals or aluminum
- Reduces the material adhesion

HCr
- Hard chromed
- For use in non-ferrous metals or aluminum
- Very low surface roughness

CrN
- Chromium-nitrogen coating
- Very wear-resistant coating
- Especially suitable for use in aluminum, but also for P, M and S materials

AlTiN-HD
- AlTiN-based nanolayer hard material coating
- Maximum application temperature: 500 °C



New products for machining technicians

NEW Polygon system extension



Milling insert for part-off → Page 15

- ▲ Reliable cutting with groove depths up to 11.5 mm in almost all materials
- ▲ Longest service lives with maximum process security
- ▲ Different diameters with groove width of 1.5 mm available from stock



Thread milling insert partial profile → Page 16

- ▲ Extension of the existing 50 882 range to include the thread pitch 3.5–6 mm

NEW MiniMill XL multipurpose milling system





Milling insert → Page 28
Tool holder → Page 33

- ▲ Extension of the tried-and-tested MiniMill multipurpose milling system Ø 37 mm by Ø 50 mm
- ▲ Reliable cutting with groove depths up to 16.5 mm in almost all materials
- ▲ Cross-pitched versions for significantly greater self-cleaning effect with lower chip jamming tendency
- ▲ Wide range of groove widths and holders available from stock

NEW Performance Thread milling cutter Type SFSE



→ Page 63–66

- ▲ Multi-row shank thread milling cutter with countersink cutting edge
- ▲ Universal application in almost all materials
- ▲ 2-in-1 tool: thread milling and countersinking with a single tool
- ▲ Maximum reliability and process security
- ▲ Unsurpassed price-performance ratio

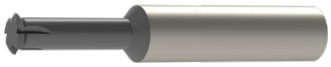
NEW Performance Thread milling cutter Type SGF



→ Page 71+72

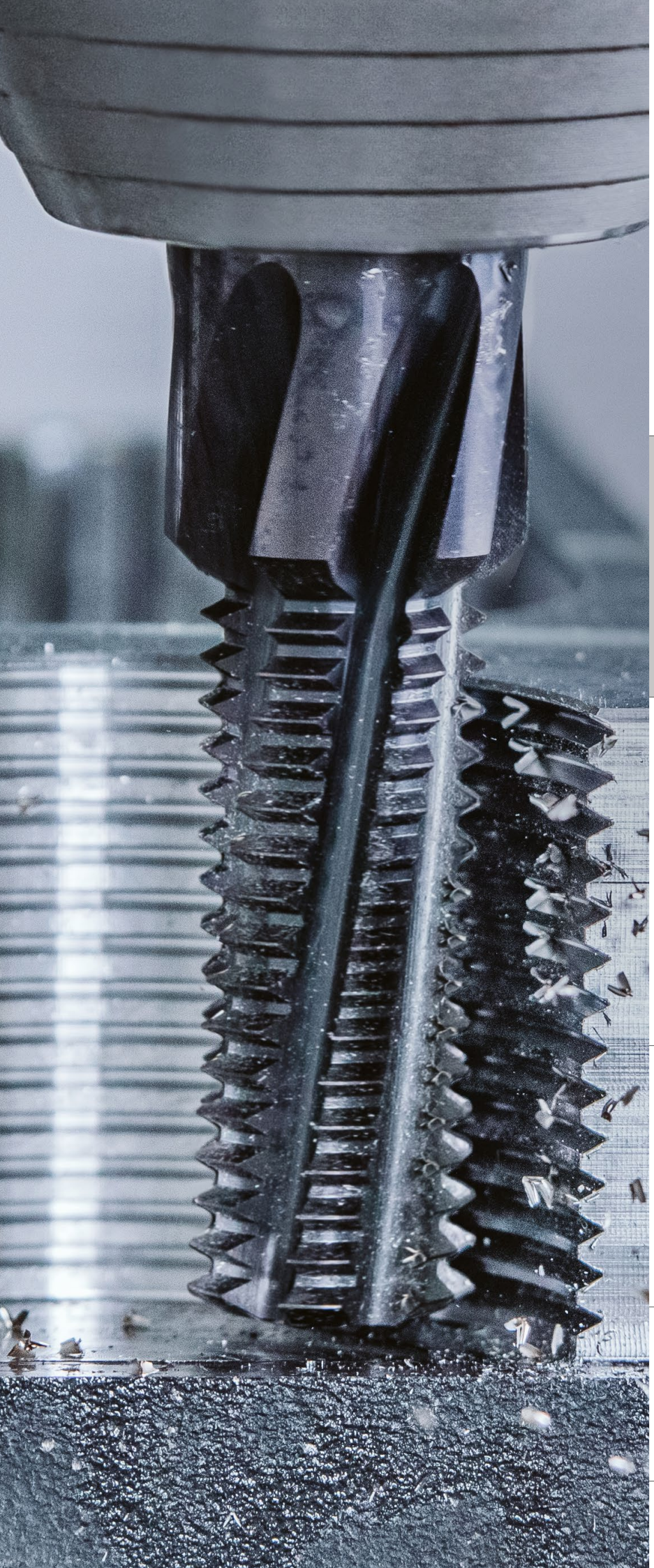
- ▲ Multi-row shank thread milling cutter
- ▲ Universal application in almost all materials
- ▲ Maximum reliability and process security
- ▲ Unsurpassed price-performance ratio

NEW Shank thread milling cutter type HR



→ Page 60

- ▲ Single-row shank thread milling cutter with universal application, but with focus on hard machining
- ▲ Outstanding solution for high lateral forces during machining
  → absolutely cylindrical, true-to-gauge and dimensionally accurate threads of the highest quality



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling 7

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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WNT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

WNT \ Standard

Quality tools for standard applications.

The quality tools of the **WNT Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Symbol explanation

Version


no drilling required


central internal coolant


Radial thro' coolant


Coolant supply either via the flange or centrally


left-hand cutting

Shank


Plain cylindrical shank


Cylindrical shank with lateral driving face „Weldon“

● = **Main Application**

○ = Extended application



Thread / Flank angle



Explanation of the types of thread can be found on → **Page 6.**



Flank angle 60°

Applications


Circlip Grooves


Full radius slot milling


Slot milling


Multipurpose milling


Chamfering and Deburring



Internal R/L



External R/L



Internal/External R/L

Tool types

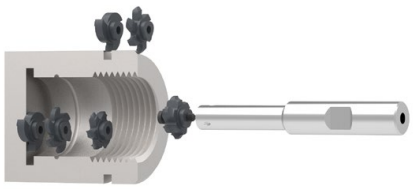
System 300	Circular milling cutter with solid carbide insert
Polygon	Circular shank milling cutter with carbide indexable insert (polygon insert seat)
Mini Mill	Circular milling cutter with solid carbide milling insert (with three-rib insert connection)
MWN	Multi-tooth thread milling cutter with carbide indexable inserts (straight insert seat) and Weldon flat
GZD	Multi-tooth thread milling cutter with carbide indexable inserts (angled insert seat) and Weldon flat
GZG	Multi-tooth thread milling cutter with carbide indexable inserts (straight insert seat) and Weldon flat
EAW	Single-row thread milling cutter with carbide indexable inserts and Weldon flat
EWM	Single-row thread milling cutter with carbide indexable insert and SK adapter
BGF	Solid carbide drill thread milling cutter
Micro Mill	Solid Carbide Circular End Milling Cutter
ZBGF	Solid carbide circular drill thread milling cutter
SGF	Thread milling cutter
SFSE	Thread milling cutter with chamfer facet
SFSE Micro	Thread milling cutter for smallest threads
HR	Single-row shank thread milling cutter

7

Overview Circular and Thread Milling Cutters

Modular Circular Milling Cutters with Carbide Indexable Inserts (ModuSet)

- the perfect tool for every application
- various holders, depending on overhang
- the same threading insert for different pitches and diameters
- highest flexibility and stability
- in addition to circular thread milling, circular and linear milling operations can also be carried out



1st choice for small batch sizes and large threads

Thread Milling Cutters with Indexable Carbide Inserts (ModuThread)

- exchange of the insert for different threads
- same threading insert for different diameters



Solid Carbide Thread Milling Cutters (MonoThread)

- short machining times, ideal for volume production
- one tool for all thread types
- one thread milling cutter for different diameters with the same pitch



MicroMill



SGF



ZBGF



BGF

Thread types

M	Metric ISO standard thread
MF	Metric ISO fine thread
G	Whitworth pipe thread
UN	Unified thread
UNC	Unified Standard Thread
UNF	Unified fine thread
BSW	Whitworth thread
BSF	Whitworth fine thread
NPT	American taper pipe thread
Pg	Steel conduit thread
Tr	Trapezoidal thread

Thread milling process description

Thread milling

- Cutting
- Thread production by circular milling in the pitch (helical interpolation)
- Can be used for a wide range of materials up to 60 HRC
- Lower torque than taps and thread formers (no reversing of the spindle necessary)
- Thread machining to the bottom of the hole possible
- High-speed cutting (HSC) can be performed

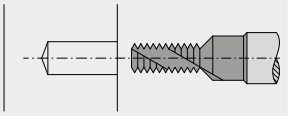
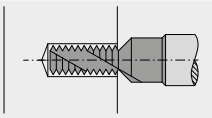
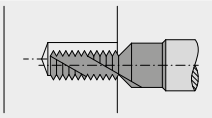
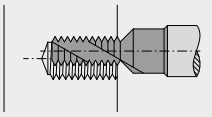
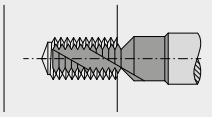
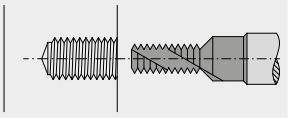
Advantages of thread milling

- Different tolerances can be produced with one tool
- One tool for blind hole and through hole machining
- Outstanding workpiece surfaces and dimensional accuracy guaranteed
- One tool for right and left-hand threads
- Low cutting pressure when machining thin-walled parts
- Precisely repeatable thread depth
- No chip issues and no chip root residues in the finished thread

Added advantages of thread milling cutters with chamfer facet

- Savings in tool change and setup times, resulting in significantly shorter machining times
- Optimisation of magazine assignment in the machine

Process

Positioning above the workpiece	
Entry to start position for thread milling	
Circular approach (milling) in inward circular grinding (90°/180°) at 1/4 pitch	
1x pitch in "Z+" direction	
Outward circular grinding in the centre of the hole (90°/180°)	
Exit to start position	

Climb milling is shown here.
Further information on the milling processes (climb and conventional milling) can be found on → **page 84.**

Description of procedure, thread milling cutters

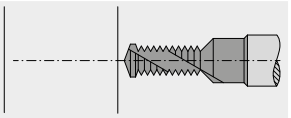
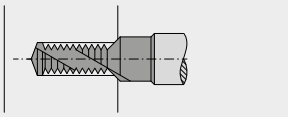
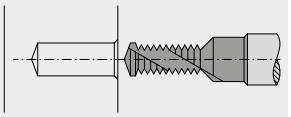
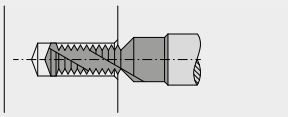
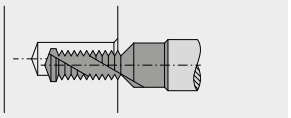
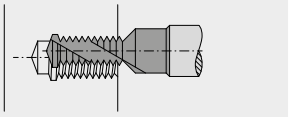
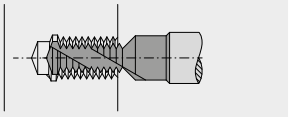
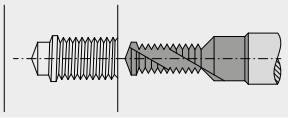
Thread milling

- Cutting
- Production of a complete thread – drilling, countersinking and thread milling with just one tool
- Can be used in different materials (K/N)
- Prerequisite: CNC-controlled milling machine or machining centre with the helical interpolation function

Advantages

- Shortest machining times thanks to high cutting speeds and feeds
- Savings in tool change and setup times, resulting in significantly shorter machining times
- Optimisation of magazine assignment in the machine
- Different tolerances can be produced with one tool
- Outstanding workpiece surfaces and dimensional accuracy guaranteed
- One tool for blind hole and through hole machining
- Precisely repeatable thread depth
- No chip issues and no chip root residues in the finished thread
- High-speed cutting (HSC) can be performed

Process

Positioning above the workpiece	
Tapping, drilling, countersinking	
Chip removal	
Entry to start position for thread milling	
Circular approach (milling) in inward circular grinding (90°/180°) at 1/4 pitch	
1x pitch in "Z+" direction	
Outward circular grinding in the centre of the hole (90°/180°)	
Exit to start position	

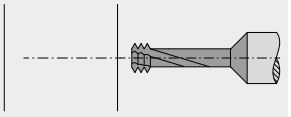
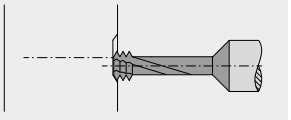
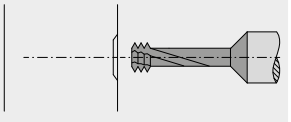
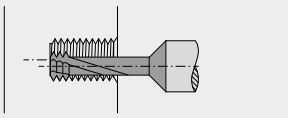
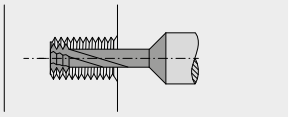
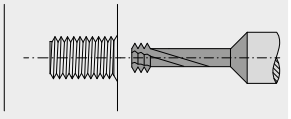
Circular drill thread milling

- Cutting
- Production of a complete thread – drilling, countersinking and thread milling with just one tool
- Can be used in different materials (H/S/O)
- Prerequisite: CNC-controlled milling machine or machining centre with the helical interpolation function

Advantages

- Shortest machining times due to simultaneous creation of the tap hole and thread
- Savings in tool change and setup times, resulting in significantly shorter machining times
- Optimisation of magazine assignment in the machine
- Different tolerances can be produced with one tool
- Outstanding workpiece surfaces and dimensional accuracy guaranteed
- One tool for blind hole and through hole machining
- Precisely repeatable thread depth
- Optimum chip removal and no chip root residues in the finished thread

Process

Positioning above the workpiece	
Chamfering (until countersinking depth is reached)	
Return to the start position above the component	
Circular drill thread milling in helical motion to the required thread depth	
Outward circular grinding in the centre of the hole (90°/180°)	
Exit to start position	

7

Toolfinder

Tool types			Tool properties	from bore diameter in mm
ModuSet – Modular Circular Milling Cutters with Carbide Indexable Inserts	Polygon		▲ high power transmission through polygon connection ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6
	Mini Mill		▲ three interlocking rib location ▲ compatible with popular manufacturer systems ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6
	System 300		▲ proven circular milling tool ▲ 3 edged inserts	7,9
ModuThread – Thread Milling Cutters with Indexable Carbide Inserts	MWN		▲ multi tooth thread milling cutter ▲ double sided inserts ▲ exclusively for thread production ▲ holder for tapered threads	9,0
	GZD		▲ multi tooth drilling and thread milling cutter ▲ for thread milling in solid material ▲ core hole and thread with one tool	14,0
	GZG		▲ multi tooth thread milling cutter ▲ exclusively for thread production	18,5
	EAW		▲ single-row thread milling cutter ▲ inserts with 2 or 4 cutting edges ▲ exclusively for production of the thread ▲ insert holder with cylindrical shank DIN 1835	17,5
	EWM		▲ single-row thread milling cutter ▲ inserts with 4 cutting edges ▲ exclusively for production of the thread ▲ monoblock insert holder with steep taper DIN 69871	43,0
MonoThread – Solid Carbide Thread Milling Cutters	Micro Mill		▲ solid carbide circular milling cutter for small diameters	1,25
	BGF		▲ drill thread milling cutter ▲ core hole, countersink, thread and thread undercut with one tool	2,45
	ZBGF		▲ circular drill thread milling cutter ▲ core hole, countersink and thread with one tool	2,3
	SFSE Micro		▲ solid carbide shank thread milling cutter with chamfer facet ▲ just one tool for countersink and thread ▲ specially developed for the smallest threads in hard materials	0,75
	SFSE		▲ solid carbide thread milling cutter with chamfering facet ▲ only one tool for threading and chamfering	2,4
	SGF		▲ solid carbide thread milling cutter without chamfering facet ▲ exclusively for thread production	2,4
	HR		▲ single-row shank thread milling cutter ▲ exclusively for production of the thread ▲ up to 3xD in materials up to 60 HRC	3,14

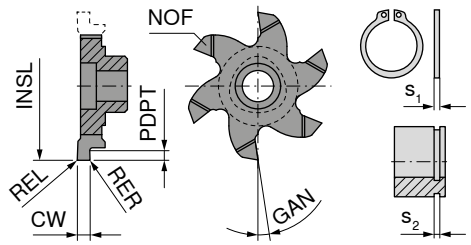
Thread / Flank angle								Applications					Tool holder
60° M MF	55° G	55° BSW BSF	60° UN	60° UNC UNF	80° Pg	60° NPT	30° Tr						
16+17	18	18		20			19	10+11	12+13	14	14	15	21
29+30	30							22	23+24 25	24	26	27+28	31–33
37	38	38						34+35	36		36		39
40	41		41		42	42							43+44
45	45												46
47	48		49		48								50
51	51		51										52
53			53										54
56									55		55		
57+58													
59													
61													
62+63 67	64 68			66 69		65 68							
70+71 73 76	72 74	74		75									
60													

7

ModuSet – Milling inserts for circlip grooves without chamfer

Polygon





Ti500



Solid carbide

50 880 ...

Size	$s_{2\ H13}$ mm	INSL mm	CW $_{-0,03}$ mm	PDPT mm	REL mm	RER mm	GAN °	s_1 mm	NOF	£ W2	
6	0.90	9.6	0.98	1.20	0.05	0.05	6	0.80	3	102.29	292
	1.10	11.7	1.18	1.00	0.05	0.05	6	1.00	3	98.05	294
	1.30	11.7	1.38	1.00	0.05	0.05	6	1.20	3	98.05	296
	1.60	11.7	1.68	1.00	0.10	0.10	6	1.50	3	98.05	298
7	1.10	16.0	1.18	0.90	0.05	0.05	6	1.00	6	136.20	301
	1.30	16.0	1.38	1.10	0.05	0.05	6	1.20	6	109.69	302
	1.60	16.0	1.68	1.25	0.10	0.10	6	1.50	6	109.69	304
	1.85	16.0	1.93	1.25	0.10	0.10	6	1.75	6	109.69	306
	1.10	17.7	1.18	0.90	0.05	0.05	6	1.00	6	138.24	308
	1.30	17.7	1.38	1.10	0.05	0.05	6	1.20	6	138.24	309
	1.60	17.7	1.68	1.25	0.10	0.10	6	1.50	6	138.24	310
	1.85	17.7	1.93	1.25	0.10	0.10	6	1.75	6	138.24	311
9	1.10	20.0	1.18	0.90	0.05	0.05	6	1.00	6	142.10	313
	1.30	20.0	1.38	1.10	0.05	0.05	6	1.20	6	142.10	314
	1.60	20.0	1.68	1.25	0.10	0.10	6	1.50	6	142.10	315
	1.85	20.0	1.93	1.25	0.10	0.10	6	1.75	6	142.10	316
	1.60	21.7	1.68	1.25	0.10	0.10	6	1.50	6	143.78	318
	1.85	21.7	1.93	1.25	0.10	0.10	6	1.75	6	143.78	319
	2.15	21.7	2.23	1.75	0.10	0.10	6	2.00	6	143.78	320
	2.65	21.7	2.73	1.75	0.20	0.20	6	2.50	6	143.78	321
10	1.30	26.0	1.38	1.10	0.05	0.05	6	1.20	6	119.61	322
	1.60	26.0	1.68	1.25	0.10	0.10	6	1.50	6	119.61	324
	1.85	26.0	1.93	1.25	0.10	0.10	6	1.75	6	119.61	326
	2.15	26.0	2.23	1.75	0.10	0.10	6	2.00	6	119.61	328
	2.65	26.0	2.73	1.75	0.20	0.20	6	2.20	6	119.61	330
	3.15	26.0	3.23	2.20	0.20	0.20	6	3.00	6	119.61	332

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

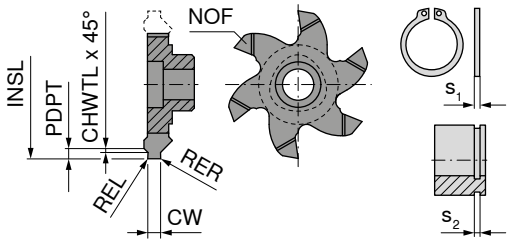
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Milling inserts for circlip grooves with chamfer

▲ Both edges chamfered CHWTL x 45°

Polygon





Ti500



Solid carbide

50 879 ...

Size	$s_{2\ H13}$ mm	INSL mm	CW $_{-0,03}$ mm	PDPT mm	REL mm	RER mm	CHWTL mm	s_1 mm	NOF	£ W2	
7	1.10	16.0	1.18	0.50	0.05	0.05	0.10	1.00	6	145.98	292
	1.30	16.0	1.38	0.85	0.05	0.05	0.15	1.20	6	120.72	302
	1.60	16.0	1.68	1.00	0.10	0.10	0.15	1.50	6	120.72	304
	1.85	16.0	1.93	1.25	0.10	0.10	0.20	1.75	6	120.72	306
9	1.10	20.0	1.18	0.50	0.05	0.05	0.10	1.00	6	155.37	307
	1.30	20.0	1.38	0.85	0.05	0.05	0.15	1.20	6	155.37	308
	1.60	20.0	1.68	1.00	0.10	0.10	0.15	1.50	6	155.37	309
	1.60	21.7	1.68	1.00	0.10	0.10	0.15	1.50	6	155.37	312
	1.85	20.0	1.93	1.25	0.10	0.10	0.20	1.75	6	155.37	310
	1.85	21.7	1.93	1.25	0.10	0.10	0.20	1.75	6	155.37	314
	2.15	21.7	2.23	1.50	0.10	0.10	0.20	2.00	6	155.37	316
	2.65	21.7	2.73	1.75	0.20	0.20	0.20	2.50	6	155.37	318
10	1.30	26.0	1.38	0.85	0.05	0.05	0.15	1.20	6	129.96	322
	1.60	26.0	1.68	1.00	0.10	0.10	0.15	1.50	6	129.96	324
	1.85	26.0	1.93	1.25	0.10	0.10	0.20	1.75	6	129.96	326
	2.15	26.0	2.23	1.50	0.10	0.10	0.20	2.00	6	129.96	328
	2.65	26.0	2.73	1.75	0.20	0.20	0.20	2.50	6	129.96	330
	3.15	26.0	3.23	1.75	0.20	0.20	0.20	3.00	6	129.96	332

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

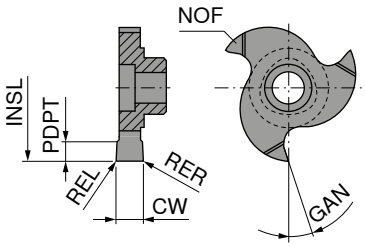
7

ModuSet – Milling insert without profile

▲ Size 7: from 5.0 mm groove width with ground chip breaker
▲ Size 10: from 6.5 mm groove width with ground chip breaker

Polygon





Ti500



Solid carbide

Size	CW +/-0,02 mm	INSL mm	PDPT mm	REL mm	RER mm	GAN °	NOF	50 875 ... £ W2	
6	1.5	11.7	2.25	0.10	0.10	6	3	102.29	302
	2.0	11.7	2.25	0.15	0.15	6	3	102.29	304
	2.5	11.7	2.25	0.15	0.15	6	3	105.45	306
	3.0	11.7	2.25	0.15	0.15	6	3	105.45	308
7	3.5	16.0	3.50	0.15	0.15	0	3	66.28	310
	3.5	16.0	3.50	0.15	0.15	8	3	66.28	312
	3.5	16.0	3.50	0.15	0.15	12	3	66.28	314
	5.0	16.0	3.50	0.15	0.15	0	3	75.19	316
	5.0	16.0	3.50	0.15	0.15	8	3	75.19	318
	5.0	16.0	3.50	0.15	0.15	12	3	75.19	320
10	4.0	25.0	5.70	0.15	0.15	0	3	69.30	330
	4.0	25.0	5.70	0.15	0.15	8	3	69.30	332
	4.0	25.0	5.70	0.15	0.15	12	3	69.30	334
	5.0	25.0	5.70	0.15	0.15	8	3	138.59	337
	6.5	25.0	5.70	0.15	0.15	0	3	84.48	340
	6.5	25.0	5.70	0.15	0.15	8	3	84.48	342
	6.5	25.0	5.70	0.15	0.15	12	3	84.48	344
	8.0	25.0	5.70	0.15	0.15	0	3	93.41	350
	8.0	25.0	5.70	0.15	0.15	8	3	93.41	352
	8.0	25.0	5.70	0.15	0.15	12	3	93.41	354

P	●
M	●
K	●
N	●
S	●
H	●
O	●

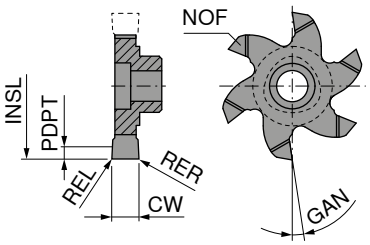
→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Milling insert without profile

Polygon





Ti500



Solid carbide

50 876 ...

Size	CW +/-0,02 mm	INSL mm	PDPT mm	REL mm	RER mm	GAN °	NOF	£ W2	
7	1.5	17.7	4.0	0.10	0.10	6	6	124.78	**307**
	2.0	17.7	4.0	0.10	0.10	6	6	125.50	**308**
	2.5	17.7	4.0	0.15	0.15	6	6	126.81	**309**
	3.0	16.0	3.5	0.15	0.15	6	6	114.63	**302**
	4.0	16.0	3.5	0.15	0.15	6	6	121.63	**304**
	5.0	16.0	3.5	0.15	0.15	6	6	124.78	**306**
9	1.5	21.7	5.0	0.10	0.10	6	6	143.78	**314**
	2.0	21.7	5.0	0.10	0.10	6	6	144.89	**315**
	2.5	21.7	5.0	0.15	0.15	6	6	144.89	**316**
	3.0	21.7	5.0	0.15	0.15	6	6	146.33	**317**
	3.0	20.0	4.2	0.15	0.15	6	6	146.33	**311**
	4.0	20.0	4.2	0.15	0.15	6	6	150.76	**312**
	5.0	20.0	4.2	0.15	0.15	6	6	158.50	**313**
10	1.5	27.7	6.8	0.10	0.10	6	6	177.85	**330**
	2.0	27.7	6.8	0.10	0.10	6	6	180.24	**332**
	2.5	27.7	6.8	0.15	0.15	6	6	180.24	**334**
	3.0	26.0	6.2	0.15	0.15	6	6	121.63	**322**
	3.0	27.7	6.8	0.15	0.15	6	6	182.28	**336**
	4.0	26.0	6.2	0.15	0.15	6	6	128.30	**324**
	5.0	26.0	6.2	0.15	0.15	6	6	160.54	**326**
	6.5	26.0	6.2	0.15	0.15	6	6	131.62	**328**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

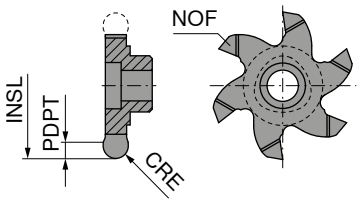
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuSet – Milling inserts for radius milling

Polygon





Ti500



Solid carbide

Size	CRE mm	INSL mm	PDPT mm	NOF	50 886 ... £ W2	
6	1.100	9.6	1.20	3	98.05	702
	0.788	11.7	2.25	3	98.05	704
	1.100	11.7	2.25	3	98.05	708
	1.190	11.7	2.25	3	98.05	706
7	0.788	17.7	4.20	6	124.04	712
	1.100	17.7	4.20	6	124.04	714
9	0.785	21.7	5.00	6	149.46	720
	1.000	21.7	5.00	6	149.46	722
	1.200	21.7	5.00	6	149.46	724
	1.400	21.7	5.00	6	149.46	726
	1.500	21.7	5.00	6	149.46	728

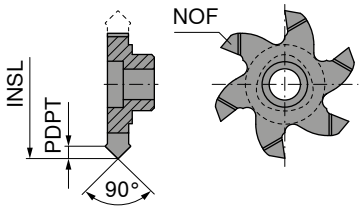
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

ModuSet – Milling inserts for chamfering and deburring

Polygon





Ti500



Solid carbide

Size	PDPT mm	INSL mm	NOF	50 884 ... £ W2	
6	1.20	9.6	3	98.05	292
	1.50	11.7	3	98.05	294
7	1.90	16.0	6	118.51	302
	1.30	17.7	6	148.36	304
9	1.90	20.0	6	153.16	312
	1.95	21.7	6	149.46	314
10	2.10	26.0	6	129.96	322

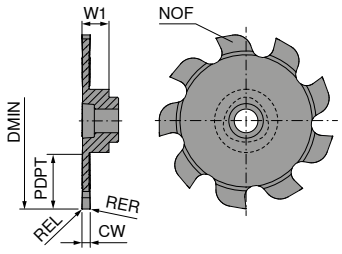
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

ModuSet – Milling insert for part-off

Polygon





NEW

Ti500



Solid carbide

51 800 ...

Size	DMIN mm	PDPT mm	CW +0,02 mm	REL mm	RER mm	W1 mm	NOF	£ W2	
6	14	3.40	1.5	0.1	0.1	3.50	6	117.44	14000
7	22	6.40	1.5	0.1	0.1	3.86	9	131.83	22000
9	32	10.25	1.5	0.1	0.1	4.91	9	150.43	32000
10	37	11.50	1.5	0.1	0.1	4.86	9	169.75	37000

P	●
M	●
K	●
N	●
S	●
H	●
O	●

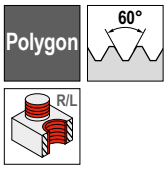
→ v_c/f_z Page 82

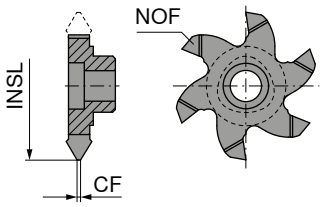
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

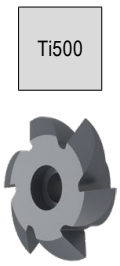
7

ModuSet – Thread milling insert – Partial profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!







Solid carbide

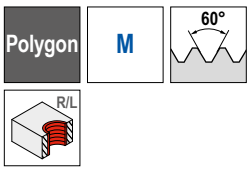
Size	TP mm	INSL mm	CF mm	NOF	TD mm	50 882 ... £ W2	
6	1 - 3	11.7	0.10	3	≥16	141.74	292
7	1 - 3	17.7	0.10	6	≥22	159.05	306
	1 - 4	16.0	0.10	6	≥20	128.30	302
	2,5 - 4	16.0	0.25	6	≥22	159.05	304
9	1 - 2	21.7	0.10	6	≥27	161.27	314
	1 - 3	20.0	0.10	6	≥24	161.27	312
	2 - 4	21.7	0.15	6	≥30	161.27	316
10	1 - 3	26.0	0.10	6	≥32	138.06	322
	2,5 - 5	26.0	0.25	6	≥36	171.24	324
	3,5 - 6	26.0	0.40	6	≥52	112.00	32600

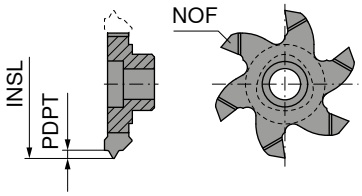
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Thread milling insert – Full profile





Ti500



Solid carbide

Size	TP mm	INSL mm	PDPT mm	NOF	Thread	50 881 ... £ W2	
6	1	9.6	0.572	3	≥ M12x1	173.04	292
	1,5	9.6	0.875	3	≥ M14x1,5	173.04	293
	2	10.5	1.157	3	≥ M18x2	173.04	296
7	1,5	16.0	0.875	6	≥ M20x1,5	158.50	302
	2	16.0	1.157	6	≥ M22x2	158.50	304
	2,5	16.0	1.430	6	≥ M24x2,5	158.50	306
	2,5	16.0	1.430	6	M20, M22	166.44	308 1)
	3	16.0	1.702	6	≥ M24	158.50	310
9	1,5	20.0	0.875	6	≥ M24x1,5	202.55	312
	2	20.0	1.157	6	≥ M27x2	202.55	314
	3	20.0	1.702	6	M24, M27	202.55	316 1)
10	1,5	26.0	0.875	6	≥ M30x1,5	168.27	322
	2	26.0	1.157	6	≥ M33x2	168.27	324
	3	26.0	1.702	6	≥M39x3	168.27	330
	3,5	26.0	1.982	6	≥ M42x3,5	168.27	332
	3,5	24.0	1.982	6	M30, M33	208.63	331 1)
	4	26.0	2.263	6	M36-M54x4	208.63	335 1)
	4	26.0	2.263	6	≥ M48x4	168.27	334
	4,5	26.0	2.553	6	≥ M42	168.27	336
	5	26.0	2.836	6	≥ M48	208.63	337

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) profile corrected

→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

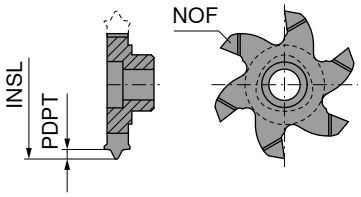
7

ModuSet – Thread milling insert – Full profile

▲ 50 883 322 for threads > 1"

Polygon | G | BSW | BSF | 55°

R/L



Ti500



Solid carbide

Size	TPI 1/"	TP mm	INSL mm	PDPT mm	NOF	50 883 ... £ W2	
6	19	1.337	9.6	0.871	3	173.04	292
7	14	1.814	17.7	1.177	6	192.76	308
	14	1.814	16.0	1.177	6	196.67	304
	11	2.309	16.0	1.494	6	158.50	302
	10	2.540	16.0	1.646	6	196.67	306
9	14	1.814	20.0	1.177	6	202.55	316
	11	2.309	20.0	1.494	6	202.55	314
10	11	2.309	26.0	1.494	6	168.27	322

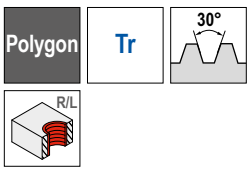
P	●
M	●
K	●
N	●
S	●
H	●
O	●

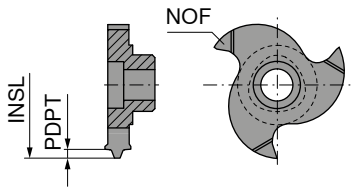
→ v_c/f_z Page 82

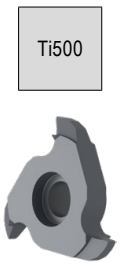
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Thread milling insert – Full profile

▲ DIN 103







Solid carbide

Size	TP mm	INSL mm	PDPT mm	NOF	Thread	50 872 ... £ W2	
6	2	11.7	1.25	3	Tr 16x2 - Tr 20x2	100.58	292
	3	11.0	1.75	3	Tr 18x3 - Tr 20x3	100.58	294
	4	12.0	2.25	3	Tr 20x4	100.58	296 1)
7	3	14.0	1.75	3	Tr 24x3 - Tr 32x3	137.19	302 2)
	5	15.3	2.75	3	Tr 28x5 - Tr 36x5	137.19	306 3)
	5	15.3	2.75	3	Tr 26x5	137.19	304 3)
	6	16.2	3.50	3	Tr 34x6 - Tr 42x6	137.19	310 2)
	6	16.2	3.50	3	Tr 30x6 - Tr 32x6	137.19	308 2)
10	5	25.0	2.75	3	Tr 44x5 - Tr 48x5	173.72	322 4)
	7	22.0	3.75	3	Tr 38x7 - Tr 42x7	173.72	324 4)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) profile corrected
2) Not suitable for the 50 805 011 and 50 805 010 holders
3) Not suitable for the 50 805 011 and 50 805 010 holders / profile corrected
4) Not suitable for the 50 805 026, 50 805 025 and 50 805 024 holders

→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

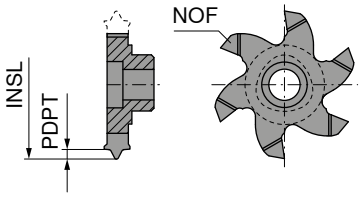
7

ModuSet – Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!

Polygon | UNC | 60°

R/L



Ti500



Solid carbide

Size	TPI 1/"	INSL mm	PDPT mm	NOF	50 886 ... £ W2	
6	12	9.6	1.228	3	173.04	202
	11	10.5	1.355	3	173.04	204
	10	11.7	1.485	3	173.04	206
7	9	16.0	1.577	6	196.67	212
9	8	18.0	1.809	6	202.55	222
	7	20.0	2.043	6	202.55	224

P	●
M	●
K	●
N	●
S	●
H	●
O	●

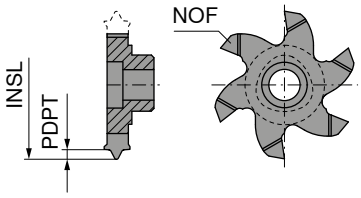
→ v_c/f_z Page 82

ModuSet – Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!

Polygon | UNF | 60°

R/L



Ti500



Solid carbide

Size	Thread	INSL mm	PDPT mm	NOF	50 886 ... £ W2	
6	1/2 - 20	9.6	0.733	3	173.04	302
	9/16 - 18	10.5	0.827	3	173.04	304
	3/4 - 16	11.7	0.945	3	173.04	306
7	7/8 - 14	17.7	1.071	6	192.76	312
9	1 - 12	20.0	1.228	6	192.76	322

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 82

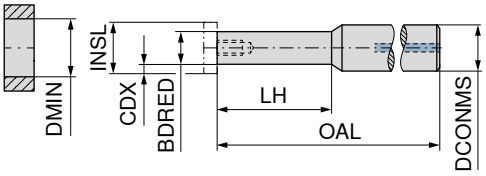
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Circular milling cutter

▲ For maximum machining depth, note insert width (CW)
▲ Size 6 = for INSL 9.6; 10.5; 11.7; 12
▲ Size 7 = for INSL 16; 17.7
▲ Size 9 = for INSL 18; 20; 21.7
▲ Size 10 = for INSL 24; 25; 26; 27.7
▲ Holder available as screw-in variant in the online shop

Scope of supply:
including key

Polygon





7

Size	LH mm	CDX mm	DCONMS $_{h6}$ mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm	50 805 ... £ W1		50 805 ... £ W1	
6	20.00	2.25	12	67.5	7.0	12	1,0			162.18	050 [1]
	20.00	2.25	12	67.5	7.0	12	1,0			260.54	051
	20.00	2.25	12	67.5	7.0	12	1,0	260.54	052		
	30.00	2.25	12	80.0	7.0	12	1,0			273.03	053
	30.00	2.25	12	80.0	7.0	12	1,0	273.03	054		
	40.00	2.25	12	100.0	7.0	12	1,0			295.56	055
	40.00	2.25	12	100.0	7.0	12	1,0	295.56	056		
7	20.90	4.00	12	67.4	9.0	18	1,1			162.18	002 [1]
	21.00	4.00	12	67.4	9.0	18	1,1			260.54	004
	21.00	4.00	12	67.4	9.0	18	1,1	260.54	005		
	36.00	4.00	12	82.4	9.0	18	1,1			266.86	008
	36.00	4.00	12	82.4	9.0	18	1,1	276.76	085		
		4.00	12	122.5	12.0	18	1,1	325.60	010		
		4.00	12	82.4	12.0	18	1,1	255.48	011		
9	29.75	5.00	16	80.0	11.5	22	3,8			162.18	070 [1]
	30.00	5.00	16	80.0	11.5	22	3,8			305.46	071
	30.00	5.00	16	80.0	11.5	22	3,8	305.46	072		
	50.00	5.00	16	100.0	11.5	22	3,8			315.71	073
	50.00	5.00	16	100.0	11.5	22	3,8	315.71	074		
10	20.50	5.70	16	105.0	15.5	28	5,5	308.04	025		
	20.50	6.80	16	149.7	15.5	28	5,5	439.61	024		
	20.50	6.80	20	175.4	15.5	28	5,5	509.73	026		
	30.40	6.80	16	79.6	13.6	28	5,5			168.39	012 [1]
	30.50	6.80	16	79.6	13.6	28	5,5	305.46	015		
	30.50	6.80	16	79.6	13.6	28	5,5			305.46	014
	45.50	6.80	16	94.6	13.6	28	5,5	315.71	021		
	45.50	6.80	16	94.6	13.6	28	5,5			315.71	020
	60.50	6.80	16	109.6	13.6	28	5,5			334.48	022
	60.50	6.80	16	109.6	13.6	28	5,5	334.48	023		

1) Steel version


Key D


Clamping screw

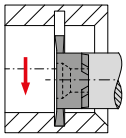
Spare parts Size	80 950 ... £ Y7		70 960 ... £ 2A	
6	T08 - IP	17.97 125	M2,5x7	7.61 246
7	T08 - IP	17.97 125	M3x13	7.61 231
9	T15 - IP	21.01 128	M4x13	7.61 236
10	T20 - IP	22.06 129	M5x13,5	7.61 243

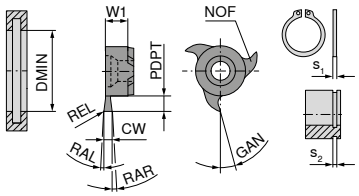
ModuSet – Milling insert for circlip grooves

Mini Mill

≥ Ø 10 mm







CWX500



Solid carbide

53 006 ...

Size	DMIN mm	$s_{2\ H13}$ mm	CW $_{-0.02}$ mm	PDPT mm	W1 mm	REL mm	RAL °	RAR °	GAN °	s_1 mm	NOF	£ W2	
10	10	0.70	0.74	1.5	3.50		1	1	15	0.60	3	89.95	070
	10	0.80	0.84	1.5	3.50		1	1	15	0.70	3	89.95	080
	10	0.90	0.94	1.5	3.50		1	1	15	0.80	3	89.95	090
	10	1.10	1.21	1.5	3.50		3	3	15	1.00	3	80.57	110
	10	1.30	1.41	1.5	3.50	0.10	3	3	15	1.20	3	80.57	130
	10	1.60	1.71	1.5	3.50	0.10	3	3	15	1.50	3	80.57	160
	12	1.10	1.21	2.5	3.50		3	3	15	1.00	3	80.57	112
	12	1.30	1.41	2.5	3.50	0.10	3	3	15	1.20	3	80.57	132
	12	1.60	1.71	2.5	3.50	0.10	3	3	15	1.50	3	80.57	162
18	18	0.70	0.74	1.5	5.75		1	1	15	0.60	3	91.99	270
	18	0.80	0.84	1.7	5.75		1	1	15	0.70	3	91.99	280
	18	0.90	0.94	1.9	5.75		1	1	15	0.80	3	91.99	290
	18	1.10	1.21	3.5	5.75		3	3	15	1.00	3	86.47	310
	18	1.30	1.41	3.5	5.75	0.10	3	3	15	1.20	3	86.47	330
	18	1.60	1.71	3.5	5.75	0.10	3	3	15	1.50	3	86.47	360
22	22	0.70	0.74	1.5	5.70		1	1	15	0.60	3	97.67	470
	22	0.80	0.84	1.7	5.70		1	1	15	0.70	3	97.67	480
	22	0.90	0.94	1.9	5.70		1	1	15	0.80	3	87.35	490
	22	1.00	1.04	2.1	5.70		1	1	15	0.90	3	92.50	500
	22	1.10	1.21	2.5	5.70		1	1	15	1.00	3	92.50	510
	22	1.30	1.41	4.5	5.70	0.10	3	3	15	1.20	3	88.10	530
	22	1.60	1.71	4.5	5.70	0.10	3	3	15	1.50	3	88.10	560
	22	1.85	1.96	4.5	5.70	0.15	3	3	15	1.75	3	88.10	585
	22	2.15	2.26	4.5	5.70	0.15	3	3	15	2.00	3	88.10	615
	22	2.65	2.76	4.5	5.70	0.15	3	3	15	2.50	3	88.10	665
	22	3.15	3.26	4.5	5.70	0.20	3	3	15	3.00	3	88.10	415
	22	4.15	4.26	4.5	5.70	0.20	3	3	15	4.00	3	88.10	515
	22	5.15	5.26	4.5	5.70	0.20	3	3	15	5.00	3	88.10	605

P	●
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K	●
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H	
O	●

→ v_c/f_z Page 83

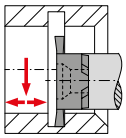
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

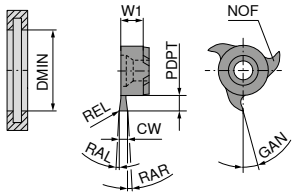
ModuSet – Milling insert for groove milling

Mini Mill

≥ Ø 10 mm







CWX500



Solid carbide

53 007 ...

Size	DMIN mm	CW 0.02 mm	PDPT mm	W1 mm	REL mm	RAL °	RAR °	GAN °	NOF	£ W2	
10	10	1.0	1.5	3.50	0.1	3	3	15	3	89.95	010
	10	1.5	1.5	3.50	0.2	3	3	15	3	80.57	015
	10	2.0	1.5	3.50	0.2	3	3	15	3	80.57	020
	10	2.5	1.5	3.50	0.2	3	3	15	3	80.57	025
	12	1.5	2.0	3.50	0.2	3	3	15	6	81.17	114
	12	1.5	2.5	3.50	0.2	3	3	15	3	80.57	115
	12	2.0	2.0	3.50	0.2	3	3	15	6	81.17	119
	12	2.0	2.5	3.50	0.2	3	3	15	3	80.57	120
	12	2.5	2.5	3.50	0.2	3	3	15	3	80.57	125
14	14	1.0	2.5	4.50		3	3	15	3	91.99	210
	14	1.5	2.5	4.50	0.2	3	3	15	3	84.41	215
	14	2.0	2.5	4.50	0.2	3	3	15	3	84.41	220
	14	2.5	2.5	4.50	0.2	3	3	15	3	84.41	225
	16	1.5	3.5	4.50	0.2	3	3	15	3	84.41	315
	16	2.0	3.5	4.50	0.2	3	3	15	3	84.41	320
	16	2.5	3.5	4.50	0.2	3	3	15	3	84.41	325
18	18	1.5	3.5	5.75	0.1	3	3	15	6	91.88	414
	18	1.5	3.5	5.75	0.2	3	3	15	3	86.47	415
	18	2.0	3.5	5.75	0.2	3	3	15	3	86.47	420
	18	2.0	3.5	5.75	0.2	3	3	15	6	91.88	419
	18	2.5	3.5	5.75	0.2	3	3	15	6	91.88	424
	18	2.5	3.5	5.75	0.2	3	3	15	3	86.47	425
	18	3.0	3.5	5.75	0.2	3	3	15	6	91.88	429
	18	3.0	3.5	5.75	0.2	3	3	15	3	86.47	430
	18	4.0	3.5	5.75	0.2	3	3	15	3	50.19	440
22	22	1.0	4.5	6.20	0.1	3	3	15	6	89.98	810
	22	1.5	4.5	5.70	0.2	3	3	15	3	103.05	515
	22	1.5	4.5	6.20	0.1	3	3	15	6	195.36	815
	22	2.0	4.5	6.20	0.2	3	3	15	6	195.36	820
	22	2.0	4.5	5.70	0.2	3	3	15	3	103.05	520
	22	2.5	4.5	6.20	0.2	3	3	15	6	195.36	825
	22	2.5	4.5	5.70	0.2	3	3	15	3	103.05	525
	22	3.0	4.5	5.70	0.2	3	3	15	3	103.05	530
	22	3.0	4.5	6.20	0.2	3	3	15	6	195.36	830
	22	3.5	4.5	5.70	0.2	3	3	15	3	52.44	535
	22	4.0	4.5	5.70	0.2	3	3	15	3	103.05	540
	22	4.0	4.5	6.20	0.2	3	3	15	6	195.36	840
28	25	2.0	5.0	6.50	0.2	3	3	15	3	103.05	620
	25	2.5	5.0	6.50	0.2	3	3	15	3	103.05	625
	25	3.0	5.0	6.50	0.2	3	3	15	3	103.05	630
	25	3.5	5.0	6.50	0.2	3	3	15	3	103.05	635
	25	4.0	5.0	6.50	0.2	3	3	15	3	103.05	640
	28	1.0	6.5	6.25	0.1	3	3	15	6	100.01	610
	28	1.5	6.5	6.25	0.1	3	3	15	6	98.64	615
	28	1.5	6.5	6.50	0.2	3	3	15	3	103.05	715
	28	2.0	6.5	6.25	0.2	3	3	15	6	99.86	721
	28	2.0	6.5	6.50	0.2	3	3	15	3	103.05	720
	28	2.5	6.5	6.25	0.2	3	3	15	6	100.89	726
	28	2.5	6.5	6.50	0.2	3	3	15	3	103.05	725
	28	3.0	6.5	6.50	0.2	3	3	15	3	103.05	730
	28	3.0	6.5	6.25	0.2	3	3	15	6	101.93	731
	28	3.5	6.5	6.50	0.2	3	3	15	3	103.05	735
	28	4.0	6.5	6.25	0.2	3	3	15	6	104.20	741
	28	4.0	6.5	6.50	0.2	3	3	15	3	103.05	740
	28	5.0	6.5	6.50	0.2	3	3	15	3	60.06	750
	28	6.0	6.5	6.50	0.2	3	3	15	3	61.28	760

P	●
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→ v_c/f_z Page 83

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

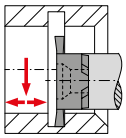
7

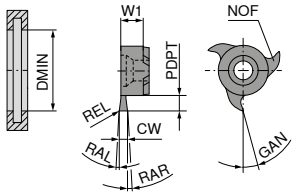
ModuSet – Milling insert for groove milling (Specialist for aluminium)

Mini Mill

≥ Ø 32 mm







CWX500



Solid carbide

53 007 ...

Size	DMIN mm	CW $_{0.02}$ mm	PDPT mm	W1 mm	REL mm	RAL °	RAR °	GAN °	NOF	£ W2	
28	32	2.0	8.5	6.5	0.2	3	3	20	3	115.01	920
	32	2.5	8.5	6.5	0.2	3	3	20	3	115.01	925
	32	3.0	8.5	6.5	0.2	3	3	20	3	115.01	930

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O	

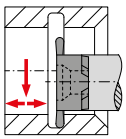
→ v_c/f_z Page 83

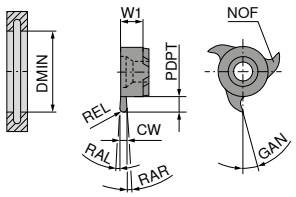
ModuSet – Milling insert for groove milling with full radius

Mini Mill

≥ Ø 12 mm







CWX500



Solid carbide

53 008 ...

Size	DMIN mm	CW $_{+0.03}$ mm	PDPT mm	W1 mm	REL mm	RAL °	RAR °	GAN °	NOF	£ W2	
10	12	2.2	2.5	3.50	1.1	3	3	15	3	103.05	011
14	16	2.2	3.5	4.60	1.1	3	3	15	3	105.06	111
18	18	2.2	3.5	5.75	1.1	3	3	15	3	106.90	211
22	22	1.0	4.5	5.75	0.5	3	3	15	3	62.30	305
	22	1.6	4.5	5.75	0.8	3	3	15	3	63.35	308
	22	2.0	4.5	5.75	1.0	3	3	15	3	62.30	310
	22	2.4	4.5	5.75	1.2	3	3	15	3	64.56	312
	22	2.8	4.5	5.75	1.4	3	3	15	3	106.90	314
	22	3.0	4.5	5.75	1.5	3	3	15	3	62.30	315
	22	4.0	4.5	5.75	2.0	3	3	15	3	62.30	320
	22	4.4	4.5	5.75	2.2	3	3	15	3	64.21	322
	22	5.0	4.5	5.75	2.5	3	3	15	3	66.62	325

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 83

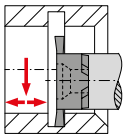
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

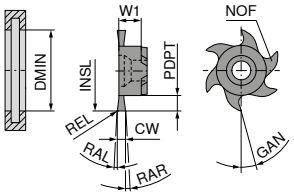
ModuSet – Milling insert for groove milling, cross-pitched

Mini Mill

≥ Ø 12 mm







CWX500



Solid carbide

53 015 ...

Size	DMIN mm	INSL mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	RAL °	RAR °	GAN °	NOF	£ W2	
10	12	11.7	1.5	2.0	3.5	0.2	3	3	15	6	76.03	114
	12	11.7	2.0	2.0	3.5	0.2	3	3	15	6	76.03	119
14	16	15.7	1.5	2.5	4.5	0.2	3	3	15	6	77.52	314
	16	15.7	2.0	2.5	4.5	0.2	3	3	15	6	77.52	319
	16	15.7	2.5	2.5	4.5	0.2	3	3	15	6	77.52	324
18	18	17.7	2.0	4.0	5.8	0.2	3	3	15	6	86.48	419
	18	17.7	2.5	4.0	5.8	0.2	3	3	15	6	86.48	424
	18	17.7	3.0	4.0	5.8	0.2	3	3	15	6	86.48	429
	20	19.7	2.0	5.0	5.8	0.2	3	3	15	6	86.48	469
	20	19.7	2.5	5.0	5.8	0.2	3	3	15	6	86.48	474
	20	19.7	3.0	5.0	5.8	0.2	3	3	15	6	86.48	479
22	22	21.7	2.0	4.5	6.2	0.2	3	3	15	6	83.48	820
	22	21.7	2.5	4.5	6.2	0.2	3	3	15	6	83.48	825
	22	21.7	3.0	4.5	6.2	0.2	3	3	15	6	83.48	830
	22	21.7	4.0	4.5	6.2	0.2	3	3	15	6	83.48	840
	37	36.7	1.5	12.0	6.2	0.1	3	3	15	6	108.84	865
	37	36.7	2.0	12.0	6.2	0.2	3	3	15	6	108.84	870
28	25	24.8	2.5	5.0	6.4	0.2	3	3	15	6	95.42	626
	25	24.8	3.0	5.0	6.4	0.2	3	3	15	6	95.42	631
	25	24.8	4.0	5.0	6.4	0.2	3	3	15	6	99.90	641
	25	24.8	5.0	5.0	6.4	0.2	3	3	15	6	104.35	651
	25	24.8	6.0	5.0	6.4	0.2	3	3	15	6	105.84	661
	28	27.7	2.5	6.5	6.2	0.2	3	3	15	6	95.42	726
	28	27.7	3.0	6.5	6.2	0.2	3	3	15	6	95.42	731
	28	27.7	4.0	6.5	6.2	0.2	3	3	15	6	98.39	741
	28	27.7	5.0	6.5	6.2	0.2	3	3	15	6	99.90	751
	28	27.7	6.0	6.5	6.2	0.2	3	3	15	6	99.90	761
	35	34.7	2.0	10.0	6.2	0.2	3	3	15	6	104.35	770
	35	34.7	2.5	10.0	6.2	0.2	3	3	15	6	105.84	775
	35	34.7	3.0	10.0	6.2	0.2	3	3	15	6	105.84	780

P	●
M	●
K	●
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O	●

→ v_c/f_z Page 83

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

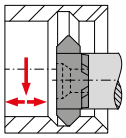
7

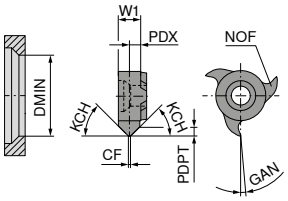
ModuSet – Milling insert for groove milling and chamfering

Mini Mill

≥ Ø 10 mm







CWX500



Solid carbide

53 009 ...

Size	DMIN mm	CF +0,03 mm	PDPT mm	W1 mm	KCH °	PDX mm	GAN °	NOF	£ W2	
10	10	0.2	0.35	3.60	15	1.80	5	6	81.69	015
	10	0.2	0.45	3.60	20	1.80	5	6	81.69	020
	10	0.2	0.70	3.60	30	1.80	5	6	81.69	030
	10	0.2	1.20	3.60	45	1.80	5	6	81.69	045
	12	1.2	0.80	3.50	45	1.20	5	3	69.30	035
14	16	1.4	1.20	4.50	45	1.60	5	3	71.35	145
18	18	2.5	1.40	5.85	45	1.70	5	3	72.46	258
	18	0.2	2.20	5.75	45	3.00	5	6	90.53	259
22	22	2.0	1.70	5.85	45	2.00	5	3	76.87	358
	22	0.2	2.50	6.40	45	3.90	5	6	197.37	463
	22	3.0	3.00	9.40	45	3.25	5	3	80.57	394 1)
28	28	0.2	1.90	6.05	45	3.75	5	6	98.47	560

P	●
M	●
K	●
N	●
S	○
H	
O	●

1) Use clamping screw 73 082 006

→ v_c/f_z Page 83

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

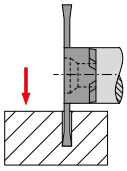
ModuSet – Milling insert for part-off

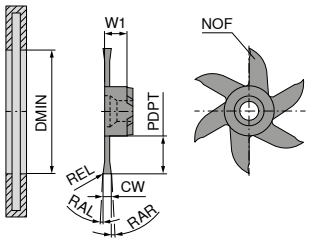
▲ PDPT = 12,0 mm in combination with holder 53 003 624
▲ reduce feed rate by 50 %

Mini Mill

≥ Ø 37 mm







CWX500



Solid carbide

Size	DMIN mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	RAL °	RAR °	NOF	53 013 ... £ W2	
22	37	0.5	12	5.6		3	3	6	150.93	705 [1]
	37	0.6	12	5.7		3	3	6	142.94	706 [1]
	37	0.8	12	6.0		3	3	6	141.03	708 [1]
	37	1.0	12	6.2	0.1	3	3	6	145.14	710
	37	1.5	12	6.2	0.1	3	3	6	123.84	715

P	●
M	●
K	●
N	●
S	○
H	
O	●

1) The end face is not ground free to the center

→ v_c/f_z Page 83

7

ModuSet – Set for cut off

▲ Size 22

Mini Mill



Tool	Designation	Article no.	Bore-Ø mm	Piece	53 014 ... £ W1	
Inserts	Milling inserts for separating	53 013 715	37	2	244.46	990
Tool holder	Endmill short	53 003 624		1		
Screw	M5 x 12	73 082 005		1		
Tightening Key	T20			1		

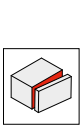
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

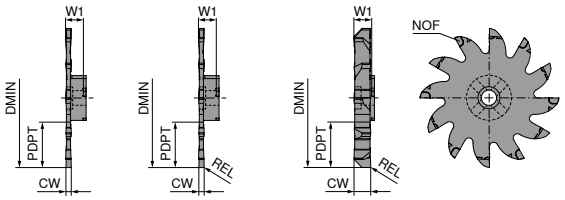
ModuSet – Milling insert for slot and multipurpose milling

▲ Interface with four driving slots
▲ CW 1,5 – 6 mm: cross-pitched

Mini Mill

≥ Ø 50 mm





NEW CWX500



Solid carbide

NEW CWX500



Solid carbide

NEW CWX500



Solid carbide

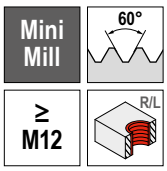
Size	DMIN mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	NOF	53 017 ... £ W2		53 017 ... £ W2		53 017 ... £ W2	
50	50	0.5	16.5	6.35		12	332.10	00500				
	50	1.0	16.5	6.35		12	304.89	01000				
	50	1.5	16.5	6.35	0.1	12			273.57	01500		
	50	2.0	16.5	6.35	0.2	12			273.57	02000		
	50	2.5	16.5	6.35	0.2	12			247.32	02500		
	50	3.0	16.5	6.35	0.2	12			302.96	03000		
	50	4.0	16.5	6.35	0.2	12					319.89	04000
	50	5.0	16.5	6.35	0.2	12					336.21	05000
	50	6.0	16.5	6.35	0.2	12					361.50	06000
P							●		●		●	
M							●		●		●	
K							●		●		●	
N							●		●		●	
S							○		○		○	
H												
O							●		●		●	

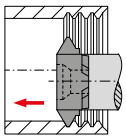
→ v_c/f_z Page 83

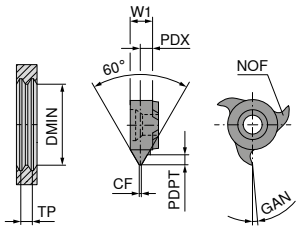
Suitable holders can be found on → **page 33.**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Milling insert for internal thread milling – Partial profile







CWX500



Solid carbide

53 010 ...

Size	Thread$_{min}$	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	GAN °	NOF	£ W2	
10	M12	1,0 - 1,75	9.8	0.13	1.02	3.20	2.4	5	6	91.57	017
	M14	1,0 - 1,75	11.7	0.13	1.08	3.60	2.8	5	3	106.90	010
	M14	1,0 - 2,0	10.1	0.13	1.25	3.20	2.2	5	6	91.57	021
	M14	1,0 - 2,0	11.7	0.13	1.25	3.60	2.8	5	3	106.90	020
	M16	1,5 - 2,75	11.0	0.19	1.67	3.20	2.0	5	6	91.57	027
	M16	1,5 - 2,75	11.7	0.19	1.67	3.60	2.4	5	3	106.90	015
	M16	2,0 - 3,0	11.1	0.25	1.78	3.20	1.9	5	6	91.57	029
	M16	2,0 - 3,0	11.7	0.25	1.78	3.60	2.2	5	3	106.90	030
14	M18	1,0 - 1,75	15.7	0.12	1.08	4.60	3.8	5	3	108.73	210
	M18	1,0 - 2,0	15.7	0.12	1.25	4.60	3.5	5	3	108.73	220
	M20	1,5 - 2,75	15.7	0.18	1.67	4.60	3.5	5	3	108.73	215
	M22	2,5 - 3,0	15.7	0.31	1.78	4.60	3.4	5	3	108.73	230
18	M22	1,0 - 1,75	17.7	0.12	1.03	5.85	5.0	5	3	116.47	410
	M22	1,0 - 2,0	17.7	0.12	1.19	5.85	4.7	5	3	108.73	412
	M22	1,0 - 2,0	17.7	0.12	1.19	5.85	5.0	5	6	106.77	416
	M22	1,5 - 2,75	17.7	0.19	1.62	5.85	4.6	5	3	108.73	415
	M24	2,0 - 3,0	17.7	0.25	1.73	5.85	4.4	5	3	116.47	425
	M24	2,0 - 3,5	17.7	0.25	2.06	5.85	4.2	5	3	108.73	455
	M24	2,0 - 3,5	17.7	0.25	2.06	5.85	4.3	5	6	109.00	434
	M24	2,0 - 3,75	17.7	0.25	2.22	5.85	4.2	5	3	108.73	420
	M24	2,5 - 5,0	17.7	0.31	2.98	5.85	3.8	5	3	108.73	430
	M24	3,0 - 5,5	17.7	0.38	3.25	5.85	4.2	5	3	108.73	435
22	M27	1,0 - 2,0	21.7	0.12	1.19	5.85	4.6	5	3	112.63	610
	M27	1,0 - 2,0	21.7	0.12	1.19	6.20	5.0	5	6	231.46	710
	M27	1,5 - 2,75	21.7	0.18	1.62	5.85	4.5	5	3	112.63	615
	M27	2,0 - 3,75	21.7	0.25	2.22	5.85	4.2	5	3	112.63	620
	M27	2,5 - 4,5	21.7	0.25	2.70	5.85	3.7	5	3	116.47	655
	M27	2,0 - 4,5	21.7	0.25	2.70	6.05	4.2	5	6	237.75	755
	M30	2,5 - 5,0	21.7	0.31	2.98	5.85	3.8	5	3	112.63	630
	M30	3,5 - 6,0	21.7	0.44	3.52	5.85	3.4	5	3	116.47	640
	M30	3,5 - 6,5	21.7	0.44	3.84	5.85	3.2	5	3	116.47	645
28	M33	1,0 - 2,0	27.7	0.12	1.20	6.60	4.5	5	3	76.67	820
	M33	1,5 - 2,5	27.7	0.18	1.49	6.60	4.3	5	3	76.67	825
	M33	1,5 - 2,5	27.7	0.19	1.60	6.10	5.0	5	6	114.73	826
	M36	2,5 - 5,0	27.7	0.38	2.93	6.10	2.3	5	6	114.73	850
	M36	2,5 - 5,0	27.7	0.37	2.93	6.60	4.0	5	3	76.67	840
	M39	4,0 - 6,0	27.7	0.62	3.37	6.60	3.6	5	3	76.67	860

P	●
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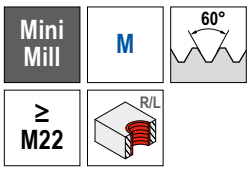
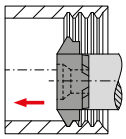
→ v_c/f_z Page 83

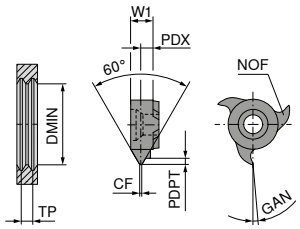
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuSet – Milling insert for internal thread milling – Full profile







CWX500



Solid carbide

53 011 ...

Size	Thread$_{min}$	TP	DMIN	CF	PDPT	W1	PDX	GAN	NOF	£ W2	
		mm	mm	mm	mm	mm	mm	°			
18	M22	1.50	17.7	0.18	0.81	5.85	4.8	5	3	112.63	415
	M22	1.75	17.7	0.20	0.95	5.85	4.7	5	3	119.81	417
	M22	2.00	17.7	0.25	1.08	5.85	4.6	5	3	119.81	420
	M24	2.50	17.7	0.31	1.35	5.85	4.4	5	3	119.81	425
	M27	3.00	17.7	0.37	1.62	5.85	4.3	5	3	119.81	430
	M27	3.50	17.7	0.43	1.89	5.85	4.0	5	3	119.81	435
22	M24	1.50	21.7	0.19	0.81	5.85	4.8	5	3	118.14	615
	M24	1.50	21.7	0.19	0.81	6.20	5.3	5	6	104.51	715
	M27	1.75	21.7	0.22	0.95	6.20	5.2	5	6	109.88	717
	M27	1.75	21.7	0.22	0.95	5.85	4.7	5	3	118.14	617
	M27	2.00	21.7	0.25	1.08	6.20	5.0	5	6	109.88	720
	M27	2.00	21.7	0.25	1.08	5.85	4.6	5	3	123.65	620
	M30	3.00	21.7	0.37	1.62	5.85	4.3	5	3	123.65	630
	M30	3.00	21.7	0.37	1.62	6.20	4.8	5	6	111.97	730
	M30	3.50	21.7	0.43	1.89	5.85	4.0	5	3	133.04	635
	M33	4.00	21.7	0.50	2.16	5.85	3.9	5	3	133.04	640
	M33	4.00	21.7	0.50	2.16	6.20	4.4	5	6	117.87	740
	M33	4.50	21.7	0.56	2.43	5.85	3.7	5	3	133.04	645

P	●
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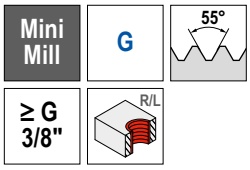
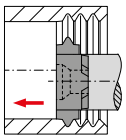
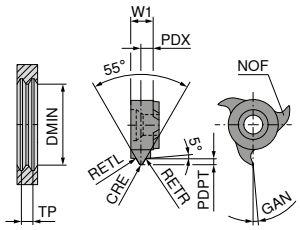
O	●

→ v_c/f_z Page 83

ModuSet – Milling insert for internal thread milling – Full profile







CWX500



Solid carbide

53 012 ...

Size	Thread$_{min}$	TP	DMIN	TPI	W1	PDX	PDPT	CRE	RETL	RETR	GAN	NOF	£ W2	
		mm	mm	1/"	mm	mm	mm	mm	mm	mm	°			
10	G 3/8"	1.34	11.7	19	3.60	2.5	0.860	0.18	0.18	0.18	5	3	132.71	113
	G 1/2"	1.81	11.7	14	3.60	2.3	1.160	0.24	0.24	0.24	5	3	132.71	118
	G 1"	2.31	11.7	11	3.60	2.0	1.480	0.31	0.31	0.31	5	3	132.71	123
18		1.34	17.7	19	5.85	4.9	0.856	0.18	0.18	0.18	5	3	66.62	219
	G 3/4"	1.81	17.7	14	5.85	4.6	1.160	0.24	0.24	0.24	5	3	66.62	214
	G 1"	2.31	17.7	11	5.85	4.4	1.480	0.31	0.31	0.31	5	3	66.62	211
22	G 1"	2.31	21.7	11	5.85	4.0	1.480	0.31	0.31	0.31	5	3	138.59	311
		3.17	21.7	8	5.85	3.5	2.030	0.43	0.43	0.43	5	3	148.19	308
	BSW 1 1/2"	4.23	21.7	6	5.85	3.1	2.710	0.58	0.58	0.58	5	3	148.19	306

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→ v_c/f_z Page 83

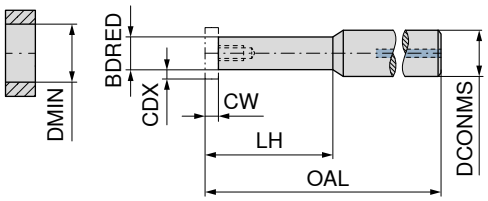
ModuSet – Circular milling cutter, extra short

▲ Steel Version

Scope of supply:
including key

Mini Mill







Steel

Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	53 004 ... £ W1	
10	10	6.0	60	15.2	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	121.65	015
14	10	8.0	60	17.7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	121.65	217
	13	8.0	70	25.7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	125.26	225
18	10	9.0	60	17.0	17,7	≤5,6	3,5	4,5	121.65	417
	13	9.0	70	25.0	17,7	≤5,6	3,5	4,5	125.26	425
22	10	11.3	60	10.7	21,7	≤9,15	4,5	7,0	125.26	610
	13	11.3	70	25.7	21,7	≤9,15	4	7,0	130.11	625
28	13	14.0	70	10.7	27,7	≤10	6,5	7,0	125.26	810
	20	14.0	100	35.7	27,7	≤10	6,5	7,0	130.11	835

7

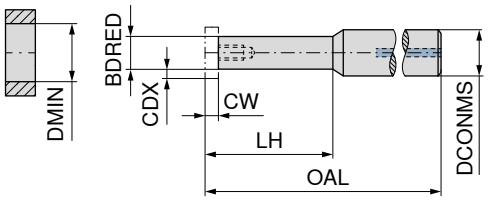
ModuSet – Circular milling cutter, short

▲ Steel Version

Scope of supply:
including key

Mini Mill







Steel



Steel

Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	53 002 ... £ W1		53 003 ... £ W1	
10	16	6	80	12.0	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	141.02	012	141.02	012
14	16	8	80	16.0	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	141.02	216	141.02	216
18	16	9	80	18.0	17,7	≤5,6	3,5	4,5	137.42	418	137.42	418
22	16	12	80	24.0	21,7	≤9,15	4,5	7,0	138.66	624	138.66	624
28	20	14	100	35.7	27,7	≤10	6,5	7,0			130.11	835

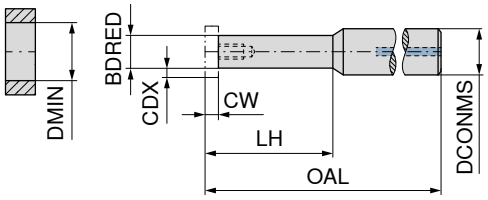
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

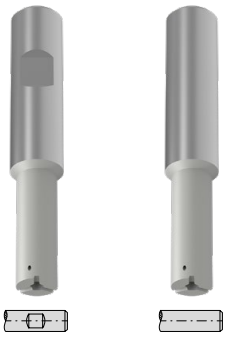
ModuSet – Circular milling cutter, vibration-damped

Scope of supply:
including key

Mini Mill







Size	DCONMS h6	BDRED	OAL	LH	DMIN	CW	CDX	torque moment	53 001 ... £ W1		53 000 ... £ W1	
	mm	mm	mm	mm	mm	mm	mm	Nm				
10	12	6.0	80	21	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	185.25	021	185.25	021
	12	6.0	90	30	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	199.09	030	199.09	030
	12	6.0	100	42	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	226.67	042	226.67	042
	12	7.3	90	30	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	209.23	130	209.23	130
	16	7.3	100	25	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	308.04	025	308.04	025
14	12	8.0	95	29	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	185.25	229	185.25	229
	12	8.0	110	42	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	200.34	242	200.34	242
	12	8.0	120	56	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	226.67	256	226.67	256
	12	9.5	110	42	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	226.67	342	226.67	342
	16	9.5	110	33	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	281.81	233	281.81	233
18	12	9.0	100	32	17,7	≤5,6	3,5	4,5	230.51	432	230.51	432
	12	9.0	100	45	17,7	≤5,6	3,5	4,5	257.96	445	257.96	445
	12	9.0	120	64	17,7	≤5,6	3,5	4,5	305.46	464	305.46	464
	16	9.0	93	25	17,7	≤5,6	3,5	4,5	257.96	425	257.96	425
	16	9.0	100	32	17,7	≤5,6	3,5	4,5	271.68	532	271.68	532
	16	9.0	110	45	17,7	≤5,6	3,5	4,5	319.41	545	319.41	545
	16	9.0	130	64	17,7	≤5,6	3,5	4,5	366.91	564	366.91	564
	16	13.0	110	64	17,7	≤5,6	1,5	4,5	281.81	465	281.81	465
	16	13.0	130	66	17,7	≤5,6	1,5	4,5	356.89	466	356.89	466
22	12		100	42	21,7	≤9,15	4,5	7,0	202.92	642	202.92	642
	12		130	60	21,7	≤9,15	4,5	7,0	240.51	660	240.51	660
	16	11.5	90	30	21,7	≤9,15	4,5	7,0	257.96	630	257.96	630
	16	12.0	100	42	21,7	≤9,15	4,5	7,0	267.98	742	267.98	742
	16	12.0	130	60	21,7	≤9,15	4,5	7,0	320.65	760	320.65	760
	16	12.0	160	85	21,7	≤9,15	4,5	7,0	363.20	685	363.20	685
	20	16.0	110	45	21,7	≤9,15	2,5	7,0	390.65	645	390.65	645
	20	16.0	130	65	21,7	≤9,15	2,5	7,0	393.25	665	393.25	665
28	16	14.3	100	42	27,7 / 24,8	≤10	6,5 / 5	7,0	284.30	842	284.30	842
	16	14.3	130	60	27,7 / 24,8	≤10	6,5 / 5	7,0	338.08	860	338.08	860
	16	14.3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	394.49	885	394.49	885
	20	13.5	104	35	27,7 / 24,8	≤10	6,5 / 5	7,0	351.93	835	351.93	835
	20	14.3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	449.53	985	449.53	985







Spare parts Size	80 950 ... £ Y7			73 082 ... £ Y5			73 082 ... £ Y5	
10	T08	13.73	110				M2,6	9.52	002
14	T10	16.05	112				M3,5	9.52	003
18	T15	16.32	113				M4	9.52	004
22	T20	17.48	114	M5	18.59	006	M5	9.52	005
28	T20	17.48	114				M5	9.52	005

Clamping screw 73 082 006 only for insert 53 009 394

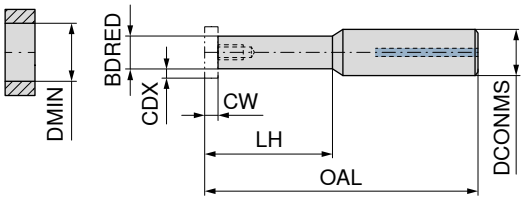
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Circular milling cutter

▲ Steel and carbide versions
▲ Specialised cutting point with four driving slots exclusively for cutting operations in the larger diameter range

Scope of supply:
including key

Mini Mill




NEW
HM


NEW
Steel

Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	53 016 ... £ W1		53 016 ... £ W1	
50	16		125	60	50	≤6	16,5	7,0	379.91	06000		
	16		155	90	50	≤6	16,5	7,0	407.26	09000		
	16		185	120	50	≤6	16,5	7,0	434.62	12000		
	20	16	100	32	50	≤6	16,5	7,0			188.98	23200


Key D


Clamping screw

Spare parts Size		80 950 ... £ Y7			73 082 ... £ Y5	
50	T20	17.48	114	M5	18.59	006

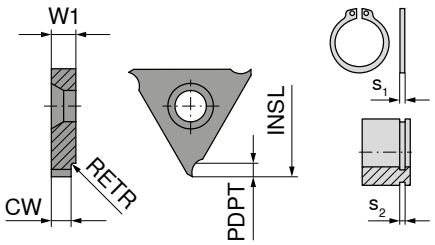
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuSet – Milling inserts for circlip grooves without chamfer

System 300





Ti500



Solid carbide

50 853 ...

Size	$s_{2\ H13}$ mm	INSL mm	W1 mm	CW $_{-0,03}$ mm	PDPT mm	RETR mm	s_1 mm	£ W2	
03	0.90	10.6	2.34	0.98	0.70	0.3	0.80	57.35	302
	1.10	10.6	2.34	1.18	0.90	0.3	1.00	57.35	304
	1.30	10.6	2.34	1.38	1.10	0.3	1.20	57.35	306
	1.60	10.6	2.34	1.68	1.25	0.3	1.50	57.35	308
	1.85	10.6	2.34	1.93	1.25	0.3	1.75	57.35	310
02	0.90	17.5	3.50	0.98	0.70	0.3	0.80	52.26	312
	1.10	17.5	3.50	1.18	0.90	0.3	1.00	52.26	314
	1.30	17.5	3.50	1.38	1.10	0.3	1.20	52.26	316
	1.60	17.5	3.50	1.68	1.25	0.3	1.50	52.26	318
	1.85	17.5	3.50	1.93	1.25	0.3	1.75	52.26	320
	2.15	17.5	3.50	2.23	1.75	0.3	2.00	52.26	322
	2.65	17.5	3.50	2.73	1.75	0.3	2.50	52.26	324
	3.15	17.5	3.50	3.23	2.20	0.3	3.00	52.26	326
01	0.90	23.0	4.00	0.98	0.70	0.3	0.80	52.26	328
	1.10	23.0	4.00	1.18	0.90	0.3	1.00	52.26	330
	1.30	23.0	4.00	1.38	1.10	0.3	1.20	52.26	332
	1.60	23.0	4.00	1.68	1.25	0.3	1.50	52.26	334
	1.85	23.0	4.00	1.93	1.25	0.3	1.75	52.26	336
	2.15	23.0	4.00	2.23	1.75	0.3	2.00	52.26	338
	2.65	23.0	4.00	2.73	1.75	0.3	2.50	52.26	340
	3.15	23.0	4.00	3.23	2.20	0.3	3.00	52.26	342

P	●
M	●
K	●
N	●
S	●
H	○
O	●

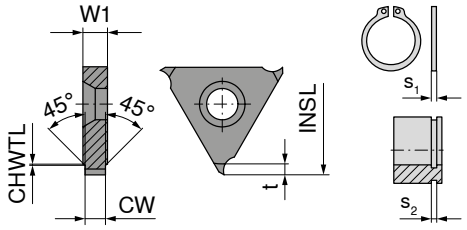
→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Milling inserts for circlip grooves with chamfer

System 300





Ti500



Solid carbide

50 852 ...

Size	$s_{2\ H13}$ mm	INSL mm	W1 mm	$CW_{-0,03}$ mm	t mm	CHWTL mm	s_1 mm	£ W2	
03	1.10	10.6	2.34	1.18	0.50	0.10	1.00	61.37	302
02	1.10	17.5	3.50	1.18	0.50	0.10	1.00	54.31	312
	1.30	17.5	3.50	1.38	0.85	0.15	1.20	54.31	314
	1.60	17.5	3.50	1.68	1.00	0.15	1.50	54.31	316
	1.85	17.5	3.50	1.93	1.25	0.20	1.75	54.31	317
	2.15	17.5	3.50	2.23	1.50	0.20	2.00	54.31	318
	2.65	17.5	3.50	2.73	1.50	0.20	2.50	54.31	319
01	1.10	23.0	4.00	1.18	0.50	0.10	1.00	54.31	320
	1.30	23.0	4.00	1.38	0.70	0.15	1.20	54.31	321
	1.30	23.0	4.00	1.38	0.85	0.15	1.20	54.31	322
	1.60	23.0	4.00	1.68	1.00	0.15	1.50	54.31	324
	1.60	23.0	4.00	1.68	0.85	0.15	1.50	54.31	323
	1.85	23.0	4.00	1.93	1.25	0.20	1.75	54.31	325
	2.15	23.0	4.00	2.23	1.50	0.20	2.00	54.31	326
	2.65	23.0	4.00	2.73	1.75	0.20	2.50	54.31	328
	2.65	23.0	4.00	2.73	1.50	0.20	2.50	54.31	327
	3.15	23.0	4.00	3.32	1.75	0.20	3.00	54.31	329

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 82

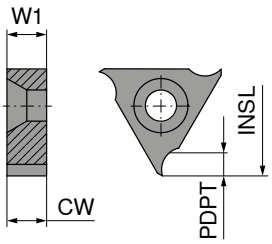
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuSet – Milling inserts without profile, ground ready-for-use

System 300





Ti500



Solid carbide

Size	CW +0,02 mm	PDPT mm	INSL mm	W1 mm	50 851 ... £ W2	
03	2.34	1.60	10.6	2.34	57.35	304
	3.00	1.60	10.6	3.00	61.37	306
02	3.50	2.60	17.5	3.50	52.26	312
	5.00	2.60	17.5	5.00	61.37	314
	6.00	2.60	17.5	6.00	66.28	316
01	4.00	3.45	23.0	4.00	64.43	322 1)
	6.50	3.45	23.0	6.50	64.43	324 1)

P	●
M	●
K	●
N	●
S	●
H	○
O	●

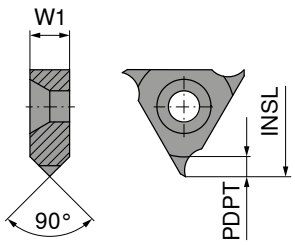
1) with circular milling cutter 50 800 090 PDPT = 3.0 mm

→ v_c/f_z Page 82

ModuSet – Milling inserts for chamfering and deburring

System 300





Ti500



Solid carbide

Size	PDPT mm	INSL mm	W1 mm	50 857 ... £ W2	
03	1.50	10.6	3.0	57.35	304
02	2.50	17.5	5.0	57.35	314
01	3.25	23.0	6.5	57.35	322 1)

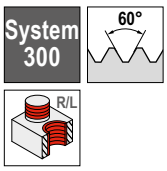
P	●
M	●
K	●
N	●
S	●
H	○
O	●

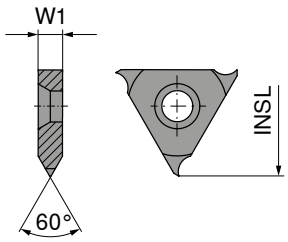
1) with circular milling cutter 50 800 090 PDPT = 3.0 mm

→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuSet – Thread milling insert – Partial profile







Solid carbide

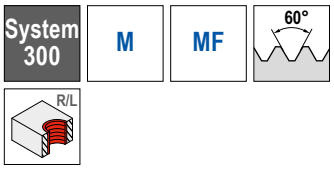
50 855 ...

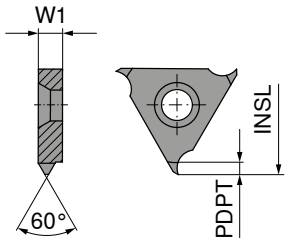
Size	TP mm	INSL mm	W1 mm	£ W2	
02	1 - 3,5	17.5	3.5	64.43	314
01	1 - 4,0	23.0	4.0	64.43	324

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 82

ModuSet – Thread milling insert – Full profile







Solid carbide

50 859 ...

Size	TP mm	INSL mm	W1 mm	PDPT mm	£ W2		
03	1.0	10.6	2.34	0.578	78.22	304	
	1.5	10.6	2.34	0.864	78.22	308	
	2.0	10.6	2.34	1.159	78.22	310	
02	1.0	17.5	3.50	0.578	78.22	311	
	1.5	17.5	3.50	0.864	78.22	312	
	2.0	17.5	3.50	1.159	78.22	314	
	2.5	16.0	3.50	1.444	108.05	317	1)
	2.5	17.5	3.50	1.444	78.22	316	
	3.0	17.5	3.50	1.728	98.11	318	
01	1.0	23.0	4.00	0.578	81.44	320	
	1.5	23.0	4.00	0.864	81.44	322	
	2.0	23.0	4.00	1.159	81.44	324	
	2.5	23.0	4.00	1.444	81.44	326	
	3.0	23.0	4.00	1.728	81.44	328	
	3.5	23.0	4.00	2.023	81.44	330	
	4.0	23.0	4.00	2.308	81.44	332	
	4.5	23.0	6.50	2.602	93.41	334	
	5.0	23.0	6.50	2.887	93.41	336	
	6.0	23.0	6.50	3.467	93.41	338	2)

P	●
M	●
K	●
N	●
S	●
H	○
O	●

1) M20x2,5 – profile corrected

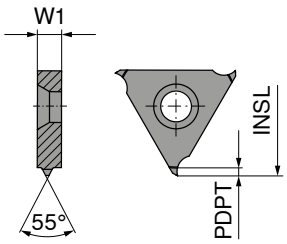
2) with circular milling cutter 50 800 090 PDPT = 3.0 mm

→ v_c/f_z Page 82

ModuSet – Thread milling insert – Full profile

System 300 | G | BSW | BSF | 55°





Ti500



Solid carbide

Size	TP mm	TPI 1/"	INSL mm	W1 mm	PDPT mm	50 858 ... £ W2	
02	1.814	14	17.5	3.5	1.162	78.22	314
	2.309	11	17.5	3.5	1.494	78.22	312
01	2.309	11	23.0	4.0	1.494	81.44	322

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 82

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

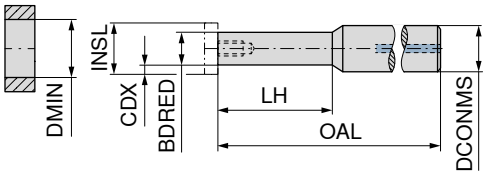
ModuSet – Circular milling cutter

▲ Size refers to milling inserts

Scope of supply:
including key

System 300







Size	INSL mm	CDX mm	LH mm	DCONMS $_{h6}$ mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm	£ W1	50 800 ...
03	10.6	1.60	17.2	10	57.20	7.4	11	0,9	147.44	020 [1]
	10.6	1.60	34.2	10	74.20	7.4	11	0,9	217.90	025 [2]
02	17.5	2.60	28.7	12	74.05	12.0	20	3,8	156.00	030
	17.5	2.60	63.7	12	108.70	12.0	20	3,8	344.40	045 [2]
01	23.0	3.45	38.5	16	87.00	16.1	25	5,5	162.18	050
	23.0	3.45	67.5	16	116.00	16.1	25	5,5	170.74	070
	23.0	3.00	88.5	16	137.00	17.0	25	5,5	380.76	090 [2]

1) Without Through Coolant
2) Carbide version


Key D


Clamping screw

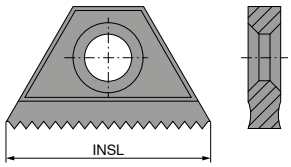
Spare parts Size		80 950 ... £ Y7			70 960 ... £ 2A	
03	T06 - IP	18.22	123	M2x9	5.05	232
02	T15 - IP	21.01	128	M4x12,3	7.61	233
01	T20 - IP	22.06	129	M5x15	7.61	234

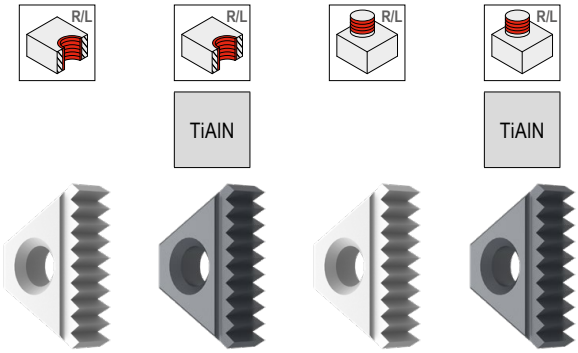
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)

MWN | M | MF | 60°





Solid carbide | Solid carbide | Solid carbide | Solid carbide

INSL mm	TP mm	50 890 ... £ W2		50 890 ... £ W2		50 891 ... £ W2		50 891 ... £ W2	
10.4	0.50	111.67	100						
	0.75	111.67	101						
	1.00	89.02	102	114.74	302				
	1.25	89.02	103						
	1.50	89.02	104	114.74	304				
11.0	0.50	76.30	120						
	0.75	97.16	121						
	1.00	76.30	122	100.24	322				
	1.25	76.30	123						
	1.50	76.30	124	98.72	324				
16.0	0.50	113.77	140						
	0.75	90.76	141						
	1.00	90.76	142	124.07	342	90.76	142	117.27	342
	1.25	90.76	143			90.76	143		
	1.50	90.76	144	117.27	344	90.76	144	117.27	344
	1.75	90.76	145			90.76	145		
	2.00	90.76	146	117.27	346	90.76	146	117.27	346
27.0	1.00	173.21	162	213.82	362	173.21	162	213.82	362
	1.25	173.21	163			173.21	163		
	1.50	173.21	164	213.82	364	173.21	164	213.82	364
	1.75	173.21	165						
	2.00	173.21	166	213.82	366	173.21	166	213.82	366
	2.50	173.21	167			173.21	167		
	3.00	173.21	168	213.82	368	173.21	168	213.82	368
	3.50	173.21	169			173.21	169		
	4.00	173.21	170			173.21	170		

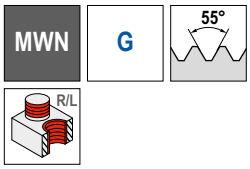
P	●	●	●	●
M	○	●	○	●
K	●	●	●	●
N	●	●	●	●
S				
H				
O	●	○	●	○

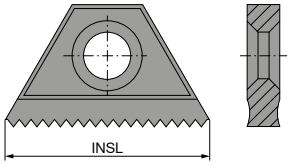
→ v_c/f_z Page 81

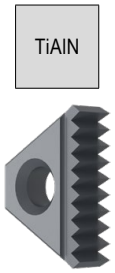
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)







Solid carbide

50 895 ...

INSL mm	TPI 1/"	TP mm	£ W2	
10.4	19	1.337	114.74	300
16.0	14	1.814	114.74	342
	11	2.309	114.74	344
27.0	11	2.309	261.24	366

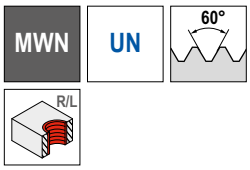
P	●
M	●
K	●
N	●
S	
H	
O	○

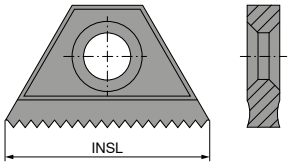
→ v_c/f_z Page 81

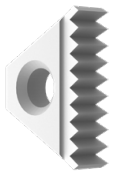
7

ModuThread – Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)







Solid carbide

50 892 ...

INSL mm	TPI 1/"	TP mm	£ W2	
10.4	20	1.270	89.02	100
	18	1.411	89.02	102
16.0	16	1.588	90.76	144
	12	2.117	90.76	146
27.0	12	2.117	173.21	166
	8	3.175	173.21	168

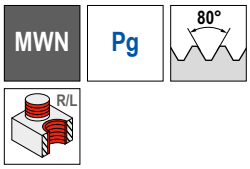
P	●
M	○
K	●
N	●
S	
H	
O	●

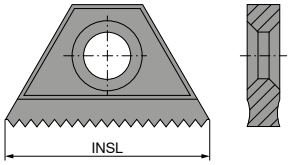
→ v_c/f_z Page 81

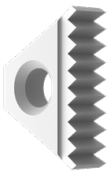
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert

▲ double sided







Solid carbide

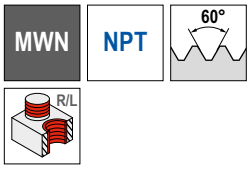
INSL mm	TPI 1/"	TP mm	50 896 ... £ W2	
16	18	1.411	108.96	142
	16	1.588	89.00	144

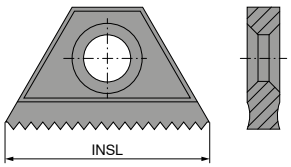
P	●
M	○
K	●
N	●
S	
H	
O	●

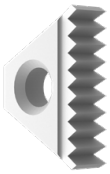
→ v_c/f_z Page 81

ModuThread – Thread milling insert

▲ double sided







Solid carbide

INSL mm	TPI 1/"	TP mm	50 897 ... £ W2	
16	14.0	1.814	90.76	142
	11.5	2.209	90.76	144
27	11.5	2.209	173.21	164
	8.0	3.175	173.21	166

P	●
M	○
K	●
N	●
S	
H	
O	●

→ v_c/f_z Page 81

Note! Thread milling inserts are marked R (right-hand thread) and L (left-hand thread). The standard tool holder cannot be used to produce a left-hand thread! Tool holder for left-hand thread available on special request.

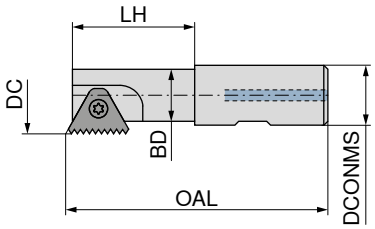
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Circular milling cutter

▲ INSL refers to milling inserts

Scope of supply:
includes key

MWN	M	MF	G
	Pg	UN	





50 843 ...

INSL mm	BD mm	LH mm	DCONMS mm	OAL mm	DC mm	torque moment Nm	£ W1	
10.4	6.8	12	12	69	9.0	0,9	205.40	101
	6.8	17	20	84	9.0	0,9	217.56	102
11.0	8.9	12	12	70	11.5	1,2	205.40	111
	8.9	20	20	85	11.5	1,2	217.56	112
16.0	13.6	22	16	90	17.0	2,5	239.38	161
	16.6	43	20	95	20.0	2,5	239.38	162
	18.6	25	25	125	22.0	2,5	299.05	163
27.0	24.0	52	25	110	30.0	9,0	302.64	271
	31.0	58	32	120	37.0	9,0	325.71	273
	24.0	92	25	150	30.0	9,0	348.90	272
	31.0	98	32	160	37.0	9,0	404.73	274

7

Pilot hole diameter for circular end mill 50 843 ...

BD	TP in mm									
	0,5 mm 48 G/"	0,75 mm 32 G/"	1,0 mm 24 G/"	1,25 mm 20 G/"	1,5 mm 16 G/"	2,0 mm 12 G/"	2,5 mm 10 G/"	3,0 mm 8 G/"	3,5 mm 7 G/"	4,0 mm 6 G/"
6,8	9,5	10	10,7	11,4	12					
8,9	12	12,5	13,2	13,9	14,5					
13,6	17,6	18,2	19	19,6	20	21				
16,6	20,7	21,4	22	22,6	23	24				
18,6	22,7	23,4	24	24,6	25	26				
24,0	30,7	31,4	32	32,8	33,5	34,6	36,6	39	42	45
31,0	38	38,6	39,5	40,4	41	42	44	46,5	49	52


Key D


Clamping screw

80 950 ... **70 950 ...**

Spare parts INSL		£ Y7			£ 2A	
10,4	T07	13.73	109	M2,2x5,0	2.28	200
11	T08	13.73	110	M2,6x6,5	2.28	201
16	T10	16.05	112	UNC5-40 x 8	2.28	202
27	T25	17.97	115	M5x15	3.52	203

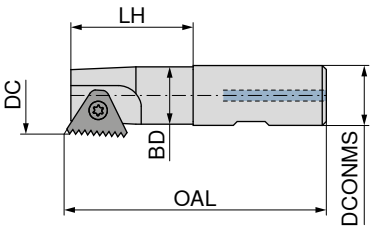
ModuThread – Circular milling cutter

▲ INSL refers to milling inserts

Scope of supply:
includes key

MWN NPT







50 844 ...

INSL mm	BD mm	Thread	LH mm	DCONMS h6 mm	OAL mm	DC mm	torque moment Nm	£ W1	
16	12.5	NPT 1/2	22	16	90	15.5	2,5	217.56	161
	15.0	NPT 3/4 - 1 1/4	23	20	85	19.0	2,5	238.27	162
27	24.0	NPT 1 1/2 - 2	52	25	110	30.0	9,0	302.64	271
	31.0	NPT > 2	58	32	120	37.0	9,0	325.71	272

Key D

80 950 ...



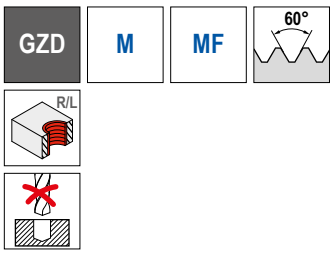
Clamping screw

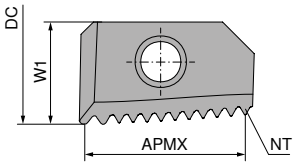
70 950 ...

Spare parts INSL		£ Y7			£ 2A	
16	T10	16.05	112	UNC5-40 x 8	2.28	202
27	T25	17.97	115	M5x15	3.52	203

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert







Solid carbide

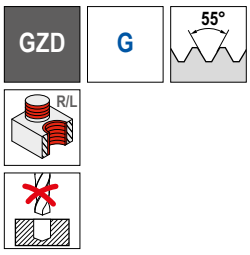
DC mm	TP mm	W1 mm	APMX mm	NT	£ W2	50 863 ...
12	1.0	7.5	12.0	13	75.19	300
	1.5	7.5	10.5	8	75.19	302
17	1.0	11.0	16.0	17	75.19	310
	1.5	11.0	16.5	12	75.19	312
	2.0	11.0	16.0	9	75.19	314
20	1.0	7.5	12.0	13	75.19	320
	1.5	7.5	10.5	8	75.19	322
25	1.0	11.0	16.0	17	75.19	330
	1.5	11.0	16.5	12	75.19	332
	2.0	11.0	16.0	9	75.19	334

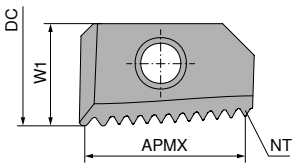
P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 81

7

ModuThread – Thread milling insert







Solid carbide

DC mm	TPI 1/"	W1 mm	APMX mm	NT	£ W2	50 864 ...
12	14	7.5	9.07	6	75.19	300
17	14	11.0	16.33	10	98.11	312 [1]
	14	11.0	16.33	10	98.11	314 [2]
	11	11.0	16.16	8	98.11	310
25	14	11.0	16.33	10	98.11	332
	11	11.0	16.16	8	98.11	330

P	●
M	●
K	●
N	●
S	
H	
O	

1) Thread: 5/8 – 3/4 – 7/8
2) 1/2" Profile corrected

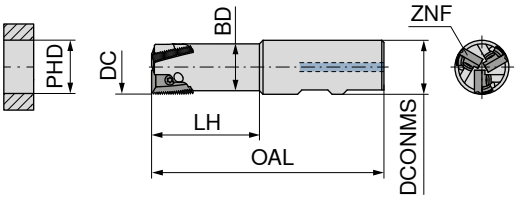
→ v_c/f_z Page 81

ModuThread – Circular milling cutter

Scope of supply:
includes key

GZD







DC mm	LH mm	DCONMS h6 mm	OAL mm	BD mm	ZNF	PHD mm	torque moment Nm	50 842 ... £ W1	
12	18	16	74.0	9.4	1	14	1,1	201.47	121
17	30	16	79.0	13.7	1	19	3,8	201.47	171
20	32	20	83.0	17.5	3	22	1,1	240.75	201
25	50	25	107.6	21.7	3	26	3,8	315.81	251
	85	25	142.6	21.7	3	26	3,8	845.35	252 1)

1) Heavy metal version with mounted head



Key D



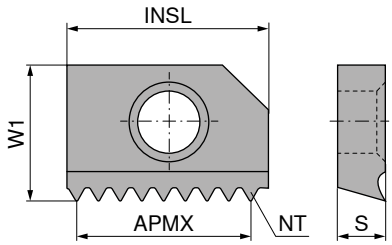
Clamping screw

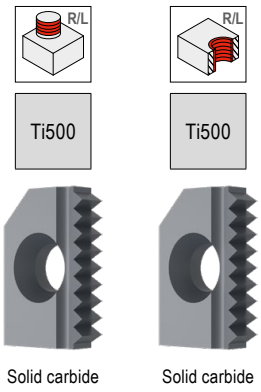
Spare parts DC		80 950 ... £ Y7			70 960 ... £ 2A	
12	T08 - IP	17.97	125	M2,5x6,5	5.05	244
17	T15 - IP	21.01	128	M4x7,5	5.05	245
20	T08 - IP	17.97	125	M2,5x6,5	5.05	244
25	T15 - IP	21.01	128	M4x7,5	5.05	245

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert

GZG | M | MF | 60°





Solid carbide | Solid carbide

INSL mm	TP mm	W1 mm	APMX mm	S mm	NT	50 887 ... £ W2		50 885 ... £ W2	
14.5	0.50	10.0	13.50	3.18	28			119.58	350
	0.75	10.0	13.50	3.18	19			119.58	352
	1.00	10.0	13.00	3.18	14	90.18	304	69.30	354
	1.25	10.0	12.50	3.18	11			90.18	356
	1.50	10.0	12.00	3.18	9	90.18	308	69.30	358
	1.75	10.0	12.25	3.18	8			90.18	360
	2.00	10.0	12.00	3.18	7	90.18	312	69.30	362
	2.50	10.0	10.00	3.18	5			81.44	364
	2.50	10.0	10.00	3.18	5			81.44	366 1)
15.0	3.00	10.5	12.00	3.18	5			98.11	370 2)
	3.50	10.5	10.50	3.18	4			98.11	372 2)
21.0	1.00	10.0	19.00	3.18	20			78.22	380
	1.50	10.0	19.50	3.18	14			78.22	382
	1.50	10.0	18.00	3.18	13	90.18	320		
	2.00	10.0	18.00	3.18	10			78.22	384
26.0	1.50	15.0	24.00	5.00	17			135.06	390
	2.00	15.0	24.00	5.00	13			135.06	392
	3.00	15.0	21.00	5.00	8			135.06	396
	3.50	15.0	20.00	5.00	7			198.93	398
	4.00	15.0	20.00	5.00	6			198.93	400
P						●		●	
M						●		●	
K						●		●	
N						●		●	
S									
H									
O									

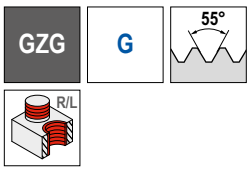
1) M20x2,5 – profile corrected
2) Without chamfer

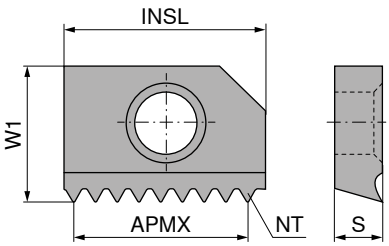
→ v_c/f_z Page 81

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuThread – Thread milling insert





Ti500



Solid carbide

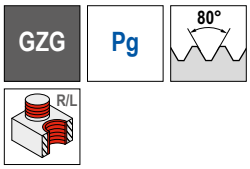
50 888 ...

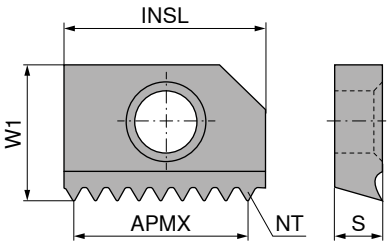
INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	£ W2	
14.5	18	1.411	10	11.28	3.18	9	103.92	310
	16	1.587	10	11.11	3.18	8	103.92	312
	14	1.814	10	12.69	3.18	8	75.19	314
	12	2.116	10	10.58	3.18	6	103.92	316
	11	2.309	10	11.54	3.18	6	75.19	318
21.0	14	1.814	10	18.14	3.18	11	90.18	320
	11	2.309	10	18.47	3.18	9	90.18	322
26.0	11	2.309	15	23.09	5.00	11	147.27	330

P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 81

ModuThread – Thread milling insert





Ti500



Solid carbide

50 894 ...

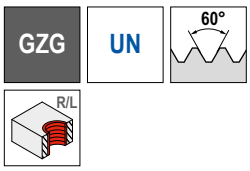
INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	£ W2	
14.5	18	1.411	10	12.69	3.18	10	110.51	302
	16	1.587	10	11.11	3.18	8	110.51	304

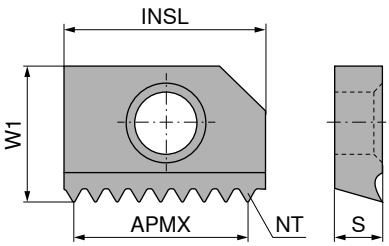
P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 81

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert







Solid carbide

INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	50 889 ... £ W2	
14.5	18	1.411	10	12.69	3.18	10	108.08	310
	16	1.587	10	12.70	3.18	9	113.41	312
21.0	16	1.587	10	19.05	3.18	13	135.14	320
	14	1.814	10	18.14	3.18	11	135.14	322
	12	2.116	10	18.04	3.18	10	135.14	324

P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 81

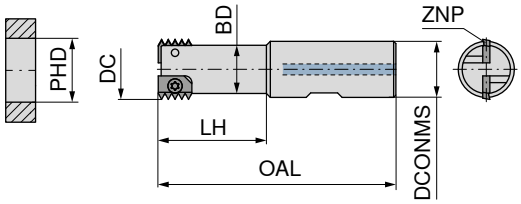
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Circular milling cutter

▲ INSL refers to milling inserts

Scope of supply:
includes key

GZG





INSL mm	DC mm	LH mm	DCONMS $_{h6}$ mm	OAL mm	BD mm	ZNP	PHD mm	torque moment Nm	50 841 ... £ W1	
14.5	16	30.0	16	78	12.7	1	18.5	3,8	184.35	016
	16	50.0	16	98	12.7	1	18.5	3,8	293.08	017 [1]
	20	60.0	20	110	16.8	1	23.0	3,8	218.79	020
	25	48.2	25	106	21.5	2	30.0	3,8	326.84	025
	25	92.2	25	150	21.5	2	30.0	3,8	711.42	026 [1]
15.0	18	30.0	16	79	12.7	1	20.0	3,8	201.47	218
	22	60.0	20	110	16.8	1	26.0	3,8	218.79	222
	27	48.2	25	106	21.5	2	32.0	3,8	326.84	227
21.0	16	31.3	20	85	12.7	1	18.5	3,8	191.78	316
	22	32.8	25	92	18.7	1	26.0	3,8	201.47	322
	22	62.8	25	122	18.7	1	26.0	3,8	701.29	323 [1]
	28	38.3	32	102	24.7	2	35.0	3,8	372.31	328
	28	78.3	32	142	24.5	2	35.0	3,8	1,048.28	327 [1]
26.0	25	48.5	25	107	20.0	1	30.0	3,8	259.20	125

1) Heavy metal version


Key D


Clamping screw

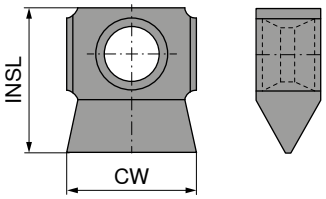
Spare parts for Article no.	80 950 ... £ Y7		70 960 ... £ 2A	
50 841 016	T15 - IP	21.01 128	M4x6,9	7.61 237
50 841 017	T15 - IP	21.01 128	M4x6,9	7.61 237
50 841 020	T15 - IP	21.01 128	M4x7,5	5.05 245
50 841 025	T15 - IP	21.01 128	M4x8	7.61 242
50 841 026	T15 - IP	21.01 128	M4x8	7.61 242
50 841 218	T15 - IP	21.01 128	M4x6,9	7.61 237
50 841 222	T15 - IP	21.01 128	M4x6,9	7.61 237
50 841 227	T15 - IP	21.01 128	M4x8	7.61 242
50 841 316	T15 - IP	21.01 128	M4x6,9	7.61 237
50 841 322	T15 - IP	21.01 128	M4x6,9	7.61 237
50 841 323	T15 - IP	21.01 128	M4x8	7.61 242
50 841 328	T15 - IP	21.01 128	M4x8	7.61 242
50 841 327	T15 - IP	21.01 128	M4x8	7.61 242
50 841 125	T15 - IP	21.01 128	M4x11,5	7.61 241

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert – partial profile

EAW | M | UN | 60°

R/L



TiN



Solid carbide

50 867 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	£ W2	
16,5	1,5 - 3,0	16 - 10	5	7.0	96.59	**115**
18	2,5 - 3,5	10 - 7	5	7.8	96.59	**225**

G | 55°

Solid carbide

50 868 ...

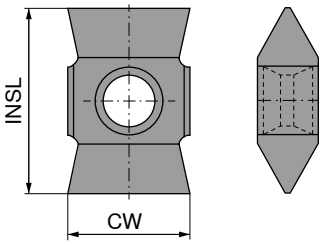
DC mm	TP mm	TPI 1/"	CW mm	INSL mm	£ W2	
16,5	1.814	14	5	7	118.25	**114**

7

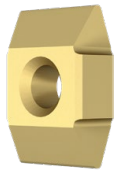
ModuThread – Thread milling insert – partial profile

EAW | M | UN | 60°

R/L



TiN



Solid carbide

50 860 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	£ W2	
23,85	1,5 - 2,5	16 - 10	6.35	9.52	73.74	**315**
23,85	2,5 - 4,0	10 - 6	6.35	9.52	73.74	**325**
32,85	1,5 - 2,5	16 - 10	8.50	13.50	82.03	**415**
32,85	2,5 - 5,5	10 - 4,5	8.50	13.50	82.03	**425**

G | 55°

Solid carbide

50 861 ...

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	£ W2	
23,85	2.309	11	6.35	9.52	82.03	**311**
32,85	2.309	11	8.50	13.50	94.71	**411**

P	●
M	●
K	●
N	●
S	●
H	○
O	○

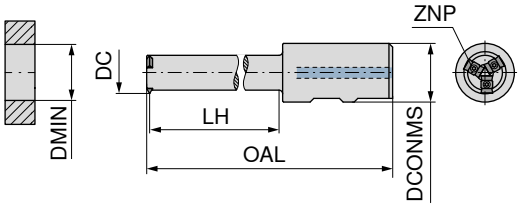
→ v_c/f_z Page 81

ModuThread – Circular milling cutter

Scope of supply:
including key

EAW







DC mm	DMIN mm	TP mm	TPI 1/"	LH mm	DCONMS $_{h6}$ mm	OAL mm	ZNP	torque moment Nm	50 848 ... £ W1	
16,5 / 18,0	17,5 / 19,0	1,5 - 3,5	16 - 10	60	20	114	2	0,9	374.44	**020**
23,85	25,5	1,5 - 4,0	24 - 6	90	32	154	3	0,9	441.19	**030**
32,85	35,0	1,5 - 5,5	16 - 4,5	115	32	179	3	2,5	456.94	**040**



Key D

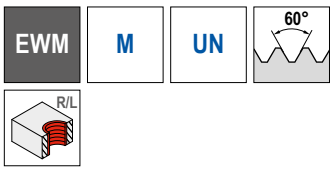


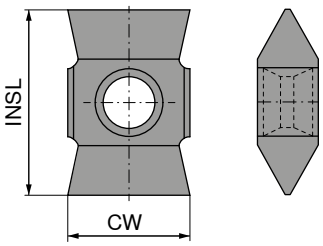
Clamping screw

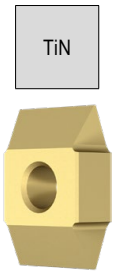
Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A	
50 848 020	T07 - IP	17.97	**124**	M2,5x8,5	12.61	**739**
50 848 030	T07 - IP	17.97	**124**	M2,5x8,5	12.61	**739**
50 848 040	T09 - IP	19.68	**126**	M3x11	12.61	**740**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

ModuThread – Thread milling insert – partial profile







Solid carbide

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	£ W2	50 870 ...
40,25	1,5 - 3,0	16 - 9	9.5	15.50	94.42	**515**
40,25	3,0 - 6,0	9 - 4	9.5	15.50	94.42	**530**
52,55 / 66,55	1,5 - 3,0	16 - 9	12.5	19.00	102.32	**615**
52,55 / 66,55	3,0 - 6,0	9 - 4	12.5	19.00	102.32	**630**
92	6,0 - 8,0	4	14.3	28.58	167.21	**760**

P	●
M	●
K	●
N	●
S	●
H	○
O	○

→ v_c/f_z Page 81

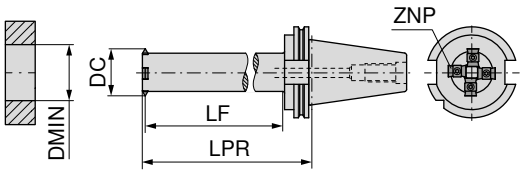
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

ModuThread – Circular milling cutter

Scope of supply:
including key

EWM







DIN 69871

50 849 ...

DC mm	DMIN mm	TP mm	TPI 1/"	LF mm	LPR mm	Adapter	ZNP	torque moment Nm	£ W1	
40.25	43.0	1,5 - 6,0	16 - 4,0	145	178.7	SK 50	4	5,5	948.10	**148**
40.25	43.0	1,5 - 6,0	16 - 4,0	145	178.7	SK 40	4	5,5	920.18	**048**
52.55	56.0	1,5 - 6,0	16 - 4,0	195	229.2	SK 50	4	8,0	1,082.94	**164**
66.55	70.5	1,5 - 6,0	16 - 4,0	260	296.2	SK 50	7	8,0	1,489.01	**080**
92.00	100.0	6,0 - 8,0	4,0	360	395.0	SK 50	7	8,0	1,733.23	**115**



Key D



Clamping screw

80 950 ... **70 950 ...**

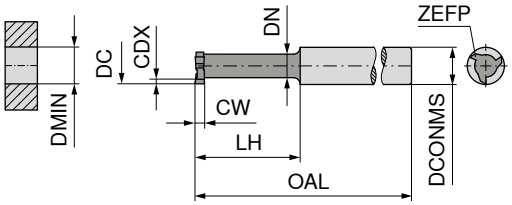
Spare parts DC		£ Y7			£ 2A	
40,25	T15 - IP	21.01	**128**	M4x13	12.61	**741**
52,55 - 92	T20 - IP	22.06	**129**	M5x15	12.61	**742**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Solid Carbide Circular End Milling Cutter

Micro Mill





CWX500



Solid carbide

53 050 ...

DC mm	CW ±0,02 mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	£ W1	
5.8	0.7	0.8	15.2	58	3.8	6	3	6	66.17	070
	0.8	0.8	15.2	58	3.8	6	3	6	66.17	080
	0.9	0.8	15.2	58	3.8	6	3	6	66.17	090
	1.0	0.8	15.2	58	3.8	6	3	6	66.17	100
	1.5	0.8	15.2	58	3.8	6	3	6	66.17	150
7.8	0.7	1.2	25.4	68	5.0	8	3	8	83.49	170
	0.8	1.2	25.4	68	5.0	8	3	8	83.49	180
	0.9	1.2	25.4	68	5.0	8	3	8	83.49	190
	1.0	1.2	25.4	68	5.0	8	3	8	83.49	200
	1.5	1.2	25.4	68	5.0	8	3	8	83.49	250
	2.0	1.2	25.4	68	5.0	8	3	8	83.49	300

P	●
M	●
K	●
N	●
S	●
H	●
O	●

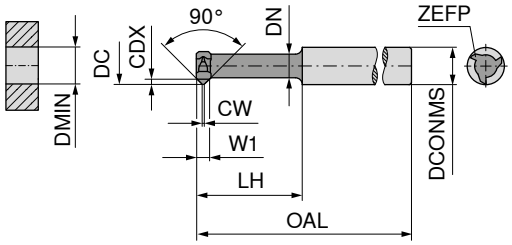
→ v_c/f_z Page 83

7

MonoThread – Solid Carbide Circular End Milling Cutter

Micro Mill





CWX500



Solid carbide

53 051 ...

DC mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	£ W1	
5.8	2	0.2	0.8	15	58	4.2	6	3	6	63.82	010
	2	0.2	0.8	25	68	4.2	6	3	6	81.02	020
7.8	2	0.2	1.2	25	68	5.0	8	3	8	98.33	110
	2	0.2	1.2	35	78	5.0	8	3	8	103.55	120

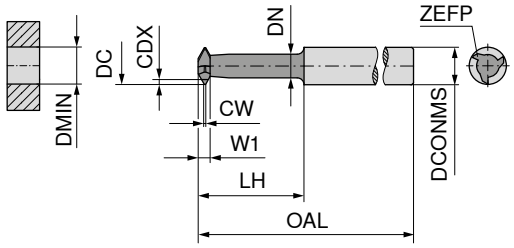
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 83

MonoThread – Solid Carbide Circular Thread Milling Cutter – Full profile

▲ Profile corrected

Micro Mill | M | 60° | R/L



CWX500



Solid carbide

53 052 ...

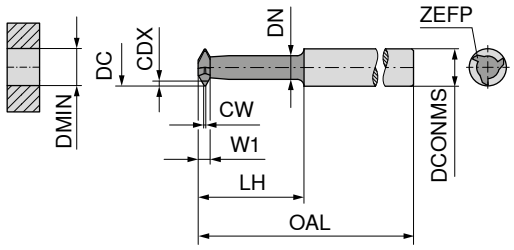
DC mm	Thread	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	£ W1	
1.18	M1,6	0.35	0.40	0.04	0.19	4.0	32	0.64	3	3	1.38	77.75	**160**
1.38	M1,8	0.35	0.50	0.04	0.19	5.0	32	0.70	3	3	1.58	76.83	**180**
1.50	M2	0.40	0.56	0.05	0.22	5.0	32	0.90	3	4	1.70	85.59	**200**
1.95	M2,5	0.45	0.60	0.06	0.25	6.0	32	1.15	3	4	2.15	84.66	**250**
2.40	M3	0.50	0.60	0.06	0.27	7.0	32	1.60	3	4	2.60	83.88	**300**
2.80	M3,5	0.60	0.74	0.08	0.33	8.0	32	1.80	3	4	3.00	82.06	**350**
3.10	M4	0.70	0.82	0.09	0.38	9.0	44	1.98	5	4	3.30	89.08	**400**
3.60	M5	0.80	0.98	0.10	0.43	10.0	44	2.20	5	4	3.80	86.49	**500**
4.10	M6	1.00	0.98	0.13	0.54	12.2	44	2.70	5	4	4.30	84.66	**600**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 83

MonoThread – Solid Carbide Circular Thread Milling Cutter – Partial profile

Micro Mill | 60° | R/L



CWX500



Solid carbide

53 053 ...

DC mm	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	£ W1	
5.8	0,5 - 1,5	2	0.06	0.91	15.2	58	3.5	6	3	6	69.05	**010**
7.8	0,5 - 1,5	2	0.06	0.91	25.4	68	5.5	8	3	8	91.43	**110**
7.8	1,0 - 2,0	2	0.12	1.19	25.4	68	5.0	8	3	8	91.43	**120**

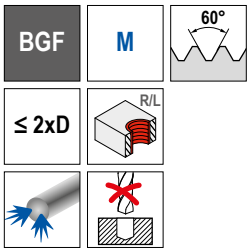
P	●
M	●
K	●
N	●
S	●
H	●
O	●

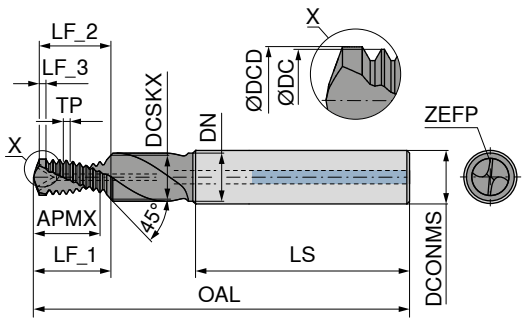
→ v_c/f_z Page 83

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Drill thread milling cutter with chamfer facet

▲ Profile corrected





Ti601



Solid carbide | Solid carbide

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	50 869 ... £ W1/5D		50 854 ... £ W1/5D	
2.45	M3	88901001000013	0.50	49	5.8	36	6	2.5	3.3	4.5	6.8	6.4	0.5	2	269.76	**03000**[1]		
2.45	M3	88906001000013	0.50	49	5.8	36	6	2.5	3.3	4.5	6.8	6.4	0.5	2			289.54	**03000**[1]
3.24	M4	88941001000015	0.70	49	7.3	36	6	3.3	4.3	4.5	9.4	8.9	0.7	2	303.32	**04000**		
3.24	M4	88935001000015	0.70	49	7.3	36	6	3.3	4.3	4.5	9.4	8.9	0.7	2			342.88	**04000**
4.10	M5	88941001000017	0.80	55	9.2	36	6	4.2	5.3	5.5	11.7	11.0	0.8	2	298.63	**05000**		
4.10	M5	88935001000017	0.80	55	9.2	36	6	4.2	5.3	5.5	11.7	11.0	0.8	2			339.79	**05000**
4.85	M6	88941001000018	1.00	62	11.4	36	8	5.0	6.3	6.6	14.5	13.7	1.0	2	298.63	**06000**		
4.85	M6	88935001000018	1.00	62	11.4	36	8	5.0	6.3	6.6	14.5	13.7	1.0	2			339.79	**06000**
6.45	M8	88941001000020	1.25	74	14.2	40	10	6.8	8.3	9.0	18.2	17.1	1.3	2	355.04	**08000**		
6.45	M8	88935001000020	1.25	74	14.2	40	10	6.8	8.3	9.0	18.2	17.1	1.3	2			394.76	**08000**
8.08	M10	88941001000022	1.50	79	18.5	45	12	8.5	10.3	11.0	23.4	22.1	1.5	2	399.29	**10000**		
8.08	M10	88935001000022	1.50	79	18.5	45	12	8.5	10.3	11.0	23.4	22.1	1.5	2			476.95	**10000**
9.74	M12	88941001000024	1.75	89	21.6	45	14	10.3	12.3	13.5	27.1	25.5	1.5	2	544.05	**12000**		
9.74	M12	88935001000024	1.75	89	21.6	45	14	10.3	12.3	13.5	27.1	25.5	1.5	2			636.95	**12000**
11.35	M14	88941001000025	2.00	102	26.6	48	16	12.0	14.3	15.5	32.8	30.9	1.5	2	675.07	**14000**		
11.35	M14	88935001000025	2.00	102	26.6	48	16	12.0	14.3	15.5	32.8	30.9	1.5	2			725.33	**14000**
13.28	M16	88941001000026	2.00	102	30.6	48	18	14.0	16.3	17.5	37.1	35.0	1.5	2	787.88	**16000**		
13.28	M16	88935001000026	2.00	102	30.6	48	18	14.0	16.3	17.5	37.1	35.0	1.5	2			848.83	**16000**

1) Without Through Coolant



DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	50 869 ... £ W1/5D		50 854 ... £ W1/5D	
6.79	M8x1	88935002000070	1.0	74	15.40	40	10	7.0	8.3	9.0	18.8	17.7	1.0	2			452.63	**08100**
6.79	M8x1	88941002000070	1.0	74	15.40	40	10	7.0	8.3	9.0	18.8	17.7	1.0	2	411.46	**08100**		
8.75	M10x1	88941002000094	1.0	79	19.40	45	12	9.0	10.3	11.0	23.2	21.8	1.0	2	443.40	**10100**		
8.75	M10x1	88935002000094	1.0	79	19.40	45	12	9.0	10.3	11.0	23.2	21.8	1.0	2			521.21	**10100**
10.74	M12x1	88935002000111	1.0	89	22.40	45	14	11.0	12.3	13.5	26.4	24.8	1.0	2			665.98	**12100**
10.06	M12x1,5	88935002000113	1.5	89	23.01	45	14	10.5	12.3	13.5	28.2	26.6	1.5	2			665.98	**12200**
10.06	M12x1,5	88941002000113	1.5	89	23.01	45	14	10.5	12.3	13.5	28.2	26.6	1.5	2	611.03	**12200**		

P		
M		
K	○	●
N	●	○
S		
H		
O	●	○

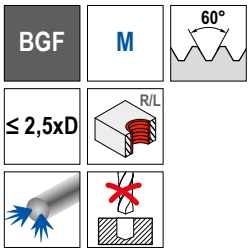
→ v_c/f_z Page 78

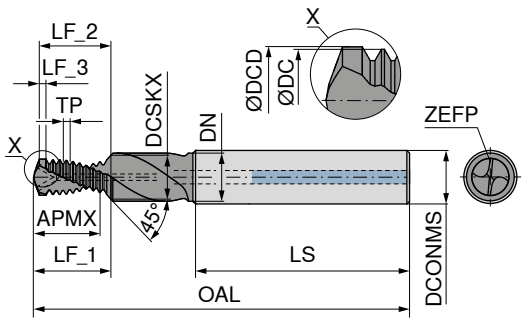
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

MonoThread – Drill thread milling cutter with chamfer facet

▲ Profile corrected





Ti601



Solid carbide | Solid carbide

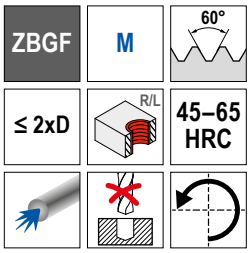
															50 898 ...		50 862 ...	
DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	£ W1/5D		£ W1/5D	
4.10	M5	88961001000017	0.80	55	11.57	36	6	4.2	5.3	5.5	14.1	13.4	0.8	2	298.63	**05000**		
4.85	M6	88961001000018	1.00	62	13.40	36	8	5.0	6.3	6.6	16.5	15.7	1.0	2	298.63	**06000**		
4.85	M6	88956001000018	1.00	62	13.40	36	8	5.0	6.3	6.6	16.5	15.7	1.0	2			339.79	**06000**
6.45	M8	88961001000020	1.25	74	19.20	40	10	6.8	8.3	9.0	23.2	22.1	1.3	2	355.04	**08000**		
6.45	M8	88956001000020	1.25	74	19.20	40	10	6.8	8.3	9.0	23.2	22.1	1.3	2			394.76	**08000**
8.08	M10	88961001000022	1.50	79	23.00	45	12	8.5	10.3	11.0	27.9	26.6	1.5	2	399.29	**10000**		
8.08	M10	88956001000022	1.50	79	23.00	45	12	8.5	10.3	11.0	27.9	26.6	1.5	2			476.95	**10000**
9.74	M12	88961001000024	1.75	89	28.60	45	14	10.3	12.3	13.5	34.1	32.5	1.5	2	544.05	**12000**		
9.74	M12	88956001000024	1.75	89	28.60	45	14	10.3	12.3	13.5	34.1	32.5	1.5	2			636.95	**12000**
P																		
M																		
K																○		●
N																●		○
S																		
H																		
O																●		○

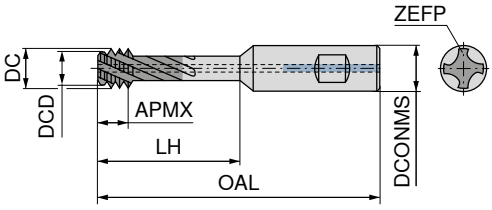
→ v_c/f_z Page 78

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Circular Thread Milling Cutter

▲ Note: left-hand cutting (M04)
▲ Profile corrected







Solid carbide

50 840 ...

DC mm	Thread	TP mm	APMX mm	LH mm	DCONMS mm	DCD mm	OAL mm	ZEFP	£ W1	
2.3	M3x0,5	0.50	2.0	7.0	6	2.10	51	4	190.89	**030** 1)
3.0	M4x0,7	0.70	2.8	9.4	6	2.60	51	4	191.11	**040** 1)
3.8	M5x0,8	0.80	3.2	11.6	6	3.40	51	4	189.43	**050** 1)
4.6	M6x1 - M7x1	1.00	4.0	14.0	8	4.10	60	4	189.31	**060** 1)
6.2	M8x1,25 - M10x1,25	1.25	5.0	19.0	10	5.60	71	4	203.94	**080**
7.8	M10x1,5 - M12x1,5	1.50	6.0	25.0	10	7.00	76	4	219.81	**100**
9.2	M12x1,75	1.75	7.0	31.0	12	8.30	86	4	233.65	**120**
11.1	M14x2 - M16x2	2.00	8.0	36.0	16	10.04	98	4	255.37	**140**

P	
M	
K	
N	
S	○
H	●
O	○

1) Without Through Coolant

→ v_c/f_z Page 78

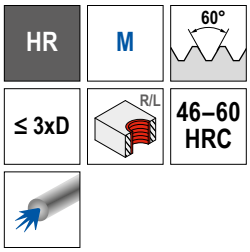
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

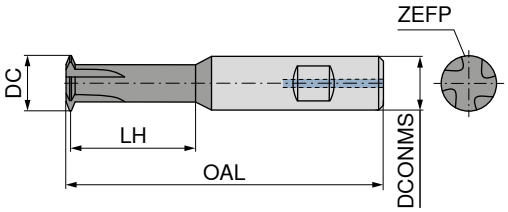
Caution: left-hand cutting (M04) → spindle rotation left!

7

MonoThread – Thread Milling Cutter

▲ Available on request from M3





NEW

TiCN



Solid carbide

NEW

TiCN



Solid carbide

DC mm	Thread	TP mm	LH mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	50 546 ... £ W1/5D		50 547 ... £ W1/5D	
3.14	M4	0.70	9	6	55	3	190.94	**04000**	193.84	**04000**
3.95	M5	0.80	11	6	55	3	190.94	**05000**	193.84	**05000**
4.68	M6 - M7	1.00	16	8	60	3	195.11	**06000**	198.17	**06000**
6.22	M8 - M9	1.25	22	10	71	4	221.76	**08000**	223.16	**08000**
7.79	M10 - M12	1.50	26	10	76	4	223.16	**10000**	226.08	**10000**
9.38	M12	1.75	27	12	86	4	248.14	**12000**	249.55	**12000**

P	○	○
M	○	○
K	○	○
N	○	○
S	○	○
H	●	●
O	○	○

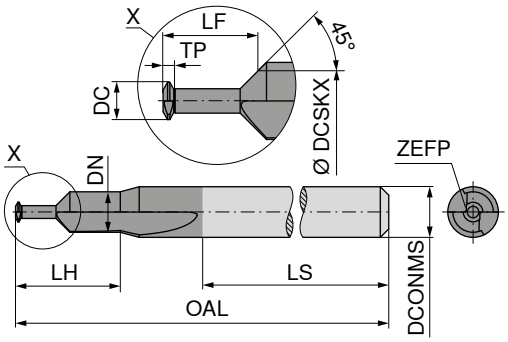
→ v_c/f_z Page 78

Other dimensions are available on request.

MonoThread – Shank thread milling cutter with shank-end countersink

▲ Note: left-hand cutting
▲ Profile corrected

SFSE Micro | M | 60° | ≤ 1,5xD | 46–60 HRC



Ti602



Solid carbide

50 804 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	DN mm	LS mm	LH mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	£ W1/5D	
0.75	M1	88977001000001	0.25	40	1.8	28	5.2	3	1.5	2.1	2	195.03	**01000**
1.10	M1,4	88977001000004	0.30	40	2.0	28	5.7	3	1.7	2.6	2	195.03	**01400**
1.25	M1,6	88977001000005	0.35	40	2.4	28	6.0	3	2.1	3.1	2	195.03	**01600**
1.60	M2	88977001000008	0.40	40	3.0	28		3	2.6	3.7	2	182.87	**02000**
1.75	M2,2	88977001000009	0.45	40	3.0	28		3	2.5	3.9	2	182.87	**02200**
2.05	M2,5	88977001000011	0.45	40	3.0	28		3	2.9	4.5	2	182.87	**02500**

P	○
M	○
K	
N	○
S	○
H	●
O	

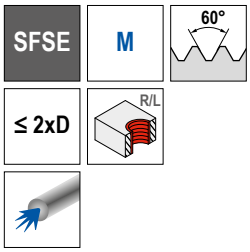
→ v_c/f_z Page 80

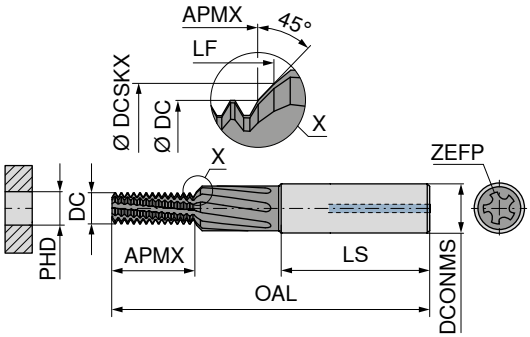
Caution: left-hand cutting (M04) → spindle rotation left!

7

MonoThread – Thread Milling Cutter with Chamfer Facet

▲ Profile corrected







Solid carbide

HPC – High Perfomance Cutting

50 806 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	PHD mm	£ W1/5D	
3.14	M4	88296001000015	0.70	49	8.0	36	6	4.3	8.6	5	3.3	222.44	**04000**
3.95	M5	88296001000017	0.80	55	9.9	36	6	5.3	10.6	5	4.2	228.59	**05000**
4.68	M6	88296001000018	1.00	62	12.3	36	8	6.3	13.2	6	5.0	243.83	**06000**
6.22	M8	88296001000020	1.25	74	16.6	40	10	8.3	17.8	7	6.8	292.62	**08000**
7.79	M10	88296001000022	1.50	79	19.9	45	12	10.3	21.3	7	8.5	347.42	**10000**
9.38	M12	88296001000024	1.75	89	24.9	45	14	12.3	26.6	7	10.2	492.19	**12000**
10.92	M14	88296001000025	2.00	102	28.5	48	16	14.3	30.4	7	12.0	576.01	**14000**
12.83	M16	88296001000026	2.00	102	32.4	48	18	16.3	34.4	8	14.0	717.72	**16000**



50 807 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	PHD mm	£ W1/5D	
3.95	M5x0,5	88296002000037	0.50	55	10.2	36	6	5.3	10.8	5	4.5	252.91	**05100**
4.68	M6x0,75	88296002000048	0.75	62	12.2	36	8	6.3	13.0	5	5.2	278.86	**06200**
6.22	M8x1	88296002000070	1.00	74	16.2	40	10	8.3	17.3	6	7.0	327.64	**08300**
7.79	M10x1	88296002000094	1.00	79	20.1	45	12	10.3	21.5	7	9.0	380.99	**10300**
9.38	M12x1	88296002000111	1.00	89	24.0	45	14	12.3	25.6	7	11.0	518.12	**12300**
9.38	M12x1,5	88296002000113	1.50	89	24.3	45	14	12.3	25.9	7	10.5	530.29	**12500**
10.92	M14x1,5	88296002000131	1.50	102	28.7	48	16	14.3	30.6	7	12.5	582.15	**14500**
12.82	M16X1,5	88296002000147	1.50	102	31.7	48	18	16.3	33.6	8	14.5	728.40	**16500**

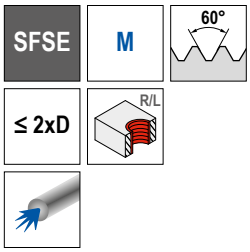
P	●
M	●
K	●
N	
S	●
H	
O	

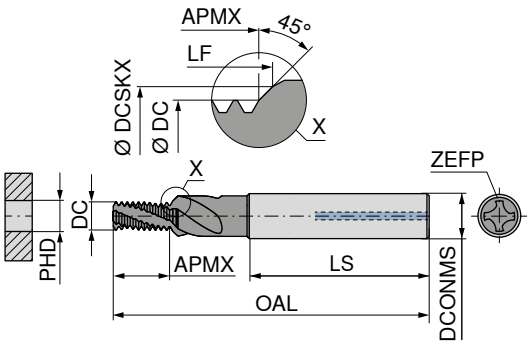
→ v_c/f_z Page 80

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread Milling Cutter with Chamfer Facet

▲ Profile corrected





NEW

AlTiN



Solid carbide

50 552 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	PHD mm	£ W1/5D	
3.95	M5	0.80	55	10.05	36	6	5.3	10.60	3	4.2	203.51	**05000**
4.68	M6	1.00	62	12.56	36	8	6.3	13.20	4	5.0	203.51	**06000**
6.22	M8	1.25	74	16.99	40	10	8.3	17.76	4	6.8	233.93	**08000**
7.79	M10	1.50	79	20.41	45	12	10.3	21.30	4	8.5	260.15	**10000**
9.38	M12	1.75	89	25.57	45	14	12.3	26.60	5	10.2	387.08	**12000**
12.83	M16	2.00	102	33.27	48	18	16.3	34.42	5	14.0	410.16	**16000**



NEW

50 553 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	PHD mm	£ W1/5D	
6.22	M8x1	1.00	74	16.69	40	10	8.3	17.34	4	7.0	267.50	**08200**
7.79	M10x1	1.00	79	20.81	45	12	10.3	21.46	4	9.0	315.75	**10200**
7.79	M10x1,25	1.25	79	20.85	45	12	12.3	21.63	4	8.8	315.75	**10300**
9.38	M12x1,25	1.25	89	24.72	45	14	12.3	25.49	5	10.8	393.38	**12300**
9.38	M12x1,5	1.50	89	25.02	45	14	12.3	25.92	5	10.5	393.38	**12400**
10.92	M14x1	1.00	102	29.06	48	16	14.3	29.71	5	13.0	418.55	**14200**
10.92	M14x1,5	1.50	102	29.65	48	16	14.3	30.55	5	12.5	418.55	**14400**
12.82	M16x1,5	1.50	102	32.67	48	18	14.3	33.57	5	14.5	420.65	**16400**

P	●
M	●
K	●
N	●
S	●
H	
O	●

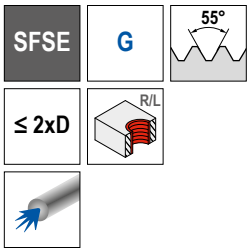
→ v_c/f_z Page 79

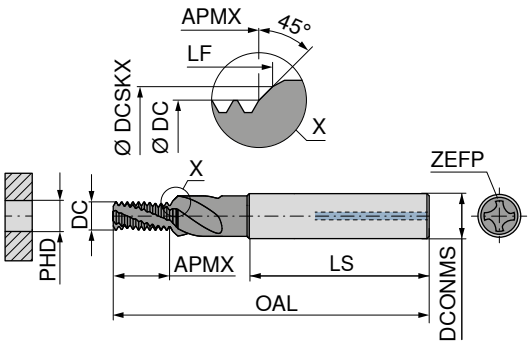
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

MonoThread – Thread Milling Cutter with Chamfer Facet

▲ Profile corrected





NEW

AlTiN





Solid carbide

50 551 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	£ W1/5D	
7.79	G 1/8-28	0.907	79	20.59	45	12	10.03	21.25	4	8.80	333.58	**01800**
10.92	G 1/4-19	1.337	102	27.53	48	16	13.46	28.43	5	11.80	438.48	**01400**
13.92	G 3/8-19	1.337	102	34.34	48	18	16.96	35.24	5	15.25	468.90	**03800**
15.98	G1/2-14	1.814	127	43.27	56	25	21.25	44.45	5	19.00	553.87	**01200**

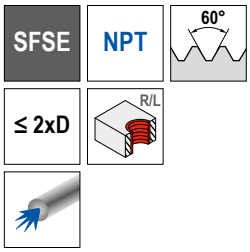
P	●
M	●
K	●
N	●
S	●
H	
O	●

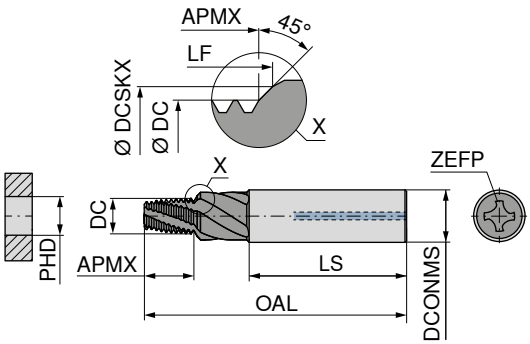
→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread Milling Cutter with Chamfer Facet

▲ Profile corrected





NEW

AlTiN



Solid carbide

50 554 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	PHD mm	£ W1/5D	
5.45	NPT 1/16-27	0.941	64	9.86	40	10	8.70	11.33	4	6.15	269.59	**11600**
7.87	NPT 1/8-27	0.941	74	9.86	45	12	11.10	11.33	4	8.50	312.60	**01800**
10.10	NPT 1/4-18	1.411	80	14.78	48	16	14.50	16.76	5	11.10	368.20	**01400**
16.42	NPT 1/2-14	1.814	94	18.98	48	18			5	17.90	546.53	**01200**[1)]

P	●
M	●
K	●
N	●
S	●
H	
O	●

1) Chamfer section at the front of the tool

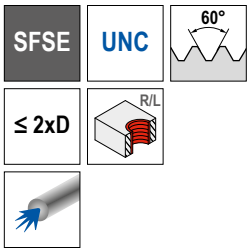
→ v_c/f_z Page 79

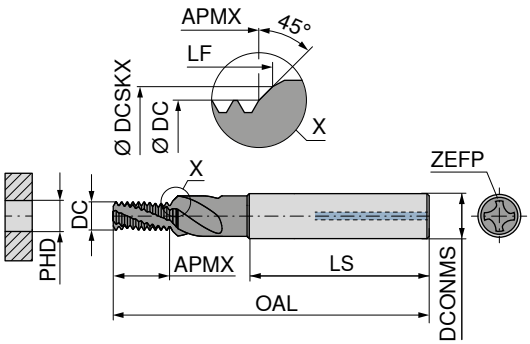
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

MonoThread – Thread Milling Cutter with Chamfer Facet

▲ Profile corrected





NEW

AlTiN





Solid carbide

50 555 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	PHD mm	£ W1/5D	
4.70	UNC 1/4-20	1.270	62	14.68	36	8	6.65	15.46	4	5.1	274.84	**01400**
6.22	UNC 5/16-18	1.411	74	16.28	40	10	8.24	17.14	4	6.6	305.26	**51600**
7.34	UNC 3/8-16	1.588	79	19.98	45	12	9.83	20.92	4	8.0	345.12	**03800**
8.57	UNC 7/16-14	1.814	79	22.83	45	12	11.41	23.89	4	9.4	396.52	**71600**
9.38	UNC 1/2-13	1.954	89	26.71	45	14	13.00	27.83	5	10.8	402.82	**01200**
10.92	UNC 9/16-12	2.117	102	30.99	48	16	14.60	32.20	5	12.2	516.11	**91600**
12.50	UNC 5/8-11	2.309	102	33.72	48	18	16.18	35.03	5	13.5	564.36	**05800**
15.21	UNC 3/4-10	2.540	110	39.68	50	20	19.35	41.10	5	16.5	568.56	**03400**



NEW

50 556 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	PHD mm	£ W1/5D	
4.70	UNF 1/4-28	0.907	62	14.24	36	8	6.65	14.84	4	5.5	274.84	**01400**
6.22	UNF 5/16-24	1.058	74	16.56	40	10	8.24	17.23	4	6.9	305.26	**51600**
7.79	UNF 3/8-24	1.058	79	19.73	45	12	9.83	20.41	4	8.5	351.42	**03800**
9.32	UNF 7/16-20	1.270	89	22.34	45	14	11.40	23.13	5	9.9	378.69	**71600**
9.38	UNF 1/2-20	1.270	89	26.57	45	14	13.00	27.36	5	11.5	388.13	**01200**
10.92	UNF 9/16-18	1.411	102	29.43	48	16	14.59	30.29	5	12.9	494.08	**91600**
12.82	UNF 5/8-18	1.411	102	33.58	48	18	16.18	34.43	5	14.5	405.96	**05800**
15.82	UNF 3/4-16	1.587	110	39.29	50	20	19.35	40.23	5	17.5	560.17	**03400**

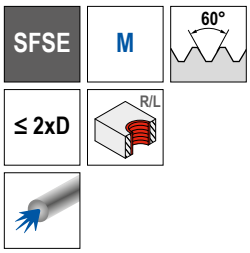
P	●
M	●
K	●
N	●
S	●
H	
O	●

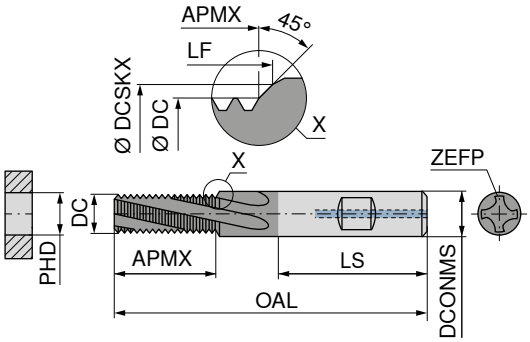
→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread milling cutter with chamfer facet

▲ Profile-corrected
▲ Hard machining from Ø DC = 4 mm possible
▲ Chamfer section at end of shank







Solid carbide

54 815 ...

DC mm	Thread	TP mm	OAL mm	LS mm	APMX mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	PHD mm	£ W8/8W	
4.00	M5	0.80	62	36	12.3	8	5.3	12.98	3	4.20	187.15	**05000**[1]
4.80	M6	1.00	62	36	14.4	8	6.3	15.18	3	5.00	187.15	**06000**[1]
6.50	M8	1.25	74	40	19.0	10	8.3	20.19	3	6.80	220.01	**08000**
7.95	M10	1.50	80	45	23.0	12	10.3	24.25	3	8.50	261.00	**10000**
9.90	M12	1.75	90	45	28.6	14	12.3	29.94	4	10.25	334.85	**12000**
11.60	M14	2.00	100	48	32.6	16	14.3	34.20	4	12.00	384.16	**14000**
11.95	M16	2.00	90	45	36.6	12			4	14.00	261.00	**16000**[2]
13.95	M18	2.50	110	50	38.0	20	18.3	40.50	4	15.50	541.51	**18000**
15.95	M20	2.50	100	48	43.3	16			4	17.50	384.16	**20000**[2]

1) Without Through Coolant
2) Chamfer section at the front of the tool



54 816 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	PHD mm	£ W8/8W	
6.0	M8x1	1.00	74	19.2	40	10	8.3	20.41	3	7.0	220.01	**08000**
8.0	M10x1	1.00	80	22.2	45	12	10.3	23.41	3	9.0	261.00	**10000**
8.0	M10x1,25	1.25	80	22.8	45	12	10.3	24.09	3	8.8	261.00	**10100**
9.9	M12x1	1.00	90	27.2	45	14	12.3	28.42	4	11.0	334.85	**12000**
9.9	M12x1,25	1.25	90	27.8	45	14	12.3	29.10	4	10.8	334.85	**12100**
9.9	M12x1,5	1.50	90	27.5	45	14	12.3	28.77	4	10.5	334.85	**12200**
11.6	M14x1	1.00	100	31.0	48	16	14.3	32.51	4	13.0	384.16	**14000**
11.6	M14x1,5	1.50	100	32.0	48	16	14.3	33.35	4	12.5	397.07	**14100**
12.0	M16x1,5	1.50	90	35.0	45	12			4	14.5	261.00	**16000**[1]
14.0	M18x1,5	1.50	110	39.0	50	20	18.3	41.30	4	16.5	554.65	**18000**
16.0	M20x1,5	1.50	100	44.0	48	16			4	18.5	334.85	**20000**[1]

P	●
M	●
K	●
N	●
S	●
H	●
O	●

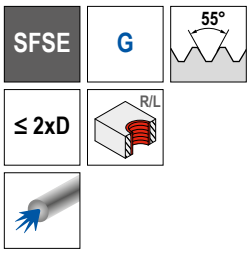
1) Chamfer section at the front of the tool

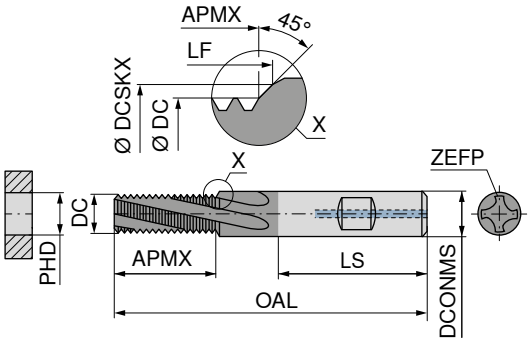
→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread milling cutter with chamfer facet

▲ Profile-corrected
▲ Hard machining from Ø DC = 4 mm possible
▲ Chamfer section at end of shank







Solid carbide

54 817 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	£ W8/8W	
6.00	G 1/16-28	0.907	74	16.5	40	10	8.02	17.54	3	6.80	285.56	**11600**
7.95	G 1/8-28	0.907	80	22.0	45	12	10.03	23.00	3	8.80	302.01	**01800**
9.90	G 1/4-19	1.337	100	28.0	48	16	13.46	29.98	4	11.80	429.93	**01400**
13.95	G 3/8-19	1.337	90	36.5	45	14			4	15.25	370.97	**03800**[1)]
15.95	G 1/2-14	1.814	100	46.0	48	16			5	19.00	397.07	**01200**[1)]
17.95	G 5/8-14	1.814	110	49.5	48	18			5	21.00	554.65	**05800**[1)]

1) Chamfer section at the front of the tool



54 820 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	ZEFP	PHD mm	£ W8/8W	
10.1	NPT 1/4-18	1.411	90	16.0	45	14	3	11.1	420.09	**01400**[1)]
12.8	NPT 3/8-18	1.411	90	16.0	48	16	4	14.5	505.52	**03800**[1)]
16.0	NPT 1/2-14	1.814	110	20.5	50	20	5	17.9	692.49	**01200**[1)]
18.5	NPT 3/4-14	1.814	110	20.5	50	20	5	23.2	692.49	**03400**[1)]

P	●
M	●
K	●
N	●
S	●
H	●
O	●

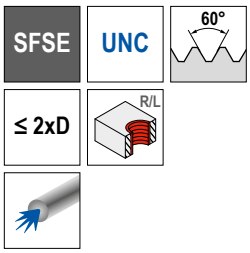
1) Chamfer section at the front of the tool

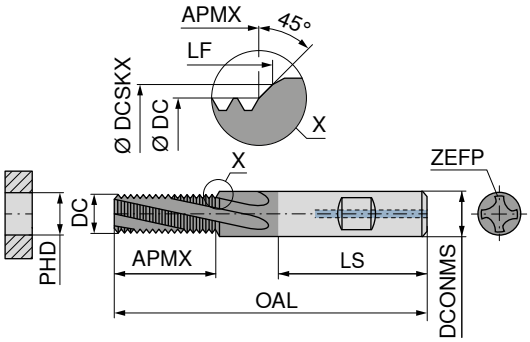
→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread milling cutter with chamfer facet

▲ Profile-corrected
▲ Hard machining from Ø DC = 4 mm possible
▲ Chamfer section at end of shank







Solid carbide

54 818 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	£ W8/8W	
4.80	UNC 1/4-20	1.270	62	14.4	36	8	6.65	15.43	3	5.1	220.01	**01400**[1]
5.95	UNC 5/16-18	1.411	74	20.2	40	10	8.24	21.44	3	6.6	246.27	**51600**
7.60	UNC 3/8-16	1.588	80	24.3	45	12	9.83	25.62	3	8.0	298.69	**03800**
7.95	UNC 7/16-14	1.814	90	24.0	45	14	11.41	25.86	3	9.4	364.42	**71600**
9.90	UNC 1/2-13	1.954	90	29.8	45	14	13.00	31.59	4	10.8	370.97	**01200**
11.80	UNC 9/16-12	2.117	100	34.5	48	16	14.59	36.19	4	12.2	443.11	**91600**
12.70	UNC 5/8-11	2.309	90	37.7	45	14			4	13.5	370.97	**05800**[2]
15.20	UNC 3/4-10	2.540	110	41.2	50	20	19.35	43.63	5	16.5	636.81	**03400**

1) Without Through Coolant
2) Chamfer section at the front of the tool



54 819 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	DCSKX mm	LF mm	ZEFP	PHD mm	£ W8/8W	
4.80	UNF 1/4-28	0.907	62	14.7	36	8	6.65	15.72	3	5.5	220.01	**01400**[1]
5.95	UNF 5/16-24	1.058	74	19.3	40	10	8.24	20.48	3	6.9	246.27	**51600**
8.00	UNF 3/8-24	1.058	80	22.5	45	12	9.83	23.54	3	8.5	298.69	**03800**
7.95	UNF 7/16-20	1.270	90	23.0	45	14	11.41	24.76	3	9.9	364.42	**71600**
9.90	UNF 1/2-20	1.270	90	28.0	45	14	13.00	29.75	4	11.5	370.97	**01200**
12.00	UNF 9/16-18	1.411	100	31.4	48	16	15.59	32.81	4	12.9	443.11	**91600**
13.50	UNF 5/8-18	1.411	90	35.7	45	14			4	14.5	370.97	**05800**[2]
17.00	UNF 3/4-16	1.588	110	40.2	50	20	19.35	41.53	5	17.5	636.81	**03400**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

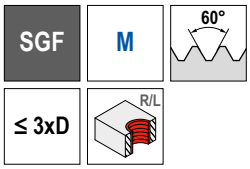
1) Without Through Coolant
2) Chamfer section at the front of the tool

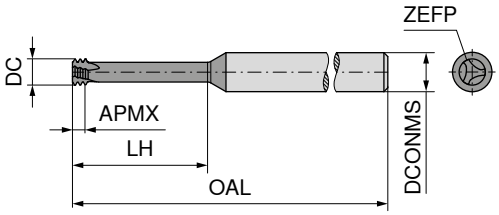
→ v_c/f_z Page 79

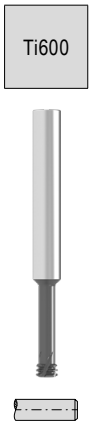
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Circular shank thread milling cutter

▲ Available on request from M1
▲ Profile corrected







Solid carbide

50 802 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS h6 mm	ZEFP	£ W1	
1.53	M2	0.40	39	0.80	6.0	3	3	96.94	**02000**
2.37	M3	0.50	58	1.35	9.5	6	3	96.94	**03000**
3.10	M4	0.70	58	1.95	12.5	6	3	96.94	**04000**
3.80	M5	0.80	58	2.30	16.0	6	3	96.94	**05000**
4.65	M6	1.00	58	2.70	20.0	6	3	96.94	**06000**
6.00	M8	1.25	58	3.20	24.0	6	3	96.94	**08000**
7.80	M10	1.50	64	3.80	31.5	8	3	120.79	**10000**
9.00	M12	1.75	73	4.55	37.8	10	3	135.78	**12000**



50 803 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS h6 mm	ZEFP	£ W1	
1.53	M2	0.40	39	1.00	10.4	3	3	109.10	**02000**
2.40	M3	0.50	39	1.30	12.5	3	3	104.25	**03000**
3.10	M4	0.70	58	1.80	16.7	6	3	104.25	**04000**
4.00	M5	0.80	58	2.10	20.8	6	3	104.25	**05000**
4.80	M6	1.00	58	2.55	25.0	6	3	104.25	**06000**
6.40	M8	1.25	64	3.15	33.5	8	3	129.22	**08000**
8.00	M10	1.50	76	3.85	41.5	8	3	129.22	**10000**

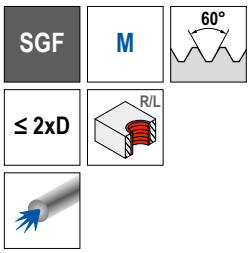
P	●
M	●
K	●
N	●
S	●
H	
O	●

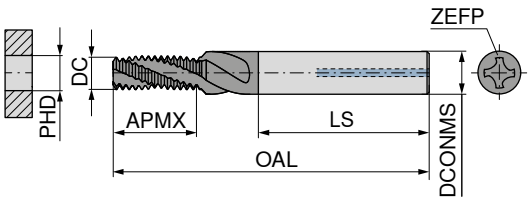
→ v_c/f_z Page 80

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread Milling Cutter

▲ Profile corrected





NEW

AlTiN





Solid carbide

50 531 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	ZEFP	PHD mm	£ W1/5D	
2.44	M3	0.50	42	6.24	36	4	3	2.5	169.94	**03000**[1]
3.14	M4	0.70	49	8.00	36	6	3	3.3	188.82	**04000**
3.95	M5	0.80	55	10.00	36	6	3	4.2	188.82	**05000**
4.68	M6	1.00	55	12.47	36	6	4	5.0	195.11	**06000**
6.22	M8	1.25	62	16.83	36	8	4	6.8	205.60	**08000**
7.79	M10	1.50	74	20.20	40	10	4	8.5	234.98	**10000**
9.38	M12	1.75	79	25.32	45	12	5	10.2	269.59	**12000**
10.92	M14	2.00	89	28.93	45	14	5	12.0	330.44	**14000**
12.83	M16	2.00	102	32.94	48	16	5	14.0	339.88	**16000**
13.93	M18	2.50	102	36.17	48	16	5	15.5	404.91	**18000**
15.83	M20	2.50	110	41.17	50	20	5	17.5	414.36	**20000**

1) Without Through Coolant



NEW

50 532 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	ZEFP	PHD mm	£ W1/5D	
3.14	M4x0,5	0.50	49	8.00	36	6	3	3.5	185.67	**04000**
3.95	M5x0,5	0.50	55	10.00	36	6	3	4.5	185.67	**05000**
4.68	M6x0,75	0.75	55	12.34	36	6	4	5.2	191.97	**06100**
6.22	M8x0,75	0.75	62	16.09	36	8	4	7.2	205.60	**08100**
6.22	M8x1	1.00	62	16.46	36	8	4	7.0	208.75	**08200**
7.79	M10x1	1.00	74	20.46	40	10	4	9.0	223.44	**10200**
9.38	M12x1	1.00	79	24.45	45	12	5	11.0	269.59	**12200**
9.38	M12x1,5	1.50	79	24.69	45	12	5	10.5	282.18	**12400**
10.92	M14x1,5	1.50	89	29.19	45	14	5	12.5	330.44	**14400**
12.82	M16x1,5	1.50	102	32.19	48	16	5	14.5	339.88	**16400**
13.93	M18x1,5	1.50	102	36.68	48	16	5	16.5	404.91	**18400**
15.83	M20x1,5	1.50	110	41.18	50	20	5	18.5	414.36	**20400**

P	●
M	●
K	●
N	●
S	●
H	
O	●

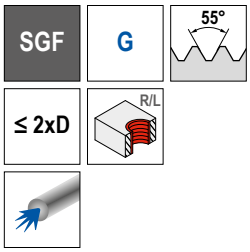
→ v_c/f_z Page 79

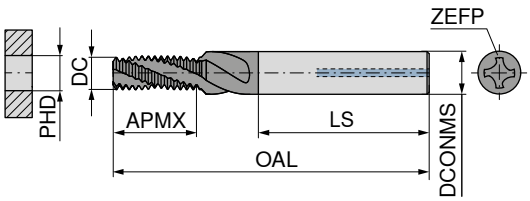
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

MonoThread – Thread Milling Cutter

▲ Profile corrected





NEW

AlTiN



Solid carbide

50 530 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS $_{h6}$ mm	ZEFP	PHD mm	£ W1/5D	
7.79	G 1/8-28	0.907	74	20.35	40	10	4	8.80	262.25	**01800**
10.92	G 1/4-19	1.337	89	27.34	45	14	5	11.80	292.67	**01400**
13.92	G 3/8-19	1.337	102	35.36	48	16	5	15.25	409.11	**03800**
15.90	G 1-11	2.309	102	33.29	48	16	5	30.75	486.74	**10000**
15.98	G 1/2-14	1.814	110	42.51	50	20	5	19.00	436.38	**01200**

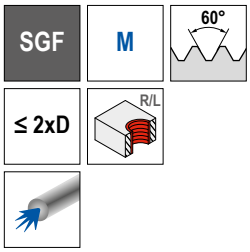
P	●
M	●
K	●
N	●
S	●
H	
O	●

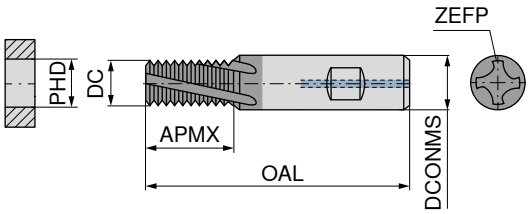
→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread milling cutter

▲ Profile corrected
▲ Hard machining from Ø DC = 4 mm possible







Solid carbide

54 821 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	£ W8/8W	
2.40	M3	0.50	7.0	4	42	2	2.50	125.68	**03000**[1]
3.15	M4	0.70	10.0	6	55	3	3.30	125.68	**04000**[2]
4.00	M5	0.80	12.2	6	55	3	4.20	125.68	**05000**[2]
4.80	M6	1.00	14.3	6	55	3	5.00	125.68	**06000**[2]
6.00	M8	1.25	19.0	6	60	3	6.75	131.94	**08000**
8.00	M10	1.50	23.0	8	70	3	8.50	159.52	**10000**
9.90	M12	1.75	28.6	10	75	4	10.25	192.87	**12000**
11.60	M14	2.00	32.6	12	85	4	12.00	223.31	**14000**
12.00	M16	2.00	36.6	12	85	4	14.00	233.45	**16000**
14.00	M18	2.50	43.3	14	90	4	15.50	276.46	**18000**
16.00	M20	2.50	43.3	16	90	4	17.50	287.10	**20000**

1) DIN 6535 HA Shank / Without Through Coolant
2) Without Through Coolant



54 822 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	£ W8/8W	
4.0	M 5x0,5	0.50	11.6	6	55	3	4.50	125.68	**05000**[1]
4.8	M 6x0,75	0.75	14.5	6	55	3	5.25	125.68	**06000**[1]
6.0	M 8x1	1.00	19.3	6	60	3	7.00	131.94	**08000**
8.0	M 10x1,25	1.25	21.6	8	70	3	8.75	159.52	**10000**
9.9	M 12x1	1.00	27.3	10	75	4	11.00	192.87	**12000**
9.9	M 12x1,25	1.25	27.9	10	75	4	10.75	192.87	**12100**
9.9	M 12x1,5	1.50	27.5	10	75	4	10.50	192.87	**12200**
11.6	M 14x1	1.00	31.3	12	85	4	13.00	223.31	**14000**
11.6	M 14x1,5	1.50	32.0	12	85	4	12.50	223.31	**14100**
12.0	M 16x1,5	1.50	35.0	12	85	4	14.50	233.45	**16000**
14.0	M 18x1,5	1.50	42.5	14	90	4	16.50	276.46	**18000**
16.0	M 20x1,5	1.50	42.5	16	90	4	18.50	287.10	**20000**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) DIN 6535 HA Shank / Without Through Coolant

→ v_c/f_z Page 79

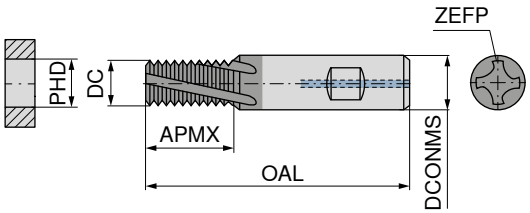
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

MonoThread – Thread milling cutter

▲ Profile corrected
▲ Hard machining from Ø DC = 4 mm possible

SGF | G | 55° | ≤ 2xD | R/L



Ti500



Solid carbide

54 823 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	£ W8/8W	
8.0	G 1/8-28	0.907	22.0	8	70	3	8.80	181.26	01800
9.9	G 1/4-19	1.337	28.5	10	75	4	11.80	205.40	01400
14.0	G 3/8-19	1.337	42.0	14	90	4	15.25	239.25	03800
16.0	G 1/2-14	1.814	44.0	16	90	4	19.00	289.96	01200

≤ 2xD | BSW | 55°

54 824 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	£ W8/8W	
6.0	BSW 5/16 - 18	1.411	20.0	6	60	3	6.50	152.24	51600
6.0	BSW 3/8 - 16	1.588	21.0	6	60	3	7.90	154.64	03800
8.0	BSW 7/16 - 14	1.814	24.0	8	70	3	9.25	182.69	71600
8.0	BSW 1/2 - 12	2.117	24.0	8	70	3	10.50	182.87	01200
9.9	BSW 5/8 - 11	2.309	30.5	10	75	4	13.50	213.14	05800

≤ 2xD | BSF | 55°

54 825 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	£ W8/8W	
6.0	BSF 5/16 - 22	1.155	20.0	6	60	3	6.8	154.64	51600
6.0	BSF 3/8 - 20	1.270	19.4	6	60	3	8.3	154.64	03800
8.0	BSF 7/16 - 18	1.411	23.0	8	70	3	9.7	182.69	71600
8.0	BSF 1/2 - 16	1.588	24.2	8	70	3	11.1	182.69	01200
9.9	BSF 5/8 - 14	1.814	29.5	10	75	4	14.0	213.14	05800

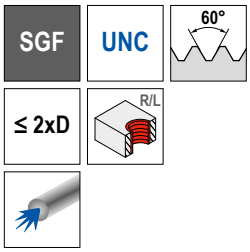
P	●
M	●
K	●
N	●
S	●
H	●
O	●

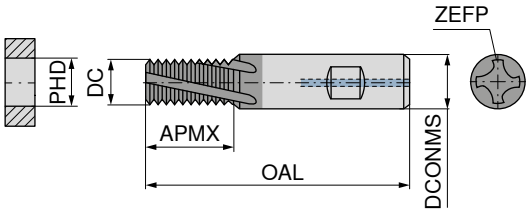
→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

MonoThread – Thread milling cutter

▲ Profile corrected







Solid carbide

54 826 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	£ W8/8W	
4.80	UNC 1/4-20	1.270	14.4	6	55	3	5.1	146.72	**01400**[1)]
6.00	UNC 5/16-18	1.411	20.2	6	60	3	6.6	174.00	**51600**
7.60	UNC 3/8-16	1.588	24.3	8	70	3	8.0	181.26	**03800**
7.95	UNC 7/16-14	1.814	24.0	8	70	3	9.4	182.69	**71600**
9.90	UNC 1/2-13	1.954	29.0	10	75	4	10.8	211.23	**01200**

1) DIN 6535 HA Shank / Without Through Coolant



54 827 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	£ W8/8W	
4.8	UNF 1/4-28	0.907	14.8	6	55	3	5.5	146.72	**01400**[1)]
6.0	UNF 5/16-24	1.058	19.3	6	60	3	6.9	152.24	**51600**
8.0	UNF 3/8-24	1.058	22.5	8	70	3	8.5	182.87	**03800**
8.0	UNF 7/16-20	1.270	23.2	8	70	3	9.9	182.87	**71600**
9.9	UNF 1/2-20	1.270	28.3	10	75	4	11.5	181.26	**01200**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) Without Through Coolant

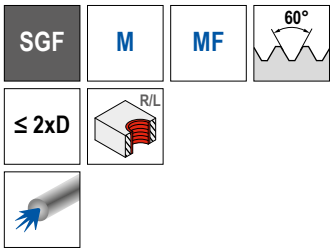
→ v_c/f_z Page 79

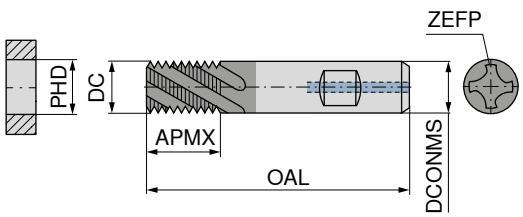
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

7

MonoThread – Thread milling cutter

▲ Intra-dimensional, pitch-dependent







Solid carbide

54 828 ...

DC mm	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	£ W8/8W	
8	0.50	12.0	8	70	3	10	478.20	**00800**
8	0.75	12.0	8	70	3	11	478.20	**08000**
10	1.00	16.0	10	75	4	14	483.84	**10000**
10	1.50	16.5	10	75	4	14	483.84	**10100**
12	1.00	20.0	12	85	4	16	590.71	**12000**
12	1.50	21.0	12	85	4	16	590.71	**12100**
12	2.00	20.0	12	85	4	18	590.71	**12200**
16	1.00	25.0	16	90	5	22	798.83	**16000**
16	1.50	25.5	16	90	5	22	731.34	**16100**
16	2.00	26.0	16	90	5	22	810.09	**16200**
16	3.00	27.0	16	90	5	24	821.33	**16400**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 79

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 84+85.**

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

* Tensile strength

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Cutting data standard values

Index	50 854 ..., 50 862 ..., 50 869 ..., 50 898 ...						50 840 ...				50 546 ..., 50 547 ...		
	BGF		Feed rate Drilling		Feed rate Thread milling		ZBGF	TiCN Solid carbide			HR	TiCN Solid carbide	
	Ti601	uncoated	≤ Ø 6	≤ Ø 12	≤ Ø 6	≤ Ø 12		Ø 3–5	Ø 6–10	Ø 12–16		< Ø 10	> Ø 10
	v_c (m/min)		f (mm/rev)		f_z (mm/tooth)		v_c (m/min)	f_z (mm/tooth)			v_c (m/min)	f_z (mm/tooth)	
P.1.1											100	0,025	0,05
P.1.2											100	0,025	0,05
P.1.3											100	0,025	0,05
P.1.4											80	0,015	0,035
P.1.5											80	0,015	0,035
P.2.1											100	0,025	0,05
P.2.2											80	0,015	0,035
P.2.3											80	0,015	0,035
P.2.4											80	0,015	0,035
P.3.1											100	0,025	0,05
P.3.2											80	0,015	0,035
P.3.3											80	0,02	0,04
P.4.1											80	0,02	0,04
P.4.2											80	0,02	0,04
M.1.1											80	0,02	0,04
M.2.1											80	0,02	0,04
M.3.1											80	0,02	0,04
K.1.1	**80–120**	50–80	0,10–0,15	0,15–0,22	0,02–0,05	0,05–0,10					120	0,03	0,09
K.1.2	**80–120**	50–80	0,10–0,15	0,15–0,22	0,02–0,05	0,05–0,10					120	0,03	0,09
K.2.1											100	0,02	0,05
K.2.2											100	0,02	0,05
K.3.1											100	0,02	0,05
K.3.2											100	0,02	0,05
N.1.1	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					350	0,05	0,1
N.1.2	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					350	0,05	0,1
N.2.1	100–300		0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					350	0,05	0,1
N.2.2	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					250	0,05	0,1
N.2.3	100–160		0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					250	0,05	0,1
N.3.1	100–300	**100–300**	0,10–0,30	0,25–0,30	0,03–0,06	0,06–0,10					350	0,05	0,1
N.3.2											350	0,05	0,1
N.3.3											350	0,05	0,1
N.4.1	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					350	0,05	0,1
S.1.1											40	0,02	0,05
S.1.2							80	0,01	0,03	0,03	20	0,02	0,05
S.2.1							60	0,01	0,02	0,02	20	0,02	0,05
S.2.2							60	0,01	0,02	0,02			
S.2.3							60	0,01	0,02	0,02			
S.3.1											100	0,02	0,05
S.3.2							80	0,01	0,03	0,03	80	0,02	0,05
S.3.3							60	0,01	0,02	0,02	80	0,02	0,05
H.1.1							**80**	0,01	0,03	0,03	**40**	0,008	0,017
H.1.2							**60**	0,01	0,02	0,02	**25**	0,005	0,012
H.1.3							**40**	0,005	0,01	0,01			
H.1.4													
H.2.1							**100**	0,03	0,04	0,04	**60**	0,02	0,04
H.3.1							**60**	0,01	0,02	0,02	**25**	0,005	0,012
O.1.1	60–100	**60–100**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					120	0,04	0,1
O.1.2											120	0,04	0,1
O.2.1											80	0,04	0,1
O.2.2											80	0,04	0,1
O.3.1							180	0,04	0,05	0,08	130	0,04	0,1

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	54 815 ..., 54 816 ..., 54 817 ..., 54 818 ..., 54 819 ..., 54 820 ... / 54 821 ..., 54 822 ..., 54 823 ..., 54 824 ..., 54 825 ..., 54 826 ..., 54 827 ..., 54 828 ...				50 552 ..., 50 553 ..., 50 551 ..., 50 554 ... , 50 555 ... , 50 556 ... / 50 531 ..., 50 532 ..., 50 530 ...			
	SFSE	SGF	Ti500 – Standard Solid carbide			SFSE	SGF	AlTiN –Performance Solid carbide		
			Ø 2,4 – 6,0	Ø 6,0 – 10,0	Ø 10,0 – 20,0			Ø 2,4 – 5,9	Ø 6,0 – 11,9	Ø 12,0 – 20,0
	v_c (m/min)		f_z (mm/tooth)			v_c (m/min)		f_z (mm/tooth)		
P.1.1	150		0,01–0,04	0,04–0,06	0,08–0,15	80–150		0,015–0,04	0,04–0,08	0,08–0,15
P.1.2	120		0,01–0,04	0,04–0,06	0,08–0,15	80–120		0,015–0,04	0,04–0,08	0,08–0,15
P.1.3	120		0,007–0,03	0,03–0,05	0,05–0,10	80–120		0,015–0,04	0,04–0,08	0,08–0,15
P.1.4	120		0,007–0,03	0,03–0,05	0,05–0,10	80–120		0,015–0,04	0,04–0,08	0,08–0,15
P.1.5	100		0,006–0,02	0,02–0,04	0,04–0,06	60–100		0,01–0,04	0,04–0,06	0,04–0,10
P.2.1	120		0,007–0,04	0,04–0,06	0,08–0,15	80–120		0,015–0,04	0,04–0,08	0,08–0,15
P.2.2	100		0,007–0,03	0,03–0,05	0,05–0,10	80–100		0,015–0,04	0,04–0,08	0,08–0,15
P.2.3	80		0,006–0,02	0,02–0,04	0,04–0,06	80–100		0,010–0,04	0,04–0,08	0,08–0,15
P.2.4	70		0,006–0,02	0,02–0,04	0,04–0,06	80–100		0,010–0,04	0,04–0,08	0,08–0,15
P.3.1	80		0,01–0,03	0,03–0,05	0,06–0,12	70–90		0,01–0,03	0,03–0,05	0,06–0,12
P.3.2	70		0,006–0,02	0,02–0,04	0,04–0,06	60–80		0,006–0,02	0,02–0,04	0,04–0,06
P.3.3	60		0,006–0,02	0,02–0,04	0,04–0,06	50–70		0,006–0,02	0,02–0,04	0,04–0,06
P.4.1	60		0,006–0,02	0,02–0,04	0,04–0,06	70–90		0,006–0,02	0,02–0,04	0,04–0,06
P.4.2	60		0,006–0,02	0,02–0,04	0,04–0,06	60–80		0,006–0,02	0,02–0,04	0,04–0,06
M.1.1	100		0,008–0,03	0,03–0,05	0,05–0,10	60–100		0,01–0,04	0,04–0,08	0,08–0,10
M.2.1	100		0,008–0,03	0,03–0,05	0,05–0,10	60–100		0,01–0,03	0,03–0,06	0,06–0,10
M.3.1	100		0,008–0,03	0,03–0,05	0,05–0,10	60–100		0,01–0,03	0,03–0,06	0,06–0,10
K.1.1	120		0,01–0,04	0,04–0,06	0,08–0,15	80–120		0,02–0,06	0,06–0,12	0,10–0,15
K.1.2	100		0,007–0,03	0,03–0,05	0,05–0,10	80–120		0,02–0,05	0,05–0,10	0,10–0,12
K.2.1	120		0,01–0,04	0,04–0,06	0,08–0,15	80–100		0,02–0,05	0,05–0,10	0,08–0,15
K.2.2	100		0,007–0,03	0,03–0,05	0,05–0,10	80–100		0,02–0,05	0,05–0,10	0,08–0,12
K.3.1	130		0,01–0,04	0,04–0,06	0,08–0,15	80–100		0,015–0,05	0,05–0,08	0,08–0,12
K.3.2	100		0,007–0,03	0,03–0,05	0,05–0,10	80–100		0,015–0,03	0,03–0,08	0,08–0,12
N.1.1	400		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.1.2	400		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.2.1	300		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.2.2	300		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.2.3	200		0,03–0,06	0,08–0,12	0,14–0,20	100–250		0,04–0,09	0,08–0,15	0,12–0,20
N.3.1	160		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.3.2	160		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.3.3	160		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
N.4.1	300		0,03–0,06	0,08–0,12	0,14–0,20	100–400		0,04–0,09	0,08–0,15	0,12–0,20
S.1.1	80		0,008–0,03	0,03–0,05	0,05–0,10	40–100		0,01–0,04	0,04–0,07	0,07–0,12
S.1.2	60		0,006–0,02	0,02–0,04	0,04–0,06					
S.2.1	40		0,006–0,02	0,02–0,04	0,04–0,06					
S.2.2	40		0,006–0,02	0,02–0,04	0,04–0,06					
S.2.3	40		0,006–0,02	0,02–0,04	0,04–0,06					
S.3.1	100		0,01–0,03	0,03–0,05	0,06–0,12	40–100		0,01–0,04	0,04–0,07	0,07–0,15
S.3.2	80		0,006–0,02	0,02–0,04	0,04–0,06					
S.3.3	60		0,006–0,02	0,02–0,04	0,04–0,06					
H.1.1	50		0,003–0,006	0,008–0,012	0,014–0,02					
H.1.2	40			0,006–0,01	0,01–0,015					
H.1.3										
H.1.4										
H.2.1	60			0,006–0,01	0,01–0,015					
H.3.1	40			0,006–0,01	0,01–0,015					
O.1.1	100		0,02–0,06	0,06–0,10	0,12–0,20	100–400		0,03–0,08	0,08–0,15	0,15–0,20
O.1.2	100		0,02–0,06	0,06–0,10	0,12–0,20	100–400		0,03–0,08	0,08–0,15	0,15–0,20
O.2.1	80		0,01–0,04	0,04–0,06	0,08–0,15	50–80		0,03–0,08	0,08–0,15	0,15–0,20
O.2.2	80		0,01–0,04	0,04–0,06	0,08–0,15	50–80		0,03–0,08	0,08–0,15	0,15–0,20
O.3.1	200		0,01–0,04	0,04–0,06	0,08–0,15					

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

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Cutting data standard values

Index	50 802 ..., 50 803 ...					50 806 ..., 50 807 ...				50 804 ...	
	SGF	Ti600 – Circular shank thread milling cutter Solid carbide				SFSE	AlCrN – Performance HPC Solid carbide			SFSE Micro	Ti602 Solid carbide
		Ø 1–2	Ø 3–5	Ø 6–8	Ø 9–12		Ø 3–5	Ø 6–10	Ø 10–13		Ø 0,7–2,1
	v_c (m/min)	f_z (mm/tooth)				v_c (m/min)	f_z (mm/tooth)			v_c (m/min)	f_z (mm/tooth)
P.1.1	110	0,05	0,09	0,14	0,16	100–140	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.1.2	110	0,05	0,09	0,14	0,16	100–120	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.1.3	110	0,05	0,09	0,14	0,16	80–100	0,015–0,02	0,03–0,05	0,03–0,07	20–40	0,01–0,02
P.1.4	110	0,05	0,09	0,14	0,16	80–100	0,015–0,02	0,02–0,04	0,03–0,05	20–40	0,01–0,02
P.1.5	110	0,05	0,09	0,14	0,16	80–100	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.2.1	80	0,04	0,08	0,12	0,14	100–120	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.2.2	80	0,04	0,08	0,12	0,14	80–100	0,015–0,03	0,02–0,05	0,03–0,07	20–40	0,01–0,02
P.2.3	80	0,04	0,08	0,12	0,14	80–100	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.2.4	80	0,04	0,08	0,12	0,14	80–100	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.3.1	60	0,04	0,08	0,12	0,14	100–120	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.3.2	60	0,04	0,08	0,12	0,14	80–100	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.3.3	60	0,04	0,08	0,12	0,14	80–100	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.4.1	60	0,04	0,08	0,12	0,14	60–80	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.4.2	80	0,04	0,08	0,12	0,14	60–80	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
M.1.1	80	0,04	0,05	0,07	0,10	60–80	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
M.2.1	80	0,04	0,05	0,07	0,10	60–80	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
M.3.1	80	0,04	0,05	0,07	0,10	60–80	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
K.1.1	50	0,05	0,09	0,14	0,16	100–120	0,02–0,04	0,04–0,08	0,06–0,10		
K.1.2	50	0,05	0,09	0,14	0,16	100–120	0,02–0,04	0,04–0,08	0,06–0,10		
K.2.1	50	0,05	0,09	0,14	0,16	100–120	0,02–0,04	0,04–0,08	0,06–0,10		
K.2.2	50	0,05	0,09	0,14	0,16	80–100	0,02–0,04	0,04–0,08	0,06–0,10		
K.3.1	50	0,05	0,09	0,14	0,16	80–100	0,02–0,04	0,04–0,08	0,06–0,08		
K.3.2	50	0,05	0,09	0,14	0,16	80–100	0,02–0,04	0,04–0,08	0,06–0,08		
N.1.1	130	0,05	0,09	0,14	0,16					30–50	0,02–0,03
N.1.2	130	0,05	0,09	0,14	0,16					30–50	0,02–0,03
N.2.1	120	0,04	0,05	0,07	0,10					30–50	0,02–0,03
N.2.2	100	0,04	0,05	0,07	0,10					30–50	0,02–0,03
N.2.3	100	0,04	0,05	0,07	0,10					30–50	0,02–0,03
N.3.1	130	0,05	0,09	0,14	0,16					30–50	0,02–0,03
N.3.2	130	0,05	0,09	0,14	0,16					30–50	0,02–0,03
N.3.3	130	0,05	0,09	0,14	0,16					30–50	0,02–0,03
N.4.1	110	0,04	0,05	0,07	0,10					30–50	0,02–0,03
S.1.1	30	0,03	0,04	0,06	0,07					20–30	0,01–0,02
S.1.2	30	0,03	0,04	0,06	0,07					20–30	0,01–0,02
S.2.1	30	0,03	0,04	0,06	0,07					20–30	0,01–0,02
S.2.2	30	0,03	0,04	0,06	0,07					20–30	0,01–0,015
S.2.3	30	0,03	0,04	0,06	0,07					20–30	0,01–0,015
S.3.1	30	0,03	0,04	0,06	0,07	60–80	0,015–0,02	0,02–0,03	0,03–0,04	20–30	0,01–0,02
S.3.2	30	0,03	0,04	0,06	0,07	60–80	0,01–0,015	0,015–0,02	0,025–0,035	20–30	0,01–0,015
S.3.3	30	0,03	0,04	0,06	0,07					20–30	0,01–0,015
H.1.1										**20–30**	0,01–0,015
H.1.2										**20–30**	0,01–0,015
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	150	0,06	0,12	0,19	0,19						
O.1.2	150	0,06	0,12	0,19	0,19						
O.2.1	150	0,06	0,12	0,19	0,19						
O.2.2	150	0,06	0,12	0,19	0,19						
O.3.1	100	0,05	0,09	0,14	0,14						

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	50 890 ..., 50 891 ..., 50 892 ..., 50 896 ..., 50 897 ...		50 890 ..., 50 891 ..., 50 895 ...		50 863 ..., 50 864 ... / 50 885 ..., 50 887 ..., 50 888 ..., 50 889 ..., 50 894 ...			50 860 ..., 50 861 ..., 50 867 ..., 50 868 ... / 50 870 ...		
	MWN	uncoated Solid carbide	MWN	TiAlN Solid carbide	GZD	GZG	Ti500 Solid carbide Ø 12–17 / Ø 20–26		EAW	EWM
	v_c (m/min)	f_z (mm/tooth)	v_c (m/min)	f_z (mm/tooth)	v_c (m/min)		f_z (mm/tooth)	v_c (m/min)	f_z (mm/tooth)	
P.1.1	85	0,10	170	0,10	220		0,10–0,30 / 0,05–0,30	280	0,20	0,20
P.1.2	75	0,10	150	0,10	220		0,10–0,30 / 0,05–0,30	240	0,20	0,20
P.1.3	65	0,10	130	0,10	190		0,10–0,30 / 0,05–0,30	200	0,20	0,20
P.1.4	65	0,07	130	0,07	160		0,10–0,30 / 0,05–0,30	200	0,15	0,15
P.1.5	60	0,07	120	0,07	160		0,10–0,30 / 0,05–0,30	180	0,15	0,15
P.2.1	70	0,10	140	0,10	150		0,10–0,30 / 0,05–0,30	220	0,20	0,20
P.2.2	65	0,07	130	0,07	120		0,10–0,30 / 0,05–0,30	200	0,15	0,15
P.2.3	60	0,07	120	0,07	100		0,10–0,30 / 0,05–0,30	180	0,15	0,15
P.2.4	45	0,06	90	0,06	90		0,10–0,30 / 0,05–0,30	150	0,12	0,12
P.3.1	45	0,10	90	0,10	100		0,10–0,20 / 0,05–0,20	150	0,20	0,20
P.3.2	40	0,07	80	0,07	90		0,10–0,20 / 0,05–0,20	130	0,10	0,10
P.3.3	35	0,06	70	0,06	80		0,10–0,20 / 0,05–0,20	110	0,10	0,10
P.4.1	45	0,10	90	0,10	70		0,10–0,20 / 0,05–0,20	150	0,20	0,20
P.4.2	40	0,10	80	0,10	60		0,10–0,20 / 0,05–0,20	130	0,20	0,20
M.1.1	40	0,06	80	0,06	130		0,10–0,30 / 0,05–0,30	130	0,10	0,10
M.2.1	30	0,05	60	0,05	120		0,10–0,30 / 0,05–0,30	90	0,08	0,08
M.3.1	30	0,05	60	0,05	120		0,10–0,30 / 0,05–0,30	90	0,08	0,08
K.1.1	85	0,12	170	0,12	140		0,10–0,30 / 0,05–0,30	280	0,25	0,25
K.1.2	75	0,12	150	0,12	100		0,10–0,30 / 0,05–0,30	240	0,25	0,25
K.2.1	75	0,07	150	0,07	140		0,10–0,30 / 0,05–0,30	240	0,15	0,15
K.2.2	65	0,07	130	0,07	120		0,10–0,30 / 0,05–0,30	200	0,15	0,15
K.3.1	70	0,10	140	0,10	140		0,10–0,30 / 0,05–0,30	220	0,20	0,20
K.3.2	60	0,10	120	0,10	100		0,10–0,30 / 0,05–0,30	190	0,20	0,20
N.1.1	120	0,15	240	0,15	700		0,10–0,40 / 0,05–0,40	390	0,30	0,30
N.1.2	105	0,12	210	0,12	400		0,10–0,40 / 0,05–0,40	330	0,25	0,25
N.2.1	75	0,12	150	0,12	400		0,10–0,40 / 0,05–0,40	240	0,25	0,25
N.2.2	75	0,12	150	0,12	300		0,10–0,40 / 0,05–0,40	240	0,25	0,25
N.2.3	70	0,12	140	0,12	200		0,10–0,40 / 0,05–0,40	220	0,25	0,25
N.3.1	105	0,15	210	0,15	160		0,10–0,40 / 0,05–0,40	330	0,30	0,30
N.3.2	105	0,15	210	0,15	160		0,10–0,40 / 0,05–0,40	330	0,30	0,30
N.3.3	75	0,15	150	0,15	160		0,10–0,40 / 0,05–0,40	240	0,30	0,30
N.4.1	85	0,15	170	0,15	160		0,10–0,40 / 0,05–0,40	280	0,30	0,30
S.1.1								110	0,10	0,10
S.1.2								90	0,07	0,07
S.2.1								70	0,05	0,05
S.2.2								70	0,05	0,05
S.2.3								70	0,05	0,05
S.3.1								130	0,10	0,10
S.3.2								90	0,07	0,07
S.3.3								70	0,05	0,05
H.1.1								80	0,05	0,05
H.1.2								60	0,04	0,04
H.1.3										
H.1.4										
H.2.1								80	0,05	0,05
H.3.1								60	0,04	0,04
O.1.1	140	0,16								
O.1.2	140	0,16								
O.2.1	75	0,07								
O.2.2	75	0,07								
O.3.1			130	0,07				200	0,14	0,14

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	50 872 …, 50 875 …, 50 876 …, 50 879 …, 50 880 …, 50 881 …, 50 882 …, 50 883 …, 50 884 …, 50 886 …		51 800 …	50 851 …, 50 852 …, 50 853 …, 50 855 …, 50 857 …, 50 858 …, 50 859 …	
	Polygon		Multipurpose milling	System 300	
	v_c (m/min)	f_z (mm/tooth)	f_z (mm/tooth)	v_c (m/min)	f_z (mm/tooth)
P.1.1	220	0,05–0,25	0,03–0,10	220	0,05–0,15
P.1.2	220	0,05–0,25	0,03–0,10	220	0,05–0,15
P.1.3	190	0,05–0,25	0,03–0,10	190	0,05–0,15
P.1.4	160	0,05–0,25	0,03–0,09	160	0,05–0,15
P.1.5	160	0,05–0,25	0,03–0,09	160	0,05–0,15
P.2.1	150	0,05–0,25	0,03–0,10	150	0,05–0,15
P.2.2	120	0,05–0,25	0,03–0,09	120	0,05–0,15
P.2.3	100	0,05–0,25	0,03–0,09	100	0,05–0,15
P.2.4	90	0,05–0,25	0,03–0,09	90	0,05–0,15
P.3.1	100	0,05–0,20	0,03–0,10	100	0,05–0,12
P.3.2	90	0,05–0,20	0,03–0,08	90	0,05–0,12
P.3.3	80	0,05–0,20	0,03–0,08	80	0,05–0,12
P.4.1	70	0,05–0,20	0,03–0,08	70	0,05–0,12
P.4.2	60	0,05–0,20	0,03–0,08	60	0,05–0,12
M.1.1	130	0,05–0,25	0,03–0,08	130	0,05–0,15
M.2.1	120	0,05–0,25	0,03–0,08	120	0,05–0,15
M.3.1	120	0,05–0,25	0,03–0,08	120	0,05–0,15
K.1.1	140	0,05–0,25	0,03–0,11	140	0,05–0,15
K.1.2	100	0,05–0,25	0,03–0,10	100	0,05–0,15
K.2.1	140	0,05–0,25	0,03–0,11	140	0,05–0,15
K.2.2	120	0,05–0,25	0,03–0,10	120	0,05–0,15
K.3.1	140	0,05–0,25	0,03–0,11	140	0,05–0,15
K.3.2	100	0,05–0,25	0,03–0,10	100	0,05–0,15
N.1.1	700	0,15–0,40	0,04–0,15	700	0,10–0,25
N.1.2	400	0,15–0,40	0,04–0,15	400	0,10–0,25
N.2.1	400	0,15–0,40	0,04–0,15	400	0,10–0,25
N.2.2	300	0,15–0,40	0,04–0,15	300	0,10–0,25
N.2.3	200	0,15–0,40	0,04–0,15	200	0,10–0,25
N.3.1	160	0,15–0,40	0,04–0,15	160	0,10–0,25
N.3.2	160	0,15–0,40	0,04–0,15	160	0,10–0,25
N.3.3	160	0,15–0,40	0,04–0,15	160	0,10–0,25
N.4.1	160	0,15–0,40	0,04–0,15	160	0,10–0,25
S.1.1	100	0,01–0,15	0,01–0,11	100	0,01–0,12
S.1.2	80	0,01–0,15	0,01–0,11	80	0,01–0,12
S.2.1	60	0,01–0,15	0,01–0,11	60	0,01–0,12
S.2.2	40	0,01–0,15	0,01–0,11	40	0,01–0,12
S.2.3	40	0,01–0,15	0,01–0,11	40	0,01–0,12
S.3.1	100	0,01–0,15	0,01–0,11	100	0,01–0,12
S.3.2	80	0,01–0,15	0,01–0,11	80	0,01–0,12
S.3.3	60	0,01–0,15	0,01–0,11	60	0,01–0,12
H.1.1	60	0,01–0,10	0,01–0,06	60	0,01–0,10
H.1.2	50	0,01–0,10	0,01–0,06	50	0,01–0,10
H.1.3	40	0,01–0,10	0,01–0,06	40	0,01–0,10
H.1.4	30	0,01–0,10	0,01–0,06	30	0,01–0,10
H.2.1	60	0,01–0,10	0,01–0,06	60	0,01–0,10
H.3.1	50	0,01–0,10	0,01–0,06	50	0,01–0,10
O.1.1	180	0,05–0,25	0,04–0,15	180	0,05–0,15
O.1.2	220	0,05–0,25	0,04–0,15	220	0,05–0,15
O.2.1	120	0,05–0,25	0,04–0,15	120	0,05–0,15
O.2.2	120	0,05–0,25	0,04–0,15	120	0,05–0,15
O.3.1	800	0,05–0,25	0,04–0,15	800	0,05–0,15

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	53 006 ..., 53 007 ..., 53 008 ..., 53 009 ..., 53 010 ..., 53 011 ..., 53 012 ..., 53 013 ..., 53 015 ..., 53 016 ..., 53 017 ...				53 050 ..., 53 051 ..., 53 052 ..., 53 053 ...	
	Mini Mill	hole (Circular milling)	Thread (Thread milling)	Parting (multipurpose milling)	Micro Mill	
	v_c (m/min)	f_z (mm/tooth)			v_c (m/min)	f_z (mm/tooth)
P.1.1	**120** (80–200)	0,03–0,10	0,05–0,20	0,015–0,05	**70** (40–120)	0,01–0,05
P.1.2	**110** (70–190)	0,03–0,10	0,05–0,20	0,015–0,05	**60** (40–110)	0,01–0,05
P.1.3	**90** (60–150)	0,03–0,10	0,05–0,20	0,015–0,05	**50** (30–80)	0,01–0,05
P.1.4	**90** (60–150)	0,03–0,08	0,05–0,18	0,015–0,04	**50** (30–80)	0,01–0,05
P.1.5	**70** (50–120)	0,03–0,08	0,05–0,18	0,015–0,04	**40** (30–70)	0,01–0,05
P.2.1	**90** (60–150)	0,03–0,10	0,05–0,20	0,015–0,05	**50** (30–80)	0,01–0,05
P.2.2	**70** (50–120)	0,03–0,08	0,05–0,18	0,015–0,04	**40** (30–70)	0,01–0,05
P.2.3	**60** (40–110)	0,02–0,07	0,05–0,16	0,015–0,035	**40** (20–70)	0,01–0,05
P.2.4	**60** (40–100)	0,03–0,07	0,05–0,16	0,015–0,035	**30** (20–60)	0,01–0,04
P.3.1	**60** (40–100)	0,03–0,10	0,05–0,20	0,015–0,05	**30** (20–60)	0,01–0,05
P.3.2	**50** (30–80)	0,02–0,07	0,05–0,16	0,015–0,035	**30** (20–50)	0,01–0,04
P.3.3	**30** (20–60)	0,02–0,07	0,05–0,16	0,015–0,035	**20** (10–40)	0,005–0,03
P.4.1	**80** (50–130)	0,03–0,08	0,05–0,18	0,015–0,04	**40** (30–70)	0,01–0,05
P.4.2	**60** (40–110)	0,02–0,07	0,05–0,16	0,015–0,035	**40** (20–70)	0,01–0,05
M.1.1	**90** (60–150)	0,02–0,07	0,05–0,16	0,015–0,035	**50** (30–80)	0,01–0,03
M.2.1	**60** (40–110)	0,02–0,07	0,05–0,16	0,015–0,035	**40** (20–70)	0,01–0,03
M.3.1	**50** (30–90)	0,02–0,07	0,05–0,16	0,015–0,035	**30** (20–50)	0,01–0,03
K.1.1	**110** (70–190)	0,03–0,10	0,05–0,20	0,015–0,05	**60** (40–110)	0,008–0,06
K.1.2	**80** (50–140)	0,03–0,10	0,05–0,20	0,015–0,05	**50** (30–80)	0,008–0,06
K.2.1	**70** (50–120)	0,03–0,10	0,05–0,20	0,015–0,05	**40** (30–70)	0,008–0,06
K.2.2	**60** (40–100)	0,03–0,10	0,05–0,20	0,015–0,05	**30** (20–60)	0,008–0,06
K.3.1	**110** (70–190)	0,03–0,10	0,05–0,20	0,015–0,05	**60** (40–110)	0,008–0,06
K.3.2	**90** (60–160)	0,03–0,10	0,05–0,20	0,015–0,05	**50** (30–90)	0,008–0,06
N.1.1	**230** (150–390)	0,04–0,15	0,06–0,25	0,02–0,075	**150** (90–260)	0,01–0,06
N.1.2	**220** (140–370)	0,04–0,15	0,06–0,25	0,02–0,075	**140** (90–240)	0,01–0,06
N.2.1	**190** (120–320)	0,04–0,15	0,06–0,25	0,02–0,075	**120** (70–210)	0,01–0,06
N.2.2	**160** (110–270)	0,04–0,15	0,06–0,25	0,02–0,075	**100** (60–180)	0,01–0,06
N.2.3	**90** (60–160)	0,04–0,15	0,06–0,25	0,02–0,075	**60** (40–110)	0,01–0,06
N.3.1	**170** (110–280)	0,04–0,15	0,06–0,25	0,02–0,075	**110** (70–180)	0,01–0,06
N.3.2	**140** (90–240)	0,04–0,15	0,06–0,25	0,02–0,075	**80** (50–150)	0,01–0,06
N.3.3	**120** (80–210)	0,04–0,15	0,06–0,25	0,02–0,075	**80** (50–140)	0,01–0,06
N.4.1	**170** (110–280)	0,04–0,15	0,06–0,25	0,02–0,075	**70** (40–120)	0,01–0,06
S.1.1	60 (40–100)	0,04–0,15	0,06–0,25	0,02–0,075	**30** (20–50)	0,01–0,06
S.1.2	40 (30–70)	0,04–0,15	0,06–0,25	0,02–0,075	**20** (10–30)	0,01–0,06
S.2.1	60 (40–100)	0,04–0,15	0,06–0,25	0,02–0,075	**30** (20–50)	0,01–0,06
S.2.2	50 (30–80)	0,04–0,15	0,06–0,25	0,02–0,075	**20** (10–40)	0,01–0,06
S.2.3	30 (20–60)	0,04–0,15	0,06–0,25	0,02–0,075	**20** (10–30)	0,01–0,06
S.3.1	60 (40–100)	0,04–0,15	0,06–0,25	0,02–0,075	**20** (10–40)	0,01–0,06
S.3.2	30 (20–60)	0,04–0,15	0,06–0,25	0,02–0,075	**20** (10–30)	0,01–0,06
S.3.3	30 (20–50)	0,04–0,15	0,06–0,25	0,02–0,075	**10** (10–20)	0,01–0,06
H.1.1	50 (30–90)	0,02–0,06	0,04–0,14	0,02–0,037	**20** (10–40)	0,005–0,03
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1	40 (30–70)	0,02–0,10		0,015–0,05	**20** (10–40)	0,005–0,03
O.1.1	**180** (120–310)	0,04–0,15	0,06–0,25	0,02–0,037	**80** (50–130)	0,02–0,09
O.1.2	**170** (110–280)	0,04–0,15	0,06–0,25	0,02–0,037	**70** (40–120)	0,02–0,09
O.2.1	**140** (90–230)	0,04–0,15	0,06–0,25	0,02–0,037	**50** (30–100)	0,02–0,09
O.2.2	**100** (70–170)	0,04–0,15	0,06–0,25	0,02–0,037	**40** (30–70)	0,02–0,09
O.3.1	**140** (90–230)	0,005–0,05	0,06–0,25	0,0025–0,025	**60** (40–110)	0,02–0,09

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

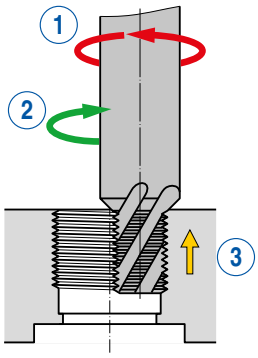
Milling Procedures

Climb milling

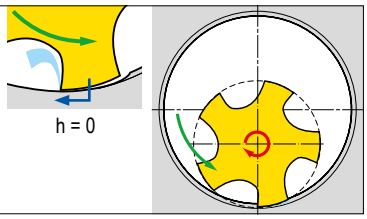
Characteristics:

1. Tool rotation direction „right“
2. Toolpath counter clockwise
3. Feed direction „outwards“

▶ Right hand thread



When climb milling, the chip thickness at the end of cut is always 0 (h=0)

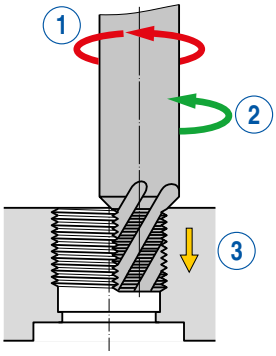


Conventional milling

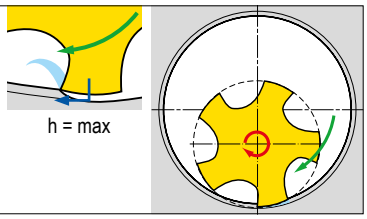
Characteristics:

1. Tool rotation direction „right“
2. Toolpath clockwise
3. Feed direction „inwards“

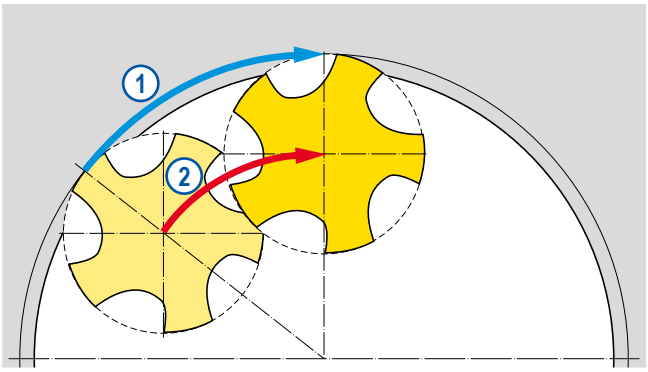
▶ Right hand thread



When conventional milling, the chip thickness at the end of cut is always at maximum (h=max)

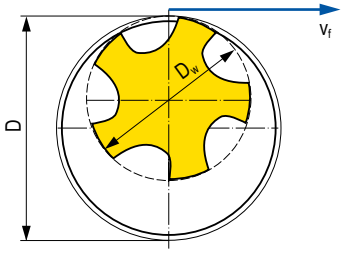


Feed rate calculation



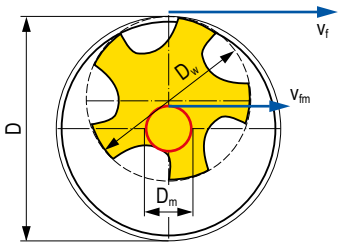
D_w = Effective diameter in mm
n = RPM in min^{-1}
f_z = Feed per tooth in mm
z = Number of cutting edges (radial)
D = Nominal thread diameter = external profile diameter in mm
D_m = Centre path diameter ($D-D_w$) in mm

1 Peripheral feedrate v_f



$$v_f = n \times f_z \times z \quad \text{mm/min.}$$

2 Centerline feedrate v_{fm}



$$v_{fm} = \frac{v_f \times (D - D_w)}{D} \quad \text{mm/min.}$$

Tips for the User

With thread milling there are two different programme possibilities with the feed motion of the tool.

On the one hand the machine controls the feed at the diameter of the tool, on the other hand the feed control is the tool center line.
In order to ascertain which method the machine control uses, the following method should be employed:

- ▲ Enter the thread milling routine into the control.
- ▲ Enter a safety margin into the program, so that the tool runs in air.
- ▲ Run the program through and check the operating time.
- ▲ Compare the actual time with the calculated theoretical time.

If the time is longer than the calculated time the feed is controlling the tool center line.
If the time is shorter than the calculated time the feed is controlling the diameter of the tool.

Numeric calculation of cutting data for thread milling

$$n = \frac{v_c \times 1000}{d \times \pi}$$

$$v_c = \frac{d \times \pi \times n}{1000}$$

$$v_f = f_z \times z \times n$$

$$n = \frac{v_f}{f_z \times z}$$

$$f_z = \frac{v_f}{z \times n}$$

Milling – external contour

$$v_{fm} = \frac{v_f \times (D + d)}{D}$$

$$v_f = \frac{D \times v_{fm}}{(D + d)}$$

Milling – internal contour

$$v_{fm} = \frac{v_f \times (D - d)}{D}$$

$$v_f = \frac{D \times v_{fm}}{(D - d)}$$

Helical plunging

$$U_{arc} = 0{,}25 \times v_{fm}$$

Ramping in the arc

$$U_{arc} = v_{fm}$$

n	rev./min.	=	rpm
v_c	m/min	=	Cutting speed
d	mm	=	Tool diameter
D	mm	=	Nominal thread-Ø
v_f	mm/min.	=	Feed rate at the diameter

v_{fm}	mm/min.	=	Feed rate at the centre
U_{arc}	mm/min.	=	programmed ramping feed rate
f_z	mm	=	Feed per tooth
z	Piece	=	number of cutting edges of the cutter

7

Correction values for the internal thread milling

The milling radius correction which is entered into the machine control, can be calculated as follows:

half the cutter Ø – 0.05 x pitch P

Example:
M30x3
Cutter-Ø:
20 mm

$$\frac{Ø20}{2} - (0{,}05 \times 3) = \underline{9{,}85\ mm}$$

9,85 mm is the milling radius to be entered into the machine control

Coatings

AlCrN
- ▲ High-performance AlCrN multilayer coating
- ▲ max.application temperature: > 1100 °C

CWX 500
- ▲ Carbide, TiAlN-coated
- ▲ The universal carbide grade for almost all materials

TiAlN
- ▲ TiAlN multilayer coating
- ▲ Maximum application temperature: 900 °C

TiCN
- ▲ TiCN multilayer coating
- ▲ Maximum application temperature: 450 °C

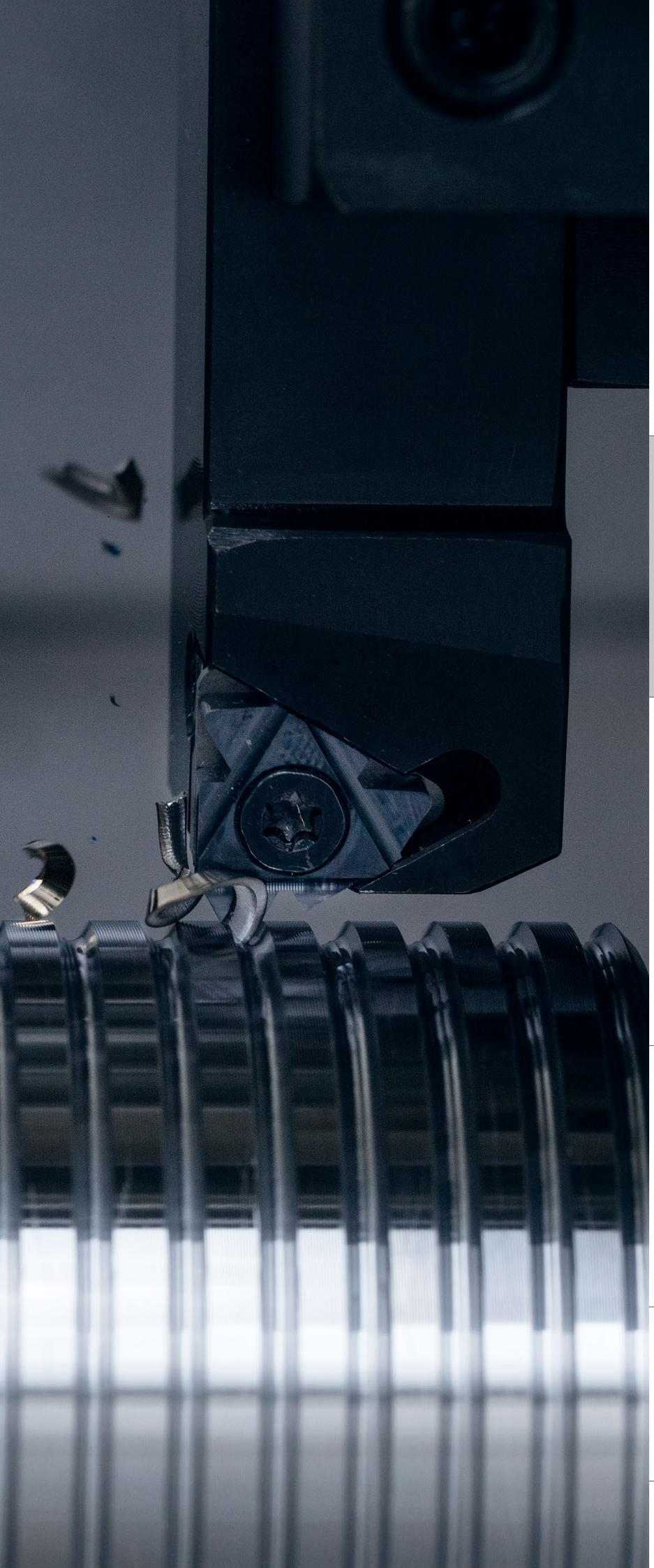
TiN
- ▲ TiN coating
- ▲ Maximum application temperature: 450 °C

Ti 500
- ▲ TiAlN-coating
- ▲ Maximum application temperature: 500 °C

Ti 600
- ▲ TiAlN multilayer coating
- ▲ Maximum application temperature: 650 °C

Ti 601
- ▲ High-performance TiAlN multilayer coating
- ▲ Maximum application temperature: 900 °C

Ti 602
- ▲ TiCN multilayer coating
- ▲ Maximum application temperature: 400 °C



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

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Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

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Shims	43
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Pitch angle	47
Designation Key	48+49
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Grade description and profile explanation	51

WNT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Toolfinder

MiniCut

M	G	Tr
Full profile Partial profile	Partial profile	Partial profile

→ **Chapter 12 – Miniature turning tools**

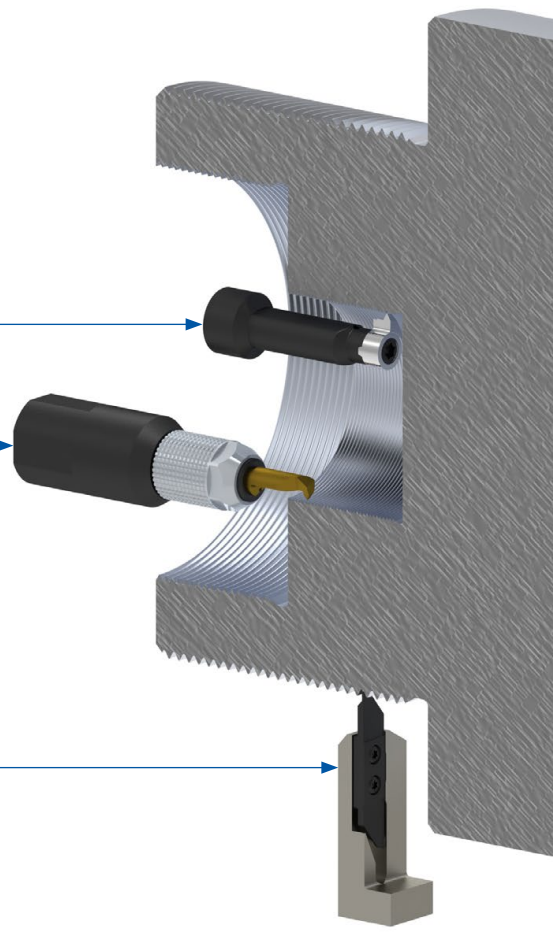
UltraMini

M	MF	G	Tr
Full profile Partial profile	Full profile Partial profile	Partial profile	Partial profile

→ **Chapter 12 – Miniature turning tools**

VertiClamp

→ **Sliding head tooling catalogue**



Symbol explanation

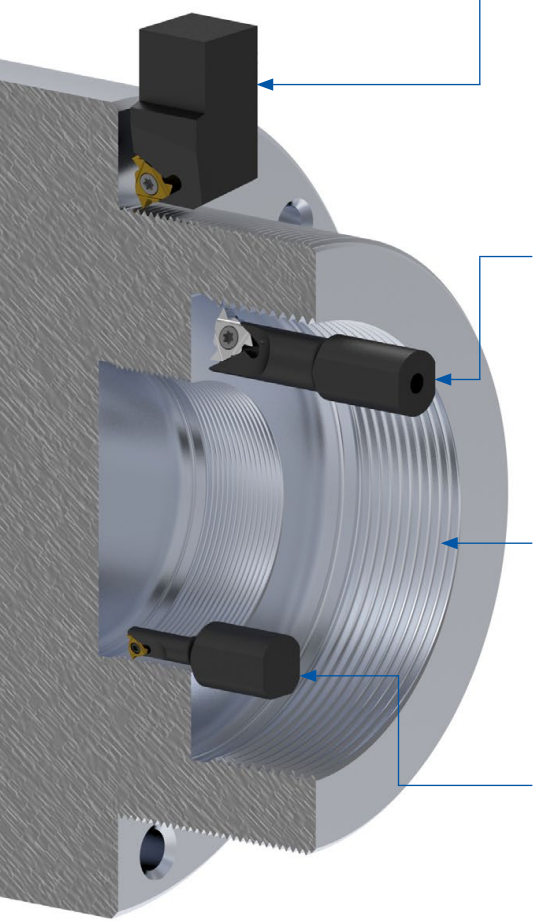
Flank angle

- 30° — Flank angle 30° (Trapezoidal thread)
- 30° — Flank angle 30° (Round thread)
- 55° — Flank angle 55°
- 60° — Flank angle 60°
- 80° — Flank angle 80° (Conduit thread)

TP / TPI = Pitch
NT = Number of flutes
● = **Main Application**
○ = Extended application

Thread

- **M** — ISO metric coarse thread DIN 13
- **MF** — ISO Metric fine thread DIN 13
- **BSW** — British Whitworth thread BS 84
- **UN** — American unified thread BS 1580 (ASME B 1.1)
- **UNC** — American unified thread (coarse) BS 1580 (ASME B 1.1)
- **UNF** — American unified thread (fine) BS 1580 (ASME B 1.1)
- **UNEF** — American unified thread (extra fine) BS 1580 (ASME B 1.1)
- **NPT** — American pipe thread ANSI/ASME B 1.20.3
- **Tr** — Trapezoidal thread DIN 103
- **Rd** — Round Thread DIN 405
- **Pg** — Conduit Threads DIN 40430



Standard external thread turning

Full profile

M	BSW	UN	UNC	UNF	UNEF	NPT	Tr	Rd	Pg
6+7	11+12	15+16	15+16	15+16	15+16	19	21	24	26

Partial profile

60°	55°
28	30

Multi-cutting edge

M
10

Suitable holders can be found on → page 32+33

Standard internal thread turning

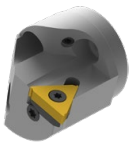
Full profile

M	BSW	UN	UNC	UNF	UNEF	NPT	Tr	Rd	Pg
8+9	13+14	17+18	17+18	17+18	17+18	20	22	25	27

Partial profile

60°	55°
29	31

Suitable holders can be found on → page 34–36



Internal threading with MaxiChange – our exchangeable head system

→ Chapter 9 – Turning Tools

Mini 06

Full profile

M	BSW
37	37

Partial profile

60°	55°
38	38

Mini 08

Full profile

M
39

Partial profile

60°	55°
39+40	40+41

Suitable holders can be found on → page 42

Information on the different thread profiles can be found on → **Page 51.**

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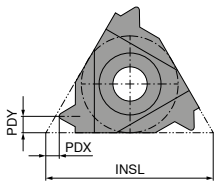
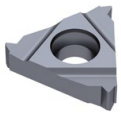
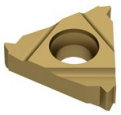
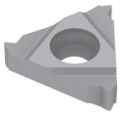
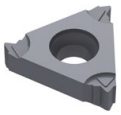
Right hand external thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

M | MF | 60°



CCN20	CWN1525	HCN2525	CWK20	CCN7525
				

Designation	TP	INSL	PDX	PDY	ER 71 220 ... £ X3		ER 71 220 ... £ X3		ER 71 220 ... £ X3		ER 71 220 ... £ Y1		ER 71 220 ... £ X3	
	mm	mm	mm	mm										
11 ER 0,35	0.35	11	0.8	0.4	30.83	**204**								
11 ER 0,4	0.40	11	0.7	0.4	30.83	**206**								
11 ER 0,45	0.45	11	0.7	0.4	30.83	**208**								
11 ER 0,5	0.50	11	0.6	0.6	30.83	**209**								
11 ER 0,6	0.60	11	0.6	0.6	30.83	**210**								
11 ER 0,7	0.70	11	0.6	0.6	30.83	**211**								
11 ER 0,75	0.75	11	0.6	0.6	30.83	**212**								
11 ER 0,8	0.80	11	0.6	0.6	30.83	**213**								
11 ER 1,0	1.00	11	0.7	0.7	30.83	**214**								
11 ER 1,25	1.25	11	0.8	0.9	30.83	**216**								
11 ER 1,5	1.50	11	0.8	1.0	30.83	**218**								
11 ER 1,75	1.75	11	0.8	1.1	30.83	**220**								
16 ER 0,35	0.35	16	0.8	0.4	31.90	**234**			29.06	**734**	23.35	**634**		
16 ER 0,4	0.40	16	0.7	0.4	31.90	**236**			29.06	**736**	23.35	**636**		
16 ER 0,45	0.45	16	0.7	0.4	31.90	**238**					23.35	**638**		
16 ER 0,5	0.50	16	0.6	0.6	31.90	**240**	19.95	**140**	22.64	**740**	23.35	**640**	22.64	**940**
16 ER 0,7	0.70	16	0.6	0.6	31.90	**241**	22.08	**141**	23.37	**741**	23.35	**641**		
16 ER 0,75	0.75	16	0.6	0.6	31.90	**242**	20.73	**142**	22.64	**742**	23.35	**642**	22.64	**942**
16 ER 0,8	0.80	16	0.6	0.6	31.90	**243**	20.73	**143**	22.64	**743**	23.35	**643**	22.64	**943**
16 ER 1,0	1.00	16	0.7	0.7	31.90	**244**	19.35	**144**	22.08	**744**	22.71	**644**	22.08	**944**
16 ER 1,25	1.25	16	0.8	0.9	31.90	**246**	19.35	**146**	22.08	**746**	23.35	**646**	22.08	**946**
16 ER 1,5	1.50	16	0.8	1.0	31.90	**248**	19.35	**148**	22.08	**748**	22.71	**648**	22.08	**948**
16 ER 1,75	1.75	16	0.9	1.2	31.90	**250**	19.35	**150**	22.08	**750**	23.35	**650**		
16 ER 2,0	2.00	16	1.0	1.3	31.90	**252**	19.35	**152**	22.08	**752**	23.35	**652**	22.08	**952**
16 ER 2,5	2.50	16	1.1	1.5	31.90	**254**	19.35	**154**	22.08	**754**	23.35	**654**	22.08	**954**
16 ER 3,0	3.00	16	1.2	1.6	31.90	**256**	19.35	**156**	22.08	**756**	23.35	**656**	22.08	**956**
22 ER 3,5	3.50	22	1.6	2.3	44.07	**270**	30.21	**170**	33.24	**770**				
22 ER 4,0	4.00	22	1.6	2.3	44.07	**272**	31.51	**172**	35.05	**772**				
22 ER 4,5	4.50	22	1.7	2.4	44.07	**274**	34.00	**174**	37.02	**774**				
22 ER 5,0	5.00	22	1.7	2.5	44.07	**276**	34.00	**176**	37.02	**776**				
22 ER 5,5	5.50	22	1.7	2.6			34.00	**178**						
22 ER 5,5	5.50	22	1.9	2.7	44.07	**278**								
22 EN 5,5	5.50	22	2.3	11.0	44.07	**282** 1)								
22 ER 6,0	6.00	22	1.9	2.7			34.00	**180**	37.02	**780**				
22 ER 6,0	6.00	22	2.0	2.9	44.07	**280**								
22 EN 6,0	6.00	22	2.6	11.0	44.07	**284** 1)								

P	●		●		○					●
M	●		○		●		○			●
K	●		●		○		●			●
N			●		○		●			
S	○				○		○			●
H	○				○					○
O			○							

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

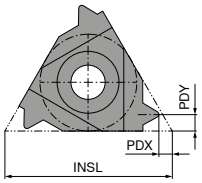
→ v_c Page 45

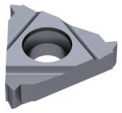
Left hand external thread turning insert

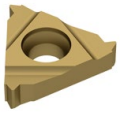
▲ Full profile

M | MF | 60°

CCN20 | CWN1525







Designation	TP mm	INSL mm	PDX mm	PDY mm	EL 71 222 ... £ X3		EL 71 222 ... £ X3	
11 EL 0,35	0.35	11	0.8	0.4	30.83	**204**		
11 EL 0,4	0.40	11	0.7	0.4	30.83	**206**		
11 EL 0,45	0.45	11	0.7	0.4	30.83	**208**		
11 EL 0,5	0.50	11	0.6	0.6	30.83	**209**		
11 EL 0,6	0.60	11	0.6	0.6	30.83	**210**		
11 EL 0,7	0.70	11	0.6	0.6	30.83	**211**		
11 EL 0,75	0.75	11	0.6	0.6	30.83	**212**		
11 EL 0,8	0.80	11	0.6	0.6	30.83	**213**		
11 EL 1,0	1.00	11	0.7	0.7	30.83	**214**		
11 EL 1,25	1.25	11	0.8	0.9	30.83	**216**		
11 EL 1,5	1.50	11	0.8	1.0	30.83	**218**		
11 EL 1,75	1.75	11	0.8	1.1	30.83	**220**		
16 EL 0,35	0.35	16	0.8	0.4	31.90	**234**		
16 EL 0,4	0.40	16	0.7	0.4	31.90	**236**		
16 EL 0,45	0.45	16	0.7	0.4	31.90	**238**		
16 EL 0,5	0.50	16	0.6	0.6	31.90	**240**		
16 EL 0,7	0.70	16	0.6	0.6	31.90	**241**		
16 EL 0,75	0.75	16	0.6	0.6	31.90	**242**		
16 EL 0,8	0.80	16	0.6	0.6	31.90	**243**		
16 EL 1,0	1.00	16	0.7	0.7	31.90	**244**	20.72	**144**
16 EL 1,25	1.25	16	0.8	0.9	31.90	**246**	22.03	**146**
16 EL 1,5	1.50	16	0.8	1.0	31.90	**248**	20.72	**148**
16 EL 1,75	1.75	16	0.9	1.2	31.90	**250**		
16 EL 2,0	2.00	16	1.0	1.3	31.90	**252**	22.03	**152**
16 EL 2,5	2.50	16	1.1	1.5	31.90	**254**		
16 EL 3,0	3.00	16	1.2	1.6	31.90	**256**	28.45	**156**
22 EL 3,5	3.50	22	1.6	2.3	44.07	**270**		
22 EL 4,0	4.00	22	1.6	2.3	44.07	**272**		
22 EL 4,5	4.50	22	1.7	2.4	44.07	**274**		
22 EL 5,0	5.00	22	1.7	2.5	44.07	**276**		
22 EL 5,5	5.50	22	1.9	2.7	44.07	**278**		
22 EL 6,0	6.00	22	2.0	2.9	44.07	**280**		

P	●	●
M	●	○
K	●	●
N		●
S	○	
H	○	
O		○

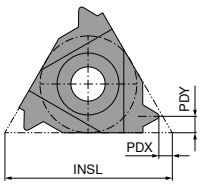
→ v_c Page 45

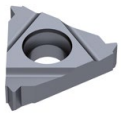
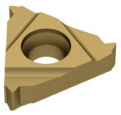
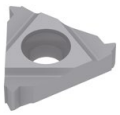
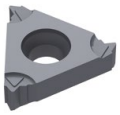
8

Right hand internal thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

M | MF | 60°



CCN20	CWN1525	HCN2525	CWK20	CCN7525
				

Designation	TP	INSL	PDX	PDY	IR 71 224 ... £ X3		IR 71 224 ... £ X3		IR 71 224 ... £ X3		IR 71 224 ... £ Y1		IR 71 224 ... £ X3	
	mm	mm	mm	mm										
11 IR 0,35	0.35	11	0.8	0.3	31.90	**204**								
11 IR 0,4	0.40	11	0.8	0.4	31.90	**206**								
11 IR 0,45	0.45	11	0.8	0.4	31.90	**208**								
11 IR 0,5	0.50	11	0.6	0.6	31.90	**210**								
11 IR 0,7	0.70	11	0.6	0.6	31.90	**211**								
11 IR 0,75	0.75	11	0.6	0.6	31.90	**212**							27.12	**912**
11 IR 0,8	0.80	11	0.6	0.6	31.90	**213**			33.12	**713**				
11 IR 1,0	1.00	11	0.6	0.6									22.08	**914**
11 IR 1,0	1.00	11	0.6	0.7	31.90	**214**	19.35	**114**	22.08	**714**				
11 IR 1,25	1.25	11	0.8	0.9	31.90	**216**								
11 IR 1,5	1.50	11	0.8	0.9									22.08	**918**
11 IR 1,5	1.50	11	0.8	1.0	31.90	**218**	19.35	**118**	22.08	**718**				
11 IR 1,75	1.75	11	0.9	1.1	31.90	**220**								
11 IR 2,0	2.00	11	0.8	0.9			19.35	**122**	22.08	**722**				
11 IR 2,0	2.00	11	0.9	1.1	31.90	**222**								
11 IR 2,5	2.50	11	0.8	1.2			22.03	**124**	23.94	**724**				
11 IR 2,5	2.50	11	0.9	1.1	31.90	**224**								
16 IR 0,35	0.35	16	0.8	0.4	31.90	**234**					23.35	**634**		
16 IR 0,4	0.40	16	0.7	0.4	31.90	**236**					23.35	**636**		
16 IR 0,45	0.45	16	0.7	0.4	31.90	**238**					23.35	**638**		
16 IR 0,5	0.50	16	0.6	0.6	31.90	**240**					23.35	**640**		
16 IR 0,7	0.70	16	0.6	0.6	31.90	**241**					23.35	**641**		
16 IR 0,75	0.75	16	0.6	0.6	31.90	**242**	24.32	**142**	27.12	**742**	23.35	**642**		
16 IR 0,8	0.80	16	0.6	0.6	31.90	**243**					23.35	**643**		
16 IR 1,0	1.00	16	0.6	0.7			19.35	**144**	22.08	**744**			22.08	**944**
16 IR 1,0	1.00	16	0.7	0.7	31.90	**244**					22.71	**644**		
16 IR 1,25	1.25	16	0.8	0.9	31.90	**246**			23.24	**746**	23.35	**646**	23.24	**946**
16 IR 1,5	1.50	16	0.8	1.0	31.90	**248**	19.35	**148**	22.08	**748**	22.71	**648**	22.08	**948**
16 IR 1,75	1.75	16	0.9	1.2	31.90	**250**			27.12	**750**	23.35	**650**		
16 IR 2,0	2.00	16	1.0	1.3	31.90	**252**	19.35	**152**	22.08	**752**	23.35	**652**	22.08	**952**
16 IR 2,5	2.50	16	1.1	1.5	31.90	**254**	19.35	**154**	22.08	**754**	23.35	**654**	22.08	**954**
16 IR 3,0	3.00	16	1.1	1.5	31.90	**256**	19.35	**156**	22.08	**756**	23.35	**656**	22.08	**956**
22 IR 3,5	3.50	22	1.6	2.3	44.07	**270**	31.51	**170**	35.05	**770**				
22 IR 4,0	4.00	22	1.6	2.3	44.07	**272**	31.51	**172**	35.05	**772**				
22 IR 4,5	4.50	22	1.6	2.4			34.00	**174**	37.02	**774**				
22 IR 4,5	4.50	22	1.7	2.4	44.07	**274**								
22 IR 5,0	5.00	22	1.6	2.3			34.00	**176**						
22 IR 5,0	5.00	22	1.7	2.5	44.07	**276**								
22 IR 5,5	5.50	22	1.6	2.3			38.33	**178**						
22 IR 5,5	5.50	22	1.9	2.7	44.07	**278**								
22 IN 5,5	5.50	22	2.3	11.0	44.07	**282** [1]								
22 IR 6,0	6.00	22	1.6	2.4			34.00	**180**						
22 IR 6,0	6.00	22	2.0	2.9	44.07	**280**								
22 IN 6,0	6.00	22	2.6	11.0	44.07	**284** [1]								

P	●	●	○		●
M	●	○	●	○	●
K	●	●	○	●	●
N		●	○	●	
S	○		○	○	●
H	○		○		○
O		○			

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

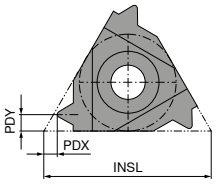
→ v_c Page 45

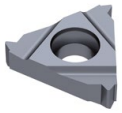
Left hand internal thread turning insert

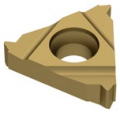
▲ Full profile

M | MF | 60°

CCN20 | CWN1525







Designation	TP mm	INSL mm	PDX mm	PDY mm	IL 71 226 ... £ X3		IL 71 226 ... £ X3	
11 IL 0,35	0.35	11	0.8	0.3	31.90	**204**		
11 IL 0,4	0.40	11	0.8	0.4	31.90	**206**		
11 IL 0,45	0.45	11	0.8	0.4	31.90	**208**		
11 IL 0,5	0.50	11	0.6	0.6	31.90	**210**		
11 IL 0,7	0.70	11	0.6	0.6	31.90	**211**		
11 IL 0,75	0.75	11	0.6	0.6	31.90	**212**		
11 IL 0,8	0.80	11	0.6	0.6	31.90	**213**		
11 IL 1,0	1.00	11	0.6	0.7	31.90	**214**		
11 IL 1,25	1.25	11	0.8	0.9	31.90	**216**		
11 IL 1,5	1.50	11	0.8	1.0	31.90	**218**		
11 IL 1,75	1.75	11	0.9	1.1	31.90	**220**		
11 IL 2,0	2.00	11	0.9	1.1	31.90	**222**		
11 IL 2,5	2.50	11	0.9	1.1	31.90	**224**		
16 IL 0,35	0.35	16	0.8	0.4	31.90	**234**		
16 IL 0,4	0.40	16	0.7	0.4	31.90	**236**		
16 IL 0,45	0.45	16	0.7	0.4	31.90	**238**		
16 IL 0,5	0.50	16	0.6	0.6	31.90	**240**		
16 IL 0,7	0.70	16	0.6	0.6	31.90	**241**		
16 IL 0,75	0.75	16	0.6	0.6	31.90	**242**		
16 IL 0,8	0.80	16	0.6	0.6	31.90	**243**		
16 IL 1,0	1.00	16	0.6	0.7			28.45	**144**
16 IL 1,0	1.00	16	0.7	0.7	31.90	**244**		
16 IL 1,25	1.25	16	0.8	0.9	31.90	**246**		
16 IL 1,5	1.50	16	0.8	1.0	31.90	**248**	24.49	**148**
16 IL 1,75	1.75	16	0.9	1.2	31.90	**250**		
16 IL 2,0	2.00	16	1.0	1.3	31.90	**252**	22.03	**152**
16 IL 2,5	2.50	16	1.1	1.5	31.90	**254**		
16 IL 3,0	3.00	16	1.2	1.6	31.90	**256**		
22 IL 3,5	3.50	22	1.6	2.3	44.07	**270**		
22 IL 4,0	4.00	22	1.6	2.3	44.07	**272**		
22 IL 4,5	4.50	22	1.7	2.4	44.07	**274**		
22 IL 5,0	5.00	22	1.7	2.5	44.07	**276**		
22 IL 5,5	5.50	22	1.9	2.7	44.07	**278**		
22 IL 6,0	6.00	22	2.0	2.9	44.07	**280**		

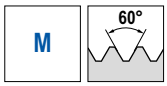
P	●	●
M	●	○
K	●	●
N		●
S	○	
H	○	
O		○

→ v_c Page 45

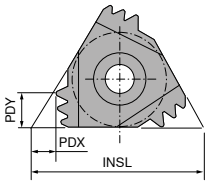
8

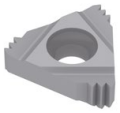
Right hand external thread turning insert

▲ Multi edge insert



HCN2525





Designation	TP mm	INSL mm	PDX mm	PDY mm	NT	ER 71 221 ... £ X3	
16 ER 1,0 3M	1.0	16	1.7	2.5	3	46.69	**700**
16 ER 1,5 2M	1.5	16	1.5	2.3	2	45.86	**702**

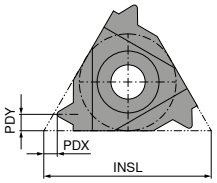
P	○
M	●
K	○
N	○
S	○
H	○
O	

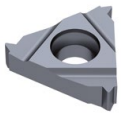
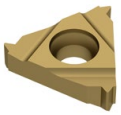
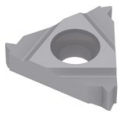
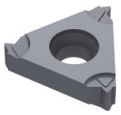
→ v_c Page 45

Right hand external thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

BSW | 55°



CCN20	CWN1525	HCN2525	CWK20	CCN7525
				

Designation	TPI	INSL	PDX	PDY	ER 71 228 ... £ X3		ER 71 228 ... £ X3		ER 71 228 ... £ X3		ER 71 228 ... £ Y1		ER 71 228 ... £ X3	
	1/"	mm	mm	mm										
11 ER 72	72.0	11	0.7	0.4	30.83	**202**								
11 ER 60	60.0	11	0.7	0.4	30.83	**204**								
11 ER 56	56.0	11	0.7	0.4	30.83	**206**								
11 ER 48	48.0	11	0.6	0.6	30.83	**208**								
11 ER 40	40.0	11	0.6	0.6	30.83	**210**								
11 ER 36	36.0	11	0.6	0.6	30.83	**212**								
11 ER 32	32.0	11	0.6	0.6	30.83	**214**								
11 ER 28	28.0	11	0.6	0.7	30.83	**216**								
11 ER 26	26.0	11	0.7	0.8	30.83	**218**								
11 ER 24	24.0	11	0.7	0.8	30.83	**220**								
11 ER 22	22.0	11	0.8	0.9	30.83	**222**								
11 ER 20	20.0	11	0.8	0.9	30.83	**224**								
11 ER 19	19.0	11	0.8	1.0	30.83	**226**								
11 ER 18	18.0	11	0.8	1.0	30.83	**228**								
11 ER 16	16.0	11	0.9	1.1	30.83	**230**								
11 ER 14	14.0	11	0.9	1.1	30.83	**232**								
16 ER 40	40.0	16	0.6	0.6	31.90	**240**							23.35	**640**
16 ER 36	36.0	16	0.6	0.6	31.90	**242**							23.35	**642**
16 ER 32	32.0	16	0.6	0.6	31.90	**244**							23.35	**644**
16 ER 28	28.0	16	0.6	0.7	31.90	**246**	25.07	**146**	27.87	**746**	23.35	**646**		
16 ER 26	26.0	16	0.7	0.7					33.24	**748**				
16 ER 26	26.0	16	0.7	0.8	31.90	**248**					23.35	**648**		
16 ER 24	24.0	16	0.7	0.8	31.90	**250**					23.35	**650**		
16 ER 22	22.0	16	0.8	0.9	31.90	**252**					23.35	**652**		
16 ER 20	20.0	16	0.8	0.9	31.90	**254**			33.24	**754**	23.35	**654**		
16 ER 19	19.0	16	0.8	1.0	31.90	**256**	22.58	**156**	25.38	**756**	23.35	**656**	25.38	**956**
16 ER 18	18.0	16	0.8	1.0	31.90	**258**					23.35	**658**		
16 ER 16	16.0	16	0.9	1.1	31.90	**260**	27.54	**160**	30.37	**760**	23.35	**660**		
16 ER 14	14.0	16	1.0	1.2	31.90	**262**	22.58	**162**	25.38	**762**	23.35	**662**	25.38	**962**
16 ER 12	12.0	16	1.1	1.4	31.90	**264**	27.54	**164**	30.37	**764**	23.35	**664**		
16 ER 11	11.0	16	1.1	1.5	31.90	**266**	22.58	**166**	25.38	**766**	23.35	**666**	25.38	**966**
16 ER 10	10.0	16	1.1	1.5	31.90	**268**					23.35	**668**		
16 ER 9	9.0	16	1.2	1.7	31.90	**270**					23.35	**670**		
16 ER 8	8.0	16	1.2	1.5	31.90	**272**					23.35	**672**		
22 ER 7	7.0	22	1.6	2.3	44.07	**280**								
22 ER 6	6.0	22	1.6	2.3	44.07	**282**								
22 ER 5	5.0	22	1.7	2.4	44.07	**284**								
22 EN 4,5	4.5	22	2.3	11.0	44.07	**290** [1]								
22 EN 4	4.0	22	1.8	11.0	44.07	**292** [1]								

P	●	●	○		●
M	●	○	●	○	●
K	●	●	○	●	●
N		●	○	●	
S	○		○	○	●
H	○		○		○
O		○			

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 45

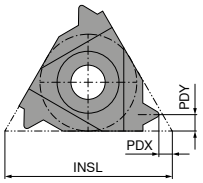
8

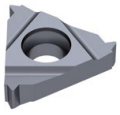
Left hand external thread turning insert

▲ Full profile



CCN20





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 229 ... £ X3	
11 EL 72	72	11	0.7	0.4	30.83	**202**
11 EL 60	60	11	0.7	0.4	30.83	**204**
11 EL 56	56	11	0.7	0.4	30.83	**206**
11 EL 48	48	11	0.6	0.6	30.83	**208**
11 EL 40	40	11	0.6	0.6	30.83	**210**
11 EL 36	36	11	0.6	0.6	30.83	**212**
11 EL 32	32	11	0.6	0.6	30.83	**214**
11 EL 28	28	11	0.6	0.7	30.83	**216**
11 EL 26	26	11	0.7	0.8	30.83	**218**
11 EL 24	24	11	0.7	0.8	30.83	**220**
11 EL 22	22	11	0.8	0.9	30.83	**222**
11 EL 20	20	11	0.8	0.9	30.83	**224**
11 EL 19	19	11	0.8	1.0	30.83	**226**
11 EL 18	18	11	0.8	1.0	30.83	**228**
11 EL 16	16	11	0.9	1.1	30.83	**230**
11 EL 14	14	11	0.9	1.1	30.83	**232**
16 EL 40	40	16	0.6	0.6	31.90	**240**
16 EL 36	36	16	0.6	0.6	31.90	**242**
16 EL 32	32	16	0.6	0.6	31.90	**244**
16 EL 28	28	16	0.6	0.7	31.90	**246**
16 EL 26	26	16	0.7	0.8	31.90	**248**
16 EL 24	24	16	0.7	0.8	31.90	**250**
16 EL 22	22	16	0.8	0.9	31.90	**252**
16 EL 20	20	16	0.8	0.9	31.90	**254**
16 EL 19	19	16	0.8	1.0	31.90	**256**
16 EL 18	18	16	0.8	1.0	31.90	**258**
16 EL 16	16	16	0.9	1.1	31.90	**260**
16 EL 14	14	16	1.0	1.2	31.90	**262**
16 EL 12	12	16	1.1	1.4	31.90	**264**
16 EL 11	11	16	1.1	1.5	31.90	**266**
16 EL 10	10	16	1.1	1.5	31.90	**268**
16 EL 9	9	16	1.2	1.7	31.90	**270**
16 EL 8	8	16	1.2	1.5	31.90	**272**
22 EL 7	7	22	1.6	2.3	47.74	**280**
22 EL 6	6	22	1.6	2.3	47.74	**282**
22 EL 5	5	22	1.7	2.4	40.83	**284**

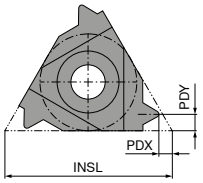
P	●
M	●
K	●
N	
S	○
H	○
O	

→ v_c Page 45

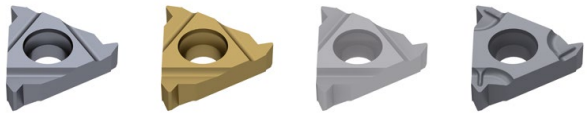
Right hand internal thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

BSW | 55°



CCN20 | CWN1525 | HCN2525 | CCN7525



Designation	TPI	INSL	PDX	PDY	IR 71 230 ... £ X3		IR 71 230 ... £ X3		IR 71 230 ... £ X3		IR 71 230 ... £ X3	
	1/"	mm	mm	mm								
11 IR 48	48	11	0.6	0.6	31.90	**206**						
11 IR 40	40	11	0.6	0.6	31.90	**208**						
11 IR 36	36	11	0.6	0.6	31.90	**210**						
11 IR 32	32	11	0.6	0.6	31.90	**212**						
11 IR 28	28	11	0.6	0.7	31.90	**214**						
11 IR 26	26	11	0.7	0.8	31.90	**216**						
11 IR 24	24	11	0.7	0.8	31.90	**218**						
11 IR 22	22	11	0.8	0.9	31.90	**220**						
11 IR 20	20	11	0.8	0.9	31.90	**222**						
11 IR 19	19	11	0.8	1.0	31.90	**224**	23.71	**124**	26.54	**724**		
11 IR 19	19	11	0.8	0.9							26.54	**924**
11 IR 18	18	11	0.8	1.0	31.90	**226**						
11 IR 16	16	11	0.9	1.1	31.90	**228**						
11 IR 14	14	11	0.9	1.1	31.90	**230**	23.71	**130**	26.54	**730**		
11 IR 14	14	11	0.8	0.9							26.54	**930**
16 IR 40	40	16	0.6	0.6	31.90	**240**						
16 IR 36	36	16	0.6	0.6	31.90	**242**						
16 IR 32	32	16	0.6	0.6	31.90	**244**						
16 IR 28	28	16	0.6	0.7	31.90	**246**						
16 IR 26	26	16	0.7	0.8	31.90	**248**						
16 IR 24	24	16	0.7	0.8	31.90	**250**						
16 IR 22	22	16	0.8	0.9	31.90	**252**						
16 IR 20	20	16	0.8	0.9	31.90	**254**						
16 IR 19	19	16	0.8	1.0	31.90	**256**						
16 IR 18	18	16	0.8	1.0	31.90	**258**						
16 IR 16	16	16	0.9	1.1	31.90	**260**			33.24	**760**		
16 IR 14	14	16	1.0	1.2	31.90	**262**	22.58	**162**	25.38	**762**	25.38	**962**
16 IR 12	12	16	1.1	1.4	31.90	**264**						
16 IR 11	11	16	1.1	1.5	31.90	**266**	22.58	**166**	25.38	**766**	25.38	**966**
16 IR 10	10	16	1.1	1.5	31.90	**268**						
16 IR 9	9	16	1.2	1.7	31.90	**270**						
16 IR 8	8	16	1.2	1.5	31.90	**272**						
22 IR 7	7	22	1.6	2.3	44.07	**280**						
22 IR 6	6	22	1.6	2.3	44.07	**282**						
22 IR 5	5	22	1.7	2.4	44.07	**284**						

P	●	●	○	●
M	●	○	●	●
K	●	●	○	●
N		●	○	
S	○		○	●
H	○		○	○
O		○		

→ v_c Page 45

8

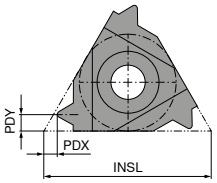
Left hand internal thread turning insert

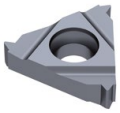
▲ Full profile

BSW



CCN20





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 231 ... £ X3	
11 IL 48	48	11	0.6	0.6	31.90	**206**
11 IL 40	40	11	0.6	0.6	31.90	**208**
11 IL 36	36	11	0.6	0.6	31.90	**210**
11 IL 32	32	11	0.6	0.6	31.90	**212**
11 IL 28	28	11	0.6	0.7	31.90	**214**
11 IL 26	26	11	0.7	0.8	31.90	**216**
11 IL 24	24	11	0.7	0.8	31.90	**218**
11 IL 22	22	11	0.8	0.9	31.90	**220**
11 IL 20	20	11	0.8	0.9	31.90	**222**
11 IL 19	19	11	0.8	1.0	31.90	**224**
11 IL 18	18	11	0.8	1.0	31.90	**226**
11 IL 16	16	11	0.9	1.1	31.90	**228**
11 IL 14	14	11	0.9	1.1	31.90	**230**
16 IL 40	40	16	0.6	0.6	31.90	**240**
16 IL 36	36	16	0.6	0.6	31.90	**242**
16 IL 32	32	16	0.6	0.6	31.90	**244**
16 IL 28	28	16	0.6	0.7	31.90	**246**
16 IL 26	26	16	0.7	0.8	31.90	**248**
16 IL 24	24	16	0.7	0.8	31.90	**250**
16 IL 22	22	16	0.8	0.9	31.90	**252**
16 IL 20	20	16	0.8	0.9	31.90	**254**
16 IL 19	19	16	0.8	1.0	31.90	**256**
16 IL 18	18	16	0.8	1.0	31.90	**258**
16 IL 16	16	16	0.9	1.1	31.90	**260**
16 IL 14	14	16	1.0	1.2	31.90	**262**
16 IL 12	12	16	1.1	1.4	31.90	**264**
16 IL 11	11	16	1.1	1.5	31.90	**266**
16 IL 10	10	16	1.1	1.5	31.90	**268**
16 IL 9	9	16	1.2	1.7	31.90	**270**
16 IL 8	8	16	1.2	1.5	31.90	**272**
22 IL 7	7	22	1.6	2.3	44.07	**280**
22 IL 6	6	22	1.6	2.3	44.07	**282**
22 IL 5	5	22	1.7	2.4	44.07	**284**

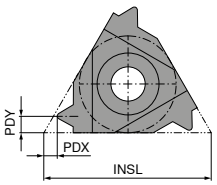
P	●
M	●
K	●
N	
S	○
H	○
O	

→ v_c Page 45

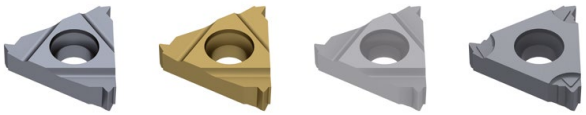
Right hand external thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

UN | UNC | UNF | UNEF | 60°



CCN20 | CWN1525 | HCN2525 | CCN7525



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 264 ... £ X3		ER 71 264 ... £ X3		ER 71 264 ... £ X3		ER 71 264 ... £ X3	
11 ER 72	72.0	11	0.8	0.4	30.83	202						
11 ER 64	64.0	11	0.8	0.4	30.83	204						
11 ER 56	56.0	11	0.7	0.4	30.83	206						
11 ER 48	48.0	11	0.6	0.6	30.83	208						
11 ER 44	44.0	11	0.6	0.6	30.83	210						
11 ER 40	40.0	11	0.6	0.6	30.83	212						
11 ER 36	36.0	11	0.6	0.6	30.83	214						
11 ER 32	32.0	11	0.6	0.6	30.83	216						
11 ER 28	28.0	11	0.6	0.7	30.83	218						
11 ER 27	27.0	11	0.7	0.8	30.83	220						
11 ER 24	24.0	11	0.7	0.8	30.83	222						
11 ER 20	20.0	11	0.8	0.9	30.83	224						
11 ER 18	18.0	11	0.8	1.0	30.83	226						
11 ER 16	16.0	11	0.9	1.1	30.83	228						
11 ER 14	14.0	11	0.9	1.1	30.83	230						
16 ER 72	72.0	16	0.8	0.4	31.90	232						
16 ER 64	64.0	16	0.8	0.4	31.90	234						
16 ER 56	56.0	16	0.7	0.4	31.90	236						
16 ER 48	48.0	16	0.6	0.6	31.90	238						
16 ER 44	44.0	16	0.6	0.6	31.90	240						
16 ER 40	40.0	16	0.6	0.6	31.90	242						
16 ER 36	36.0	16	0.6	0.6	31.90	244						
16 ER 32	32.0	16	0.6	0.6	31.90	246			32.52	746		
16 ER 28	28.0	16	0.6	0.7	31.90	248			30.37	748		
16 ER 27	27.0	16	0.7	0.8	31.90	250						
16 ER 24	24.0	16	0.7	0.8	31.90	252	25.07	152	27.87	752		
16 ER 20	20.0	16	0.8	0.9	31.90	254	23.71	154	26.54	754	26.54	954
16 ER 18	18.0	16	0.8	1.0	31.90	256	25.07	156	27.87	756		
16 ER 16	16.0	16	0.9	1.1	31.90	258	23.71	158	26.54	758	26.54	958
16 ER 14	14.0	16	1.0	1.2	31.90	260	25.07	160	27.87	760		
16 ER 13	13.0	16	1.0	1.3	31.90	262						
16 ER 12	12.0	16	1.1	1.4	31.90	264	25.07	164	27.87	764		
16 ER 11,5	11.5	16	1.1	1.5	31.90	266						
16 ER 11	11.0	16	1.1	1.5	31.90	268	30.94	168				
16 ER 10	10.0	16	1.1	1.5	31.90	270						
16 ER 9	9.0	16	1.2	1.7	31.90	272						
16 ER 8	8.0	16	1.2	1.6	31.90	274						
16 ER 8	8.0	16	1.1	1.1							33.24	974
16 ER 8	8.0	16	1.1	1.5			30.94	174				
22 ER 7	7.0	22	1.6	2.3	44.07	276						
22 ER 6	6.0	22	1.6	2.3	44.07	278						
22 ER 5	5.0	22	1.7	2.5	44.07	280						
22 EN 4,5	4.5	22	2.0	11.0	44.07	282 [1]						
22 EN 4	4.0	22	2.0	11.0	44.07	284 [1]						

P	●	●	○	●
M	●	○	●	●
K	●	●	○	●
N		●	○	
S	○		○	●
H	○		○	○
O		○		

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 45

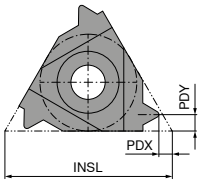
8

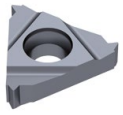
Left hand external thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 266 ... £ X3	
11 EL 72	72.0	11	0.8	0.4	30.83	202
11 EL 64	64.0	11	0.8	0.4	30.83	204
11 EL 56	56.0	11	0.7	0.4	30.83	206
11 EL 48	48.0	11	0.6	0.6	30.83	208
11 EL 44	44.0	11	0.6	0.6	30.83	210
11 EL 40	40.0	11	0.6	0.6	30.83	212
11 EL 36	36.0	11	0.6	0.6	30.83	214
11 EL 32	32.0	11	0.6	0.6	30.83	216
11 EL 28	28.0	11	0.6	0.7	30.83	218
11 EL 27	27.0	11	0.7	0.8	30.83	220
11 EL 24	24.0	11	0.7	0.8	30.83	222
11 EL 20	20.0	11	0.8	0.9	30.83	224
11 EL 18	18.0	11	0.8	1.0	30.83	226
11 EL 16	16.0	11	0.9	1.1	30.83	228
11 EL 14	14.0	11	0.9	1.1	30.83	230
16 EL 72	72.0	16	0.8	0.4	31.90	232
16 EL 64	64.0	16	0.8	0.4	31.90	234
16 EL 56	56.0	16	0.7	0.4	31.90	236
16 EL 48	48.0	16	0.6	0.6	31.90	238
16 EL 44	44.0	16	0.6	0.6	31.90	240
16 EL 40	40.0	16	0.6	0.6	31.90	242
16 EL 36	36.0	16	0.6	0.6	31.90	244
16 EL 32	32.0	16	0.6	0.6	31.90	246
16 EL 28	28.0	16	0.6	0.7	31.90	248
16 EL 27	27.0	16	0.7	0.8	31.90	250
16 EL 24	24.0	16	0.7	0.8	31.90	252
16 EL 20	20.0	16	0.8	0.9	31.90	254
16 EL 18	18.0	16	0.8	1.0	31.90	256
16 EL 16	16.0	16	0.9	1.1	31.90	258
16 EL 14	14.0	16	1.0	1.2	31.90	260
16 EL 13	13.0	16	1.0	1.3	31.90	262
16 EL 12	12.0	16	1.1	1.4	31.90	264
16 EL 11,5	11.5	16	1.1	1.5	31.90	266
16 EL 11	11.0	16	1.1	1.5	31.90	268
16 EL 10	10.0	16	1.1	1.5	31.90	270
16 EL 9	9.0	16	1.2	1.7	31.90	272
16 EL 8	8.0	16	1.2	1.6	31.90	274
22 EL 7	7.0	22	1.6	2.3	44.07	276
22 EL 6	6.0	22	1.6	2.3	44.07	278
22 EL 5	5.0	22	1.7	2.5	44.07	280

P	●
M	●
K	●
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S	○
H	○
O	

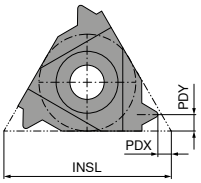
→ v_c Page 45

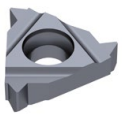
Right hand internal thread turning insert

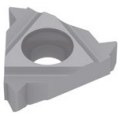
▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20 | HCN2525







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 268 ... £ X3		IR 71 268 ... £ X3	
11 IR 72	72.0	11	0.8	0.3	31.90	**202**		
11 IR 64	64.0	11	0.8	0.4	31.90	**204**		
11 IR 56	56.0	11	0.7	0.4	31.90	**206**		
11 IR 48	48.0	11	0.6	0.6	31.90	**208**		
11 IR 44	44.0	11	0.6	0.6	31.90	**210**		
11 IR 40	40.0	11	0.6	0.6	31.90	**212**		
11 IR 36	36.0	11	0.6	0.6	31.90	**214**		
11 IR 32	32.0	11	0.6	0.6	31.90	**216**		
11 IR 28	28.0	11	0.6	0.7	31.90	**218**		
11 IR 27	27.0	11	0.7	0.8	31.90	**220**		
11 IR 24	24.0	11	0.7	0.8	31.90	**222**		
11 IR 20	20.0	11	0.8	0.9	31.90	**224**		
11 IR 18	18.0	11	0.8	1.0	31.90	**226**		
11 IR 16	16.0	11	0.9	1.1	31.90	**228**		
11 IR 14	14.0	11	1.0	1.1	31.90	**230**		
16 IR 72	72.0	16	0.8	0.3	31.90	**232**		
16 IR 64	64.0	16	0.8	0.4	31.90	**234**		
16 IR 56	56.0	16	0.7	0.4	31.90	**236**		
16 IR 48	48.0	16	0.6	0.6	31.90	**238**		
16 IR 44	44.0	16	0.6	0.6	31.90	**240**		
16 IR 40	40.0	16	0.6	0.6	31.90	**242**		
16 IR 36	36.0	16	0.6	0.6	31.90	**244**		
16 IR 32	32.0	16	0.6	0.6	31.90	**246**		
16 IR 28	28.0	16	0.6	0.7	31.90	**248**		
16 IR 27	27.0	16	0.7	0.8	31.90	**250**		
16 IR 24	24.0	16	0.7	0.8	31.90	**252**		
16 IR 20	20.0	16	0.8	0.9	31.90	**254**		
16 IR 18	18.0	16	0.8	1.0	31.90	**256**		
16 IR 16	16.0	16	0.9	1.1	31.90	**258**		
16 IR 14	14.0	16	1.0	1.2	31.90	**260**	33.24	**760**
16 IR 13	13.0	16	1.0	1.3	31.90	**262**		
16 IR 12	12.0	16	1.1	1.4	31.90	**264**	27.87	**764**
16 IR 11,5	11.5	16	1.1	1.5	31.90	**266**		
16 IR 11	11.0	16	1.1	1.5	31.90	**268**		
16 IR 10	10.0	16	1.1	1.5	31.90	**270**		
16 IR 9	9.0	16	1.2	1.7	31.90	**272**		
16 IR 8	8.0	16	1.2	1.6	31.90	**274**		
16 IR 8	8.0	16	1.1	1.5			33.24	**774**
22 IR 7	7.0	22	1.6	2.3	44.07	**276**	43.49	**776**
22 IR 6	6.0	22	1.6	2.3	44.07	**278**		
22 IR 5	5.0	22	1.7	2.5	44.07	**280**		
22 IN 4,5	4.5	22	2.0	11.0	44.07	**282** [1)]		
22 IN 4	4.0	22	2.0	11.0	44.07	**284** [1)]		

P	●	○
M	●	●
K	●	○
N		○
S	○	○
H	○	○
O		

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 45

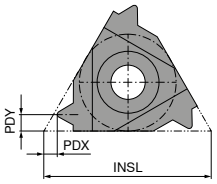
8

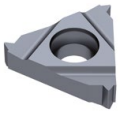
Left hand internal thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 270 ... £ X3	
11 IL 72	72.0	11	0.8	0.3	31.90	**202**
11 IL 64	64.0	11	0.8	0.4	31.90	**204**
11 IL 56	56.0	11	0.7	0.4	31.90	**206**
11 IL 48	48.0	11	0.6	0.6	31.90	**208**
11 IL 44	44.0	11	0.6	0.6	31.90	**210**
11 IL 40	40.0	11	0.6	0.6	31.90	**212**
11 IL 36	36.0	11	0.6	0.6	31.90	**214**
11 IL 32	32.0	11	0.6	0.6	31.90	**216**
11 IL 28	28.0	11	0.6	0.7	31.90	**218**
11 IL 27	27.0	11	0.7	0.8	31.90	**220**
11 IL 24	24.0	11	0.7	0.8	31.90	**222**
11 IL 20	20.0	11	0.8	0.9	31.90	**224**
11 IL 18	18.0	11	0.8	1.0	31.90	**226**
11 IL 16	16.0	11	0.9	1.1	31.90	**228**
11 IL 14	14.0	11	0.9	1.1	31.90	**230**
16 IL 72	72.0	16	0.8	0.3	44.24	**232**
16 IL 64	64.0	16	0.8	0.4	31.90	**234**
16 IL 56	56.0	16	0.7	0.4	31.90	**236**
16 IL 48	48.0	16	0.6	0.6	31.90	**238**
16 IL 44	44.0	16	0.6	0.6	31.90	**240**
16 IL 40	40.0	16	0.6	0.6	31.90	**242**
16 IL 36	36.0	16	0.6	0.6	31.90	**244**
16 IL 32	32.0	16	0.6	0.6	31.90	**246**
16 IL 28	28.0	16	0.6	0.7	31.90	**248**
16 IL 27	27.0	16	0.7	0.8	31.90	**250**
16 IL 24	24.0	16	0.7	0.8	31.90	**252**
16 IL 20	20.0	16	0.8	0.9	31.90	**254**
16 IL 18	18.0	16	0.8	1.0	31.90	**256**
16 IL 16	16.0	16	0.9	1.1	31.90	**258**
16 IL 14	14.0	16	1.0	1.2	31.90	**260**
16 IL 13	13.0	16	1.0	1.3	31.90	**262**
16 IL 12	12.0	16	1.1	1.4	31.90	**264**
16 IL 11,5	11.5	16	1.1	1.5	31.90	**266**
16 IL 11	11.0	16	1.1	1.5	31.90	**268**
16 IL 10	10.0	16	1.1	1.5	31.90	**270**
16 IL 9	9.0	16	1.2	1.7	31.90	**272**
16 IL 8	8.0	16	1.2	1.6	31.90	**274**
22 IL 7	7.0	22	1.6	2.3	44.07	**276**
22 IL 6	6.0	22	1.6	2.3	44.07	**278**
22 IL 5	5.0	22	1.7	2.5	44.07	**280**

P	●
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S	○
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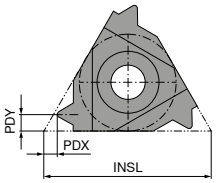
→ v_c Page 45

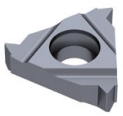
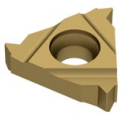
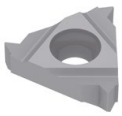
Right hand external thread turning insert

▲ Full profile

NPT 60°



CCN20 | CWN1525 | HCN2525

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 256 ... £ X3		ER 71 256 ... £ X3		ER 71 256 ... £ X3	
16 ER 27	27.0	16	0.7	0.8	35.21	**240**				
16 ER 18	18.0	16	0.8	1.0	35.21	**242**			32.83	**742**
16 ER 14	14.0	16	0.9	1.2	35.21	**244**	27.54	**144**	30.21	**744**
16 ER 11,5	11.5	16	1.1	1.5	35.21	**246**	29.99	**146**	32.83	**746**
16 ER 8	8.0	16	1.3	1.8	35.21	**248**				
P					●		●		○	
M					●		○		●	
K					●		●		○	
N							●		○	
S					○				○	
H					○				○	
O							○			

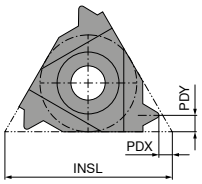
→ v_c Page 45

8

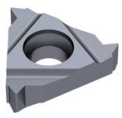
Left hand external thread turning insert

▲ Full profile

NPT 60°



CCN20



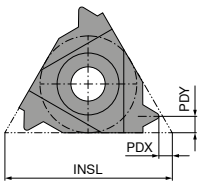
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 258 ... £ X3	
16 EL 27	27.0	16	0.7	0.8	35.21	**240**
16 EL 18	18.0	16	0.8	1.0	35.21	**242**
16 EL 14	14.0	16	0.9	1.2	35.21	**244**
16 EL 11,5	11.5	16	1.1	1.5	35.21	**246**
16 EL 8	8.0	16	1.3	1.8	35.21	**248**
P					●	
M					●	
K					●	
N						
S					○	
H					○	
O						

→ v_c Page 45

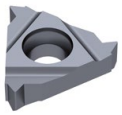
Right hand internal thread turning insert

▲ Full profile
▲ CCN7525 grade with sintered chip breaker for universal application

NPT 60°



CCN20 CCN7525




Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 260 ... £ X3		IR 71 260 ... £ X3	
11 IR 27	27.0	11	0.7	0.8	35.21	210		
11 IR 18	18.0	11	0.8	1.0	35.21	212		
11 IR 14	14.0	11	0.9	1.1	35.21	214		
16 IR 27	27.0	16	0.7	0.8	35.21	240		
16 IR 18	18.0	16	0.8	1.0	35.21	242		
16 IR 14	14.0	16	0.9	1.2	35.21	244	34.74	944
16 IR 11,5	11.5	16	1.1	1.5	35.21	246	38.92	946
16 IR 8	8.0	16	1.3	1.8	35.21	248		

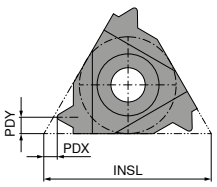
P	●	●
M	●	●
K	●	●
N		
S	○	●
H	○	○
O		

→ v_c Page 45

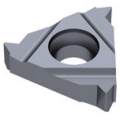
Left hand internal thread turning insert

▲ Full profile

NPT 60°



CCN20



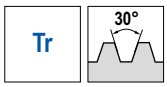
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 262 ... £ X3	
11 IL 27	27.0	11	0.7	0.8	35.21	210
11 IL 18	18.0	11	0.8	1.0	35.21	212
11 IL 14	14.0	11	0.9	1.1	35.21	214
16 IL 27	27.0	16	0.7	0.8	35.21	240
16 IL 18	18.0	16	0.8	1.0	35.21	242
16 IL 14	14.0	16	0.9	1.2	35.21	244
16 IL 11,5	11.5	16	1.1	1.5	35.21	246
16 IL 8	8.0	16	1.3	1.8	35.21	248

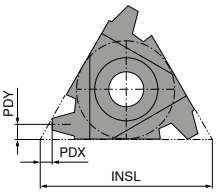
P	●
M	●
K	●
N	
S	○
H	○
O	

→ v_c Page 45

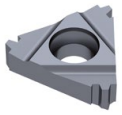
Right hand external thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

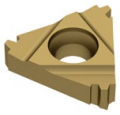




CCN20



CWN1525



Designation	TP mm	INSL mm	PDX mm	PDY mm	ER 71 232 ... £ X3		ER 71 232 ... £ X3	
16 ER 1,5	1.5	16	1.0	1.1	35.21	**240**		
16 ER 2,0	2.0	16	1.1	1.3	35.21	**242**		
16 ER 2,0	2.0	16	1.0	1.3			29.63	**142**
16 ER 3,0	3.0	16	1.3	1.5	35.21	**244**	29.02	**144**
22 ER 4,0	4.0	22	1.8	1.9			40.65	**170**
22 ER 4,0	4.0	22	1.7	1.9	50.32	**270**		
22 ER 5,0	5.0	22	2.0	2.4			45.11	**172**
22 ER 5,0	5.0	22	2.1	2.5	50.32	**272**		
22 ER 6,0	6.0	22	2.3	2.7	50.32	**274** [1]		
22 EN 6,0	6.0	22	2.0	11.0	50.32	**276** [2]		
22 EN 7,0	7.0	22	2.3	11.0	50.32	**278** [2]		

P	●	●
M	●	○
K	●	●
N		●
S	○	
H	○	
O		○

1) Requires special holder or an independently modified standard holder

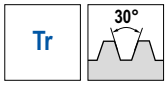
2) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 45

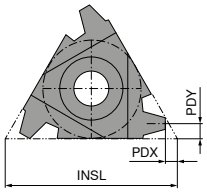
8

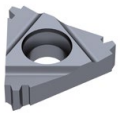
Left hand external thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103



CCN20





Designation	TP	INSL	PDX	PDY	EL 71 234 ... £ X3	
	mm	mm	mm	mm		
16 EL 1,5	1.5	16	1.0	1.1	35.21	**240**
16 EL 2,0	2.0	16	1.1	1.3	35.21	**242**
16 EL 3,0	3.0	16	1.3	1.5	35.21	**244**
22 EL 4,0	4.0	22	1.7	1.9	50.32	**270**
22 EL 5,0	5.0	22	2.1	2.5	50.32	**272**
22 EL 6,0	6.0	22	2.3	2.7	50.32	**274** 1)

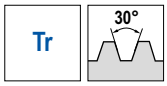
P	●
M	●
K	●
N	
S	○
H	○
O	

1) Requires special holder or an independently modified standard holder

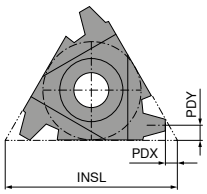
→ v_c Page 45

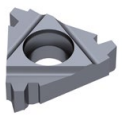
Right hand internal thread turning insert

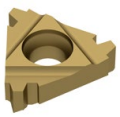
▲ Full profile
▲ Trapezoidal thread DIN 103



CCN20 CWN1525







Designation	TP	INSL	PDX	PDY	IR 71 236 ... £ X3		IR 71 236 ... £ X3	
	mm	mm	mm	mm				
11 IR 1,5	1.5	11	0.815	0.9	35.21	**210**		
16 IR 1,5	1.5	16	1.000	1.1	35.21	**240**		
16 IR 2,0	2.0	16	1.100	1.3	35.21	**242**		
16 IR 3,0	3.0	16	1.300	1.5	35.21	**244**	32.91	**144**
22 IR 4,0	4.0	22	1.800	1.9			45.97	**170**
22 IR 4,0	4.0	22	1.700	1.9	50.32	**270**		
22 IR 5,0	5.0	22	2.000	2.4			48.56	**172**
22 IR 5,0	5.0	22	2.100	2.5	50.32	**272**		
22 IR 6,0	6.0	22	2.300	2.7	50.32	**274** 1)		
22 IN 6,0	6.0	22	2.000	11.0	50.32	**276** 2)		
22 IN 7,0	7.0	22	2.300	11.0	50.32	**278** 2)		

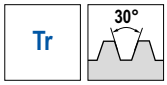
P	●	●
M	●	○
K	●	●
N		●
S	○	
H	○	
O		○

1) Requires special holder or an independently modified standard holder
2) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

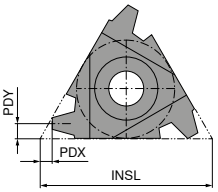
→ v_c Page 45

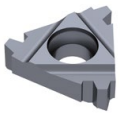
Left hand internal thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103



CCN20





Designation	TP mm	INSL mm	PDX mm	PDY mm	IL 71 238 ... £ X3	
11 IL 1,5	1.5	11	0.8	0.9	35.21	**210**
16 IL 1,5	1.5	16	1.0	1.1	35.21	**240**
16 IL 2,0	2.0	16	1.1	1.3	35.21	**242**
16 IL 3,0	3.0	16	1.3	1.5	35.21	**244**
22 IL 4,0	4.0	22	1.7	1.9	50.32	**270**
22 IL 5,0	5.0	22	2.1	2.5	50.32	**272**
22 IL 6,0	6.0	22	2.3	2.7	50.32	**274** 1)

P	●
M	●
K	●
N	
S	○
H	○
O	

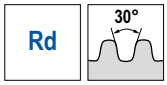
1) Requires special holder or an independently modified standard holder

→ v_c Page 45

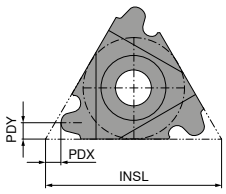
8

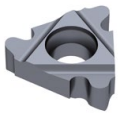
Right hand external thread turning insert

▲ Full profile
▲ Round thread DIN 405



CCN20





ER
71 248 ...

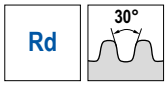
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	£ X3	
16 ER 10	10	16	1.1	1.2	35.21	**240**
16 ER 8	8	16	1.4	1.3	35.21	**242**
16 ER 6	6	16	1.5	1.7	35.21	**246**
22 ER 6	6	22	1.5	1.7	50.32	**270**
22 ER 4	4	22	2.2	2.3	50.32	**272**

P	●
M	●
K	●
N	
S	○
H	○
O	

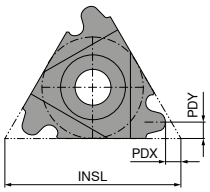
→ v_c Page 45

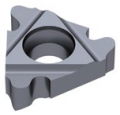
Left hand external thread turning insert

▲ Full profile
▲ Round thread DIN 405



CCN20





EL
71 250 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	£ X3	
16 EL 10	10	16	1.1	1.2	35.21	**240**
16 EL 8	8	16	1.4	1.3	35.21	**242**
16 EL 6	6	16	1.5	1.7	35.21	**246**
22 EL 6	6	22	1.5	1.7	50.32	**270**
22 EL 4	4	22	2.2	2.3	50.32	**272**

P	●
M	●
K	●
N	
S	○
H	○
O	

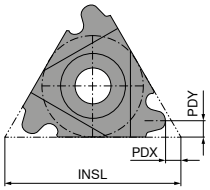
→ v_c Page 45

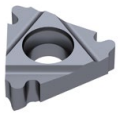
Right hand internal thread turning insert

▲ Full profile
▲ Round thread DIN 405

Rd | 30°

CCN20





IR
71 252 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	£ X3	
16 IR 10	10	16	1.1	1.2	35.21	**240**
16 IR 8	8	16	1.4	1.4	35.21	**242**
16 IR 6	6	16	1.4	1.5	35.21	**246**
22 IR 6	6	22	1.5	1.7	50.32	**270**
22 IR 4	4	22	2.2	2.3	50.32	**272**

P	●
M	●
K	●
N	
S	○
H	○
O	

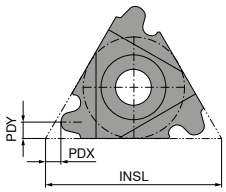
→ v_c Page 45

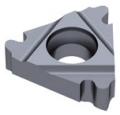
Left hand internal thread turning insert

▲ Full profile
▲ Round thread DIN 405

Rd | 30°

CCN20





IL
71 254 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	£ X3	
16 IL 10	10	16	1.1	1.2	35.21	**240**
16 IL 8	8	16	1.4	1.4	35.21	**242**
16 IL 6	6	16	1.4	1.5	35.21	**246**
22 IL 6	6	22	1.5	1.7	50.32	**270**
22 IL 4	4	22	2.2	2.3	50.32	**272**

P	●
M	●
K	●
N	
S	○
H	○
O	

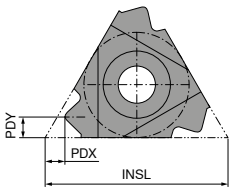
→ v_c Page 45

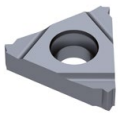
Right hand external thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°

CCN20





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 240 ... £ X3	
16 ER 20	20	16	0.8	0.8	35.21	**240**
16 ER 18	18	16	0.8	0.9	35.21	**242**
16 ER 16	16	16	0.8	1.0	35.21	**244**

P	●
M	●
K	●
N	
S	○
H	○
O	

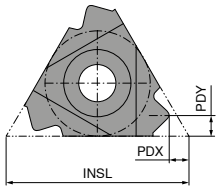
→ v_c Page 45

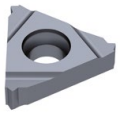
Left hand external thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°

CCN20





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 242 ... £ X3	
16 EL 20	20	16	0.8	0.8	35.21	**240**
16 EL 18	18	16	0.8	0.9	35.21	**242**
16 EL 16	16	16	0.8	1.0	35.21	**244**

P	●
M	●
K	●
N	
S	○
H	○
O	

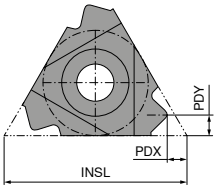
→ v_c Page 45

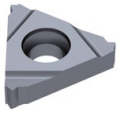
Right hand internal thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°

CCN20





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 244 ... £ X3	
11 IR 18	18	11	0.8	0.9	35.21	**238**
16 IR 18	18	16	0.8	0.9	35.21	**242**
16 IR 16	16	16	0.8	1.0	35.21	**244**

P	●
M	●
K	●
N	
S	○
H	○
O	

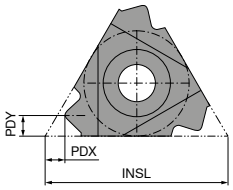
→ v_c Page 45

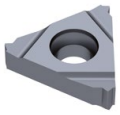
Left hand internal thread turning insert

▲ Full profile
▲ Conduit thread DIN 40430

Pg | 80°

CCN20





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 246 ... £ X3	
11 IL 18	18	11	0.8	0.9	35.21	**238**
16 IL 18	18	16	0.8	0.9	35.21	**242**
16 IL 16	16	16	0.8	1.0	35.21	**244**

P	●
M	●
K	●
N	
S	○
H	○
O	

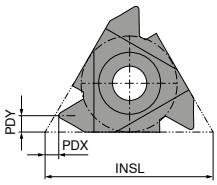
→ v_c Page 45

8

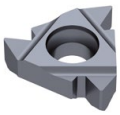
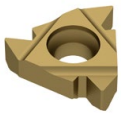
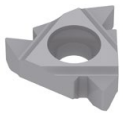
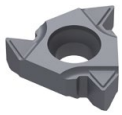
Right hand external thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application





CCN20 | CWN1525 | HCN2525 | CCN7525

Designation	TP	INSL	PDX	PDY	ER 71 206 ... £ X3		ER 71 206 ... £ X3		ER 71 206 ... £ X3		ER 71 206 ... £ X3	
	mm	mm	mm	mm								
16 ER A60	0,5 - 1,5	16	0.8	0.9	31.90	**240**	21.84	**140**	23.71	**740**	23.71	**940**
16 ER AG60	0,5 - 3	16	1.2	1.7	31.90	**244**	21.29	**144**	22.98	**744**	22.98	**944**
16 ER G60	1,75 - 3	16	1.2	1.7	31.90	**242**	23.37	**142**	25.93	**742**	25.93	**942**
22 EN U60	5,5 - 8	22	0.9	11.0	44.07	**272** [1)]						
22 ER N60	3,5 - 5	22	1.7	2.5	44.07	**270**	39.67	**170**				

P	●	●	○	●
M	●	○	●	●
K	●	●	○	●
N		●	○	
S	○		○	●
H	○		○	○
O		○		

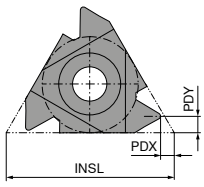
1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

→ v_c Page 45

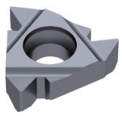
Left hand external thread turning insert

▲ Partial profile





CCN20



Designation	TP	INSL	PDX	PDY	EL 71 208 ... £ X3	
	mm	mm	mm	mm		
16 EL A60	0,5 - 1,5	16	0.8	0.9	31.90	**240**
16 EL AG60	0,5 - 3	16	1.2	1.7	31.90	**244**
16 EL G60	1,75 - 3	16	1.2	1.7	31.90	**242**
22 EL N60	3,5 - 5	22	1.7	2.5	44.07	**270**

P	●
M	●
K	●
N	
S	○
H	○
O	

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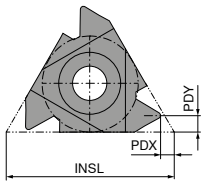
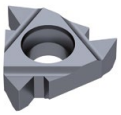
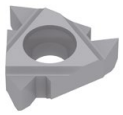
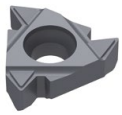
Right hand internal thread turning insert

▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application





					CCN20		CWN1525		HCN2525		CCN7525	
												
					IR		IR		IR		IR	
					71 210 ...		71 210 ...		71 210 ...		71 210 ...	
Designation	TP	INSL	PDX	PDY	£		£		£		£	
	mm	mm	mm	mm	X3		X3		X3		X3	
11 IR A60	0,5 - 1,5	11	0.8	0.9	31.90	**210**	22.03	**110**				
16 IR A60	0,5 - 1,5	16	0.8	0.9	31.90	**240**	28.87	**140**				
16 IR AG60	0,5 - 3	16	1.2	1.7	31.90	**244**	22.64	**144**	24.32	**744**	24.32	**944**
16 IR G60	1,75 - 3	16	1.2	1.7	31.90	**242**	23.37	**142**				
22 IN U60	5,5 - 8	22	0.9	11.0	44.07	**272** [1)]						
22 IR N60	3,5 - 5	22	1.7	2.5	44.07	**270**	38.11	**170**				
P					●		●		○		●	
M					●		○		●		●	
K					●		●		○		●	
N							●		○			
S					○				○		●	
H					○				○		○	
O							○					

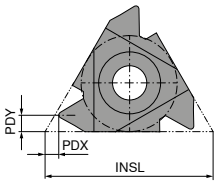
1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

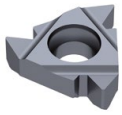
→ v_c Page 45

Left hand internal thread turning insert

▲ Partial profile





					CCN20	
						
					IL	
					71 212 ...	
Designation	TP	INSL	PDX	PDY	£	
	mm	mm	mm	mm	X3	
11 IL A60	0,5 - 1,5	11	0.8	0.9	31.90	**210**
16 IL A60	0,5 - 1,5	16	0.8	0.9	31.90	**240**
16 IL AG60	0,5 - 3	16	1.2	1.7	31.90	**244**
16 IL G60	1,75 - 3	16	1.2	1.7	31.90	**242**
22 IL N60	3,5 - 5	22	1.7	2.5	44.07	**270**
P						●
M						●
K						●
N						
S						○
H						○
O						

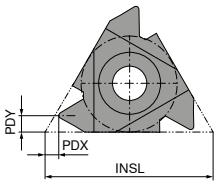
→ v_c Page 45

8

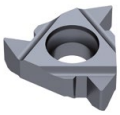
Right hand external thread turning insert

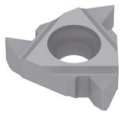
▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application





CCN20 | CWN1525 | HCN2525 | CCN7525






Designation	TPI	INSL	PDX	PDY	ER 71 200 ... £ X3		ER 71 200 ... £ X3		ER 71 200 ... £ X3		ER 71 200 ... £ X3	
	1/"	mm	mm	mm								
16 ER A55	48 - 16	16	0.8	0.9	31.90	**240**	25.84	**140**	27.54	**740**	27.54	**940**
16 ER AG55	48 - 8	16	1.2	1.7	31.90	**244**	23.37	**144**	25.93	**744**	25.93	**944**
16 ER G55	14 - 8	16	1.2	1.7	31.90	**242**	25.84	**142**	28.45	**742**	28.45	**942**
22 ER N55	7 - 5	22	1.7	2.5	44.07	**270**	45.97	**170**	49.76	**770**		
22 EN U55	4,5 - 3,25	22	0.9	11.0	44.07	**272** [1)]						
P					●		●		○		●	
M					●		○		●		●	
K					●		●		○		●	
N							●		○			
S					○				○		●	
H					○				○		○	
O							○					

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

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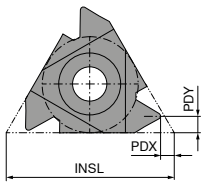
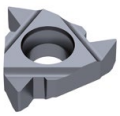
Left hand external thread turning insert

▲ Partial profile





CCN20



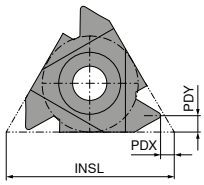
Designation	TPI	INSL	PDX	PDY	EL 71 202 ... £ X3	
	1/"	mm	mm	mm		
16 EL A55	48 - 16	16	0.8	0.9	31.90	**240**
16 EL AG55	48 - 8	16	1.2	1.7	31.90	**244**
16 EL G55	14 - 8	16	1.2	1.7	31.90	**242**
22 EL N55	7 - 5	22	1.7	2.5	44.07	**270**
P					●	
M					●	
K					●	
N						
S					○	
H					○	
O						

→ v_c Page 45

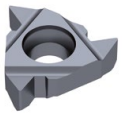
Right hand internal thread turning insert

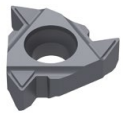
▲ Partial profile
▲ CCN7525 grade with sintered chip breaker for universal application





CCN20 | CWN1525 | CCN7525





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 204 ... £ X3		IR 71 204 ... £ X3		IR 71 204 ... £ X3	
11 IR A55	48 - 16	11	0.8	0.9	31.90	**210**				
16 IR A55	48 - 16	16	0.8	0.9	31.90	**240**				
16 IR AG55	48 - 8	16	1.2	1.7	31.90	**244**				
16 IR G55	14 - 8	16	1.2	1.7	31.90	**242**	25.84	**142**	28.45	**942**
22 IN U55	4,5 - 3,25	22	0.9	11.0	44.07	**272** [1)]				
22 IR N55	7 - 5	22	1.7	2.5	44.07	**270**				
P					●		●		●	
M					●		○		●	
K					●		●		●	
N							●			
S					○				●	
H					○				○	
O							○			

1) Neutral version (N) – for right and left hand thread applications. Neutral Toolholder marked (U) is required.

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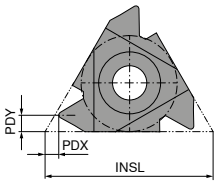
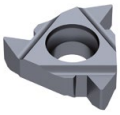
Left hand internal thread turning insert

▲ Partial profile





CCN20

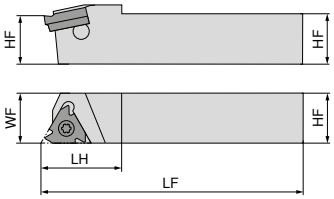


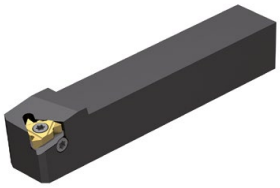
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 203 ... £ X3	
11 IL A55	48 - 16	11	0.8	0.9	29.50	**210**
16 IL A55	48 - 16	16	0.8	0.9	29.50	**240**
16 IL AG55	48 - 8	16	1.2	1.7	29.50	**244**
16 IL G55	14 - 8	16	1.2	1.7	29.50	**242**
22 IL N55	7 - 5	22	1.7	2.5	41.49	**270**
P						●
M						●
K						●
N						
S						○
H						○
O						

→ v_c Page 45

Standard External Thread Turning Holder

▲ Tool Holder with Approach Angle ß = 1,5°





Illustrations show right-hand versions

ISO designation	HF mm	WF mm	LF mm	LH mm	Insert	torque moment Nm	Left-hand 71 281 ... £ Y2		Right-hand 71 280 ... £ Y2	
SE R/L 08 08 H11	8	11	100	16	11 ..	1,3	142.19	**908** [2]	142.19	**908** [2]
SE R/L 10 10 H11	10	12	100	18	11 ..	1,3	142.19	**910** [2]	142.19	**910** [2]
SE R/L 12 12 K11	12	12	125	20	11 ..	1,3	142.19	**912** [2]	142.19	**912** [2]
SE R/L 12 12 F16	12	16	80	22	16 ..	3,5	142.19	**012**	142.19	**012**
SE R/L 16 16 H16	16	16	100	25	16 ..	3,5	175.03	**016**	175.03	**016**
SE R/L 20 20 K16	20	20	125	30	16 ..	3,5	175.03	**020**	175.03	**020**
SE R/L 25 25 M16	25	25	150	30	16 ..	3,5	199.75	**025**	199.75	**025**
SE R/L 32 32 P16	32	32	170	30	16 ..	3,5	219.52	**032**	219.52	**032**
SE R/L 25 25 M22	25	25	150	32	22 ..	10	219.52	**125**	219.52	**125**
SE R 32 32 P22	32	32	170	34	22 ..	10			229.41	**132**
SE R 32 32 P22U	32	21	170	32	22 .N	10			229.41	**232** [1]

1) Neutral insert indicated by marking (N)
2) without shim


Multi tooth shim


Shim


Screw-U


Key D

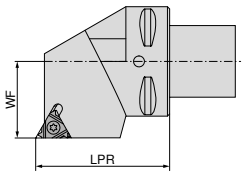

Clamping screw

Spare parts for Article no.		71 950 ... £ Y2			71 950 ... £ Y2		71 950 ... £ Y2			80 950 ... £ Y7		71 950 ... £ Y2	
71 280 908 / 71 281 908									T08	13.73	**110**	2.71	**230**
71 280 910 / 71 281 910									T08	13.73	**110**	2.71	**230**
71 280 912 / 71 281 912									T08	13.73	**110**	2.71	**230**
71 280 012	ER 16 / IL 16	22.88	**101**	ER 16 / IL 16	18.59	**121**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 281 012	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 280 016	ER 16 / IL 16	22.88	**101**	ER 16 / IL 16	18.59	**121**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 281 016	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 280 020	ER 16 / IL 16	22.88	**101**	ER 16 / IL 16	18.59	**121**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 281 020	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 280 025	ER 16 / IL 16	22.88	**101**	ER 16 / IL 16	18.59	**121**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 281 025	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 280 032	ER 16 / IL 16	22.88	**101**	ER 16 / IL 16	18.59	**121**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 281 032	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 280 125				ER 22 / IL 22	29.63	**137**	3.25	**235**	T20	17.48	**114**	3.25	**232**
71 281 125				EL 22 / IR 22	29.63	**145**	3.25	**235**	T20	17.48	**114**	3.25	**232**
71 280 132				ER 22 / IL 22	29.63	**137**	3.25	**235**	T20	17.48	**114**	3.25	**232**
71 280 232				ER 22U / IL 22U	29.63	**153**	3.25	**235**	T20	17.48	**114**	3.25	**232**

Shims for correction of helix angle see page → **Page 43.**

External threading holder

▲ Tool Holder with Approach Angle ß = 1,5°





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	WF mm	Insert	torque moment Nm	Left-hand 84 191 ... £ Y8		Right-hand 84 190 ... £ Y8	
PSC40 SE R/L 27050-16.IK	PSC 40	50	27	16 ..	3,5	486.51	**412**	486.51	**412**
PSC40 SE R/L 27050-22.IK	PSC 40	50	27	22 ..	10	486.51	**422**	486.51	**422**
PSC50 SE R/L 35060-16.IK	PSC 50	60	35	16 ..	3,5	536.86	**512**	536.86	**512**
PSC50 SE R/L 35060-22.IK	PSC 50	60	35	22 ..	10	536.86	**522**	536.86	**522**
PSC63 SE R/L 45065-16.IK	PSC 63	65	45	16 ..	3,5	616.22	**612**	616.22	**612**
PSC63 SE R/L 45065-22.IK	PSC 63	65	45	22 ..	10	616.22	**622**	616.22	**622**
PSC80 SE R/L 55080-22.IK	PSC 80	80	55	22 ..	10	650.56	**822**	650.56	**822**


Multi tooth shim


Shim


Screw-U

Key D


Clamping screw

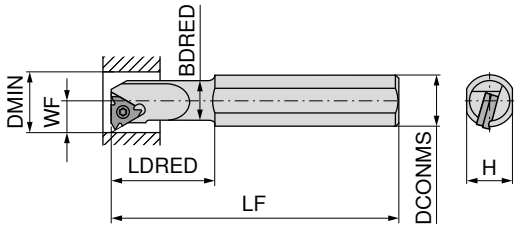
Spare parts for Article no.		71 950 ... £ Y2			71 950 ... £ Y2		71 950 ... £ Y2			80 950 ... £ Y7		71 950 ... £ Y2	
84 190 412	ER 16 / IL 16	22.88	**101**	ER 16 / IL 16	18.59	**121**	2.62	**234**	T10	16.05	**112**	1.93	**231**
84 191 412	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
84 190 422				ER 22 / IL 22	29.63	**137**	3.25	**235**	T20	17.48	**114**	3.25	**232**
84 191 422				EL 22 / IR 22	29.63	**145**	3.25	**235**	T20	17.48	**114**	3.25	**232**
84 190 512	ER 16 / IL 16	22.88	**101**	ER 16 / IL 16	18.59	**121**	2.62	**234**	T10	16.05	**112**	1.93	**231**
84 191 512	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
84 190 522				ER 22 / IL 22	29.63	**137**	3.25	**235**	T20	17.48	**114**	3.25	**232**
84 191 522				EL 22 / IR 22	29.63	**145**	3.25	**235**	T20	17.48	**114**	3.25	**232**
84 190 612	ER 16 / IL 16	22.88	**101**	ER 16 / IL 16	18.59	**121**	2.62	**234**	T10	16.05	**112**	1.93	**231**
84 191 612	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
84 190 622				ER 22 / IL 22	29.63	**137**	3.25	**235**	T20	17.48	**114**	3.25	**232**
84 191 622				EL 22 / IR 22	29.63	**145**	3.25	**235**	T20	17.48	**114**	3.25	**232**
84 190 822				ER 22 / IL 22	29.63	**137**	3.25	**235**	T20	17.48	**114**	3.25	**232**
84 191 822				EL 22 / IR 22	29.63	**145**	3.25	**235**	T20	17.48	**114**	3.25	**232**

Shims for correction of helix angle see page → **Page 43.**

8

Standard Internal Thread Turning Holder

▲ Tool Holder with Approach Angle ß = 1,5°





Illustrations show right-hand versions

ISO designation	H	LF	LDRED	DCONMS	BDRED	WF	DMIN	Insert	torque moment	Left-hand 71 283 ... £ Y2		Right-hand 71 282 ... £ Y2	
	mm	mm	mm	mm	mm	mm	mm		Nm				
SI R 0010 H11	9.0	100	25	10	9.5	7.4	12	11 ..	1,3			199.75	**011** [1]
SI R/L 0010 K11	14.0	125	25	16	10.0	7.4	12	11 ..	1,3	153.26	**010** [1]	153.26	**010** [1]
SI R 0013 L11	14.0	140	32	16	12.0	8.9	15	11 ..	1,3			164.16	**013** [1]
SI R/L 0013 M16	14.0	150	32	16	13.0	10.2	16	16 ..	3,5	166.92	**015** [1]	166.92	**015** [1]
SI R/L 0016 P16	18.0	170	40	20	15.0	11.7	19	16 ..	3,5	166.92	**016** [1]	166.92	**016** [1]
SI R/L 0020 P16	18.0	170	40	20	19.5	13.7	24	16 ..	3,5	196.78	**020**	196.78	**020**
SI R 0025 R16	22.6	200	40	25	24.5	16.2	29	16 ..	3,5			239.29	**026**
SI R/L 0032 S16	28.8	250	50	32	31.5	19.7	36	16 ..	3,5	257.09	**032**	257.09	**032**
SI R 0040 T16	36.0	300	50	40	39.5	23.7	44	16 ..	3,5			381.69	**040**
SI R 0020 P22	18.0	170	40	20	19.5	15.6	24	22 ..	10			186.12	**120** [1]
SI R/L 0025 R22	22.6	200	40	25	24.5	18.1	29	22 ..	10	239.29	**126**	239.29	**126**
SI R 0032 S22	28.8	250	50	32	31.5	21.6	38	22 ..	10			265.00	**132**
SI R 0040 T22	36.0	300	60	40	39.5	25.6	46	22 ..	10			391.57	**140**
SI R 0032 S22U	28.8	250	60	32	31.5	24.4	38	22 .N	10			234.17	**133** [2]

1) without shim
2) Neutral insert indicated by marking (N)


Multi tooth shim


Shim


Screw-U

Key D


Clamping screw

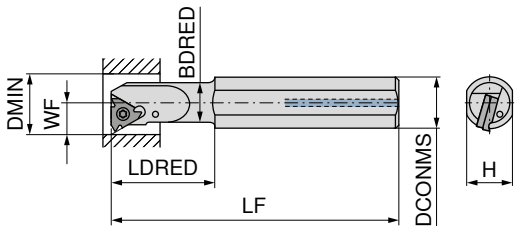
Spare parts for Article no.		71 950 ... £ Y2			71 950 ... £ Y2		71 950 ... £ Y2			80 950 ... £ Y7		71 950 ... £ Y2	
71 282 011									T08	13.73	**110**	2.71	**230**
71 282 010 / 71 283 010									T08	13.73	**110**	2.71	**230**
71 282 013									T08	13.73	**110**	2.71	**230**
71 282 015 / 71 283 015									T10	16.05	**112**	2.98	**236**
71 282 016 / 71 283 016									T10	16.05	**112**	2.98	**236**
71 282 020	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 283 020	ER 16 / IL 16	22.88	**101**	ER 16 / IL 16	18.59	**121**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 282 026	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 282 032	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 283 032	ER 16 / IL 16	22.88	**101**	ER 16 / IL 16	18.59	**121**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 282 040	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 282 120							2.62	**234**	T20	17.48	**114**	3.20	**237**
71 282 126				EL 22 / IR 22	29.63	**145**	3.25	**235**	T20	17.48	**114**	3.25	**232**
71 283 126				ER 22 / IL 22	29.63	**137**	3.25	**235**	T20	17.48	**114**	3.25	**232**
71 282 132				EL 22 / IR 22	29.63	**145**	3.25	**235**	T20	17.48	**114**	3.25	**232**
71 282 140				EL 22 / IR 22	29.63	**145**	3.25	**235**	T20	17.48	**114**	3.25	**232**
71 282 133				AL 22U / IR 22U	29.63	**161**	3.25	**235**	T20	17.48	**114**	3.25	**232**

Shims for correction of helix angle see page → **Page 43.**

Standard Internal Thread Turning Holder with thro' coolant

▲ Tool Holder with Approach Angle ß = 1,5°







Illustrations show right-hand versions

ISO designation	H mm	LF mm	LDRED mm	DCONMS mm	BDRED mm	WF mm	DMIN mm	Insert	torque moment Nm	Left-hand 71 283 ... £ Y2		Right-hand 71 282 ... £ Y2	
SI R 0010 M11CB	9.0	150	25	10	9.5	7.4	12	11 ..	1,3			626.89	**510** [2]
SI R 0012 P11CB	11.0	170	30	12	11.5	8.4	15	11 ..	1,3			666.47	**512** [2]
SI R/L 0010 K11B	14.0	125	25	16	10.0	7.4	12	11 ..	1,3	183.51	**310**	183.51	**310**
SI R/L 0013 M16B	14.0	150	32	16	13.0	10.2	16	16 ..	3,5	199.75	**315**	199.75	**315**
SI R 0016 P16B	18.0	170	40	20	16.0	11.7	19	16 ..	3,5			199.75	**316**
SI R 0020 P16B	18.0	170	40	20	19.5	13.7	24	16 ..	3,5			235.30	**320** [1]
SI R/L 0032 S16B	28.8	250	50	32	31.5	19.7	36	16 ..	3,5	290.70	**332** [1]	290.70	**332** [1]

1) with shim seat
2) Carbide version


Multi tooth shim


Shim

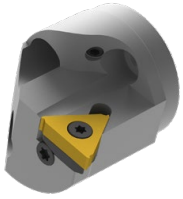

Screw-U

Key D


Clamping screw

Spare parts for Article no.		71 950 ... £ Y2			71 950 ... £ Y2		71 950 ... £ Y2			80 950 ... £ Y7		71 950 ... £ Y2	
71 282 510									T08	13.73	**110**	2.71	**230**
71 282 512									T08	13.73	**110**	2.71	**230**
71 282 310 / 71 283 310									T08	13.73	**110**	2.71	**230**
71 282 315 / 71 283 315									T10	16.05	**112**	2.98	**236**
71 282 316									T10	16.05	**112**	2.98	**236**
71 282 320	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 282 332	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
71 283 332	ER 16 / IL 16	22.88	**101**	ER 16 / IL 16	18.59	**121**	2.62	**234**	T10	16.05	**112**	1.93	**231**

Shims for correction of helix angle see page → **Page 43.**



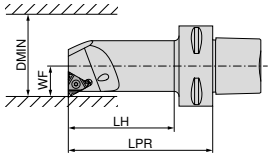
Do you already know our MaxiChange exchangeable head system?

Use our thread turning inserts with the MaxiChange exchangeable head system.

Further information and products can be found in the → Chapter 9 – Turning Tools

Internal threading holder

▲ Tool Holder with Approach Angle ß = 1,5°





Illustrations show right-hand versions

ISO designation	Adapter	WF mm	LPR mm	LH mm	DMIN mm	Insert	torque moment Nm	Left-hand 84 197 ... £ Y8		Right-hand 84 196 ... £ Y8	
PSC40 SI R/L 12060-16.IK	PSC 40	12	60	37	20	16 ..	3,5	679.64	**410**	679.64	**410**
PSC40 SI R/L 14060-16.IK	PSC 40	14	60	38	25	16 ..	3,5	679.64	**412**	679.64	**412**
PSC40 SI R/L 17070-16.IK	PSC 40	17	70	48	32	16 ..	3,5	679.64	**414**	679.64	**414**
PSC40 SI R/L 22090-16.IK	PSC 40	22	90	69	40	16 ..	3,5	679.64	**416**	679.64	**416**
PSC40 SI R/L 27080-16.IK	PSC 40	27	80	60	50	16 ..	3,5	679.64	**418**	679.64	**418**
PSC40 SI R/L 15065-22.IK	PSC 40	15	65	42	25	22 ..	10	679.64	**420**	679.64	**420**
PSC40 SI R/L 19070-22.IK	PSC 40	19	70	48	32	22 ..	10	679.64	**422**	679.64	**422**
PSC40 SI R/L 22090-22.IK	PSC 40	22	90	69	40	22 ..	10	679.64	**424**	679.64	**424**
PSC40 SI R/L 27080-22.IK	PSC 40	27	80	60	50	22 ..	10	679.64	**426**	679.64	**426**
PSC50 SI R/L 12060-16.IK	PSC 50	12	60	35	20	16 ..	3,5	756.34	**510**	756.34	**510**
PSC50 SI R/L 14060-16.IK	PSC 50	14	60	36	25	16 ..	3,5	756.34	**512**	756.34	**512**
PSC50 SI R/L 17070-16.IK	PSC 50	17	70	47	32	16 ..	3,5	756.34	**514**	756.34	**514**
PSC50 SI R/L 22090-16.IK	PSC 50	22	90	68	40	16 ..	3,5	756.34	**516**	756.34	**516**
PSC50 SI R/L 27105-16.IK	PSC 50	27	105	84	50	16 ..	3,5	756.34	**518**	756.34	**518**
PSC50 SI R/L 15065-22.IK	PSC 50	15	65	41	25	22 ..	10	756.34	**520**	756.34	**520**
PSC50 SI R/L 19070-22.IK	PSC 50	19	70	47	32	22 ..	10	756.34	**522**	756.34	**522**
PSC50 SI R/L 22090-22.IK	PSC 50	22	90	68	40	22 ..	10	756.34	**524**	756.34	**524**
PSC50 SI R/L 27105-22.IK	PSC 50	27	105	84	50	22 ..	10	756.34	**526**	756.34	**526**
PSC63 SI R/L 14070-16.IK	PSC 63	14	70	42	25	16 ..	3,5	870.05	**610**	870.05	**610**
PSC63 SI R/L 17075-16.IK	PSC 63	17	75	48	32	16 ..	3,5	870.05	**612**	870.05	**612**
PSC63 SI R/L 22090-16.IK	PSC 63	22	90	64	40	16 ..	3,5	870.05	**614**	870.05	**614**
PSC63 SI R/L 27105-16.IK	PSC 63	27	105	80	50	16 ..	3,5	870.05	**616**	870.05	**616**
PSC63 SI R/L 19075-22.IK	PSC 63	19	75	48	32	22 ..	10	870.05	**620**	870.05	**620**
PSC63 SI R/L 22090-22.IK	PSC 63	22	90	64	40	22 ..	10	870.05	**622**	870.05	**622**
PSC63 SI R/L 27105-22.IK	PSC 63	27	105	80	50	22 ..	10	870.05	**624**	870.05	**624**


Multi tooth shim


Shim

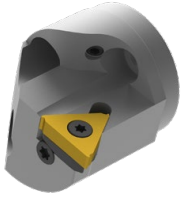

Screw-U


Key D


Clamping screw

Spare parts Insert			71 950 ... £ Y2		71 950 ... £ Y2		71 950 ... £ Y2		80 950 ... £ Y7		71 950 ... £ Y2	
16 ..	right	EL 16 / IR 16	22.88	**108**	EL 16 / IR 16	18.59	**129**	2.62	**234**	T10	16.05	**112**	1.93	**231**
16 ..	left	ER 16 / IL 16	22.88	**101**	ER 16 / IL 16	18.59	**121**	2.62	**234**	T10	16.05	**112**	1.93	**231**
22 ..	left				ER 22 / IL 22	29.63	**137**	3.25	**235**	T20	17.48	**114**	3.25	**232**
22 ..	right				EL 22 / IR 22	29.63	**145**	3.25	**235**	T20	17.48	**114**	3.25	**232**

Shims for correction of helix angle see page → **Page 43.**



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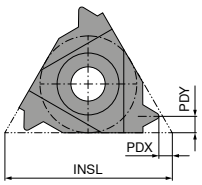
Further information and products can be found in the → Chapter 9 – Turning Tools

Right hand internal thread turning insert – Mini size 06

▲ Full profile
▲ Thread production from diameter 6 mm

M | 60°



CCN1525 | CCN2520




Designation	TP	PDX	PDY	INSL	IR 71 271 ... £ X3		IR 71 224 ... £ X3	
	mm	mm	mm	mm				
06 IR 0,5	0.50	0.9	0.5	6	30.37	**110**	35.40	**35700**
06 IR 0,75	0.75	0.8	0.5	6	30.37	**112**	35.40	**36100**
06 IR 1,0	1.00	0.7	0.6	6	30.37	**114**	33.31	**36500**
06 IR 1,25	1.25	0.6	0.6	6	30.37	**116**	35.40	**36700**

P	●	○
M	●	●
K	●	○
N	○	
S		●
H		○
O	○	

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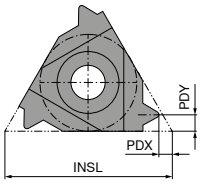
8

Right hand internal thread turning insert – Mini size 06

▲ Full profile
▲ Thread production from diameter 6 mm

BSW | 55°



CCN1525 | CCN2520




Designation	TPI	PDX	PDY	INSL	IR 71 230 ... £ X3		IR 71 230 ... £ X3	
	1/"	mm	mm	mm				
06 IR 26	26	0.7	0.6	6	30.37	**13500**	35.40	**33500**
06 IR 22	22	0.6	0.6	6	30.37	**13100**	35.40	**33100**
06 IR 20	20	0.6	0.7	6	30.37	**12900**	35.40	**32900**
06 IR 18	18	0.6	0.7	6	30.37	**12500**	35.40	**32500**

P	●	○
M	●	●
K	●	○
N	○	
S		●
H		○
O	○	

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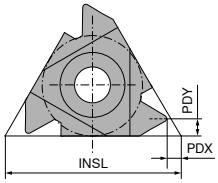
Right hand internal thread turning insert – Mini size 06

▲ Partial profile
▲ Thread production from diameter 6 mm





CCN1525 CCN2520





Designation	TP mm	INSL mm	PDX mm	PDY mm	IR 71 274 ... £ X3		IR 71 272 ... £ X3	
06 IR A60	0,5 - 1,25	6	0.6	0.6	30.37	**210**	35.40	**30000**
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

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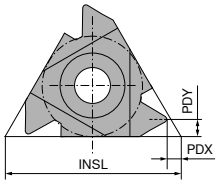
Right hand internal thread turning insert – Mini size 06

▲ Partial profile
▲ Thread production from diameter 6 mm





CCN1525 CCN2520





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 272 ... £ X3		IR 71 272 ... £ X3	
06 IR A55	48 - 20	6	0.5	0.6	30.37	**10100**	35.40	**30100**
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

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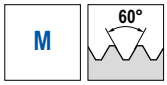
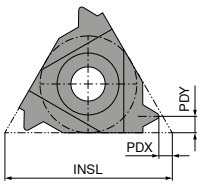
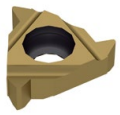
Right hand internal thread turning insert – Mini size 08

▲ Full profile
▲ Thread production from diameter 8 mm

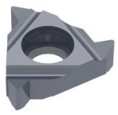




CCN1525



CCN2520



Designation	TP mm	PDX mm	PDY mm	INSL mm	IR 71 224 ... £ X3		IR 71 224 ... £ X3	
08 IR 0,5	0.50	0.6	0.5	8	35.40	**14300**	35.40	**34300**
08 IR 0,75	0.75	0.6	0.5	8	35.40	**13700**	35.40	**33700**
08 IR 1,0	1.00	0.6	0.6	8	35.40	**13300**	33.31	**33300**
08 IR 1,25	1.25	0.6	0.7	8	35.40	**13100**	35.40	**33100**
08 IR 1,5	1.50	0.6	0.7	8	35.40	**12900**	33.31	**32900**
08 IR 1,75	1.75	0.6	0.8	8	35.40	**12700**	35.40	**32700**
08 IN 2,0	2.00	0.9	4.0	8	35.40	**12500**[1)]	42.36	**32500**[1)]
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

1) Neutral version (N)

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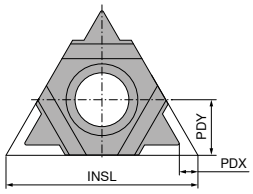
Neutral internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm





CCN1525



CCN2520



Designation	TP mm	INSL mm	PDX mm	PDY mm	IN 71 273 ... £ X3		IN 71 273 ... £ X3	
08 IN M60	1,75 - 2,0	8	0.8	4	35.40	**10800**	42.36	**30800**
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

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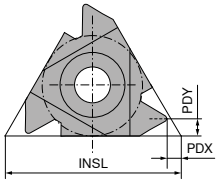
Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm





CCN1525 CCN2520





Designation	TP mm	PDX mm	PDY mm	INSL mm	IR 71 272 ... £ X3		IR 71 272 ... £ X3	
08 IR A60	0,5 - 1,25	0.6	0.6	8	35.40	**10600**		
08 IR A60	0,5 - 1,5	0.6	0.7	8			35.40	**30600**
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

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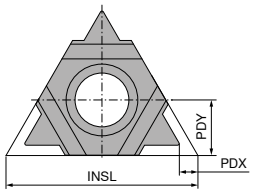
Neutral internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm





CCN1525 CCN2520





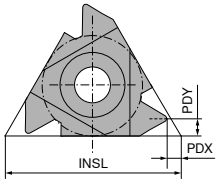
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IN 71 273 ... £ X3		IN 71 273 ... £ X3	
08 IN M55	14 - 11	8	0.9	4	35.40	**10900**	42.36	**30900**
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

→ v_c Page 45

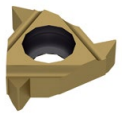
Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm

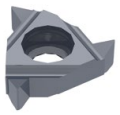




CCN1525



CCN2520



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 272 ... £ X3		IR 71 272 ... £ X3	
08 IR A55	48 - 16	8	0.6	0.7	35.40	**10700**	35.40	**30700**
P					●		○	
M					●		●	
K					●		○	
N					○			
S							●	
H							○	
O					○			

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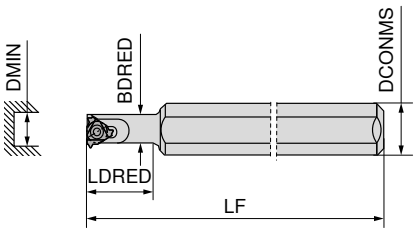
8

Right Hand Internal Thread Holder – Mini size 06





ISO designation	LF mm	LDRED mm	DCONMS mm	BDRED mm	DMIN mm	Insert	torque moment Nm	Right-hand 71 282 ... £ Y2	
SI R 0005 H06	100	12	12	5.1	6	06 ..	0,6	253.99	**00500**
SI R 0005 H06 C	100	26	6	5.1	6	06 ..	0,6	452.87	**10500**[1]

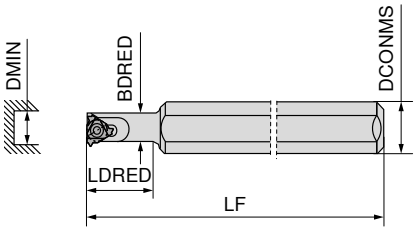
1) Solid Carbide Shank with Thro' Coolant


Key D


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		71 950 ... £ Y2	
71 282 00500	T06	14.85	**108**	2.48	**23800**
71 282 10500	T06	14.85	**108**	2.48	**23800**

Right Hand Internal Thread Holder – Mini size 08





ISO designation	LF mm	LDRED mm	DCONMS mm	BDRED mm	DMIN mm	Insert	torque moment Nm	Right-hand 71 282 ... £ Y2	
SI R 0007 K08	125	18	16	6.6	7.8	08 ..	0,6	253.99	**00700**
SI R 0008 K08U	125	21	16	7.3	9.0	08 .N	0,6	289.07	**00800**[1]
SI R 0007 K08CB	125	31	8	6.6	7.8	08 ..	0,6	513.96	**10700**[2]

1) Neutral insert indicated by marking (N)
2) Solid Carbide Shank with Thro' Coolant


Key D


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		71 950 ... £ Y2	
71 282 00700	T06	14.85	**108**	2.61	**23900**
71 282 00800	T06	14.85	**108**	2.61	**23900**
71 282 10700	T06	14.85	**108**	2.61	**23900**

Shims for Standard Threading Inserts

▲ Use the formula on **page 47** to calculate the required correction angle α (±).
▲ Then find the corresponding correction plate below.

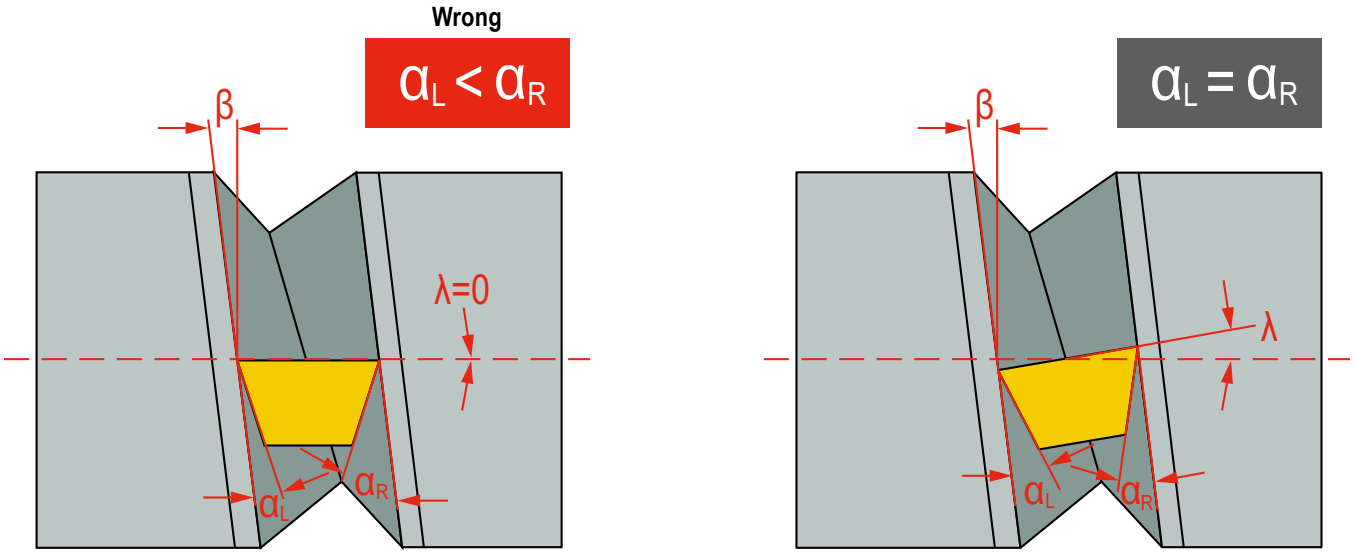


Pitch-angle β	Correction angle α	AE 16 ER 16 / IL 16		AI 16 EL 16 / IR 16		AE 22 ER 22 / IL 22		AI 22 EL 22 / IR 22		AE 22 U ER 22 / IL 22		AI 22 U EL 22 / IR 22		AE 16 M ER 16 / IL 16		AI 16 M EL 16 / IR 16	
		71 950 ...		71 950 ...		71 950 ...		71 950 ...		71 950 ...		71 950 ...		71 950 ...		71 950 ...	
		£ Y2		£ Y2		£ Y2		£ Y2		£ Y2		£ Y2		£ Y2		£ Y2	
+ 4,5°	+ 3°	18.05	118	18.05	126	28.76	134	28.76	142	29.63	150 [1]	29.63	158 [1]				
+ 3,5°	+ 2°	18.05	119	18.05	127	28.76	135	28.76	143	29.63	151 [1]	29.63	159 [1]				
+ 2,5°	+ 1°	18.05	120	18.05	128	28.76	136	28.76	144	29.63	152 [1]	29.63	160 [1]				
+ 1,5°	0°	18.59	121	18.59	129	29.63	137	29.63	145	29.63	153 [1]	29.63	161 [1]	22.88	101	22.88	108
+ 0,5°	- 1°	18.05	122	18.05	130	28.76	138	28.76	146	29.63	154 [1]	29.63	162 [1]				
0°	- 1,5°	18.05	123	18.05	131	28.76	139	28.76	147								
- 0,5°	- 2°	18.05	124	18.05	132	28.76	140	28.76	148	29.63	156 [1]	29.63	164 [1]				
- 1,5°	- 3°	18.05	125	18.05	133	28.76	141	28.76	149	29.63	157 [1]	29.63	165 [1]				

1) Neutral version for tool holder identified by (U).

Flank clearance angle and effective approach angle

The angle of inclination λ of the cutting edges, in concert with the thread approach angle β ensures an equal rake angle and side clearance angle on both thread flanks.



α = Side clearance angle
λ = Pitch angle
β = An effective angle of inclination is achieved by using a suitable insert seat

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values

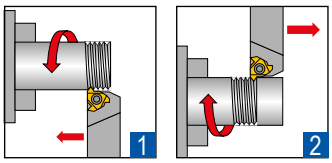
Index	CCN1525 Mini	CCN2520 Mini	CWN1525	HCN2525	CCN7525	CCN20	CWK20
	v_c (m/min)						
P.1.1	**80**	120	**120**	120	**120**	**120**	
P.1.2	**80**	120	**120**	120	**120**	**120**	
P.1.3	**80**	120	**120**	120	**120**	**120**	
P.1.4	**80**	80	**80**	90	**80**	**80**	
P.1.5	**70**	80	**80**	90	**80**	**80**	
P.2.1	**50**	80	**80**	90	**80**	**80**	
P.2.2	**50**	80	**80**	90	**80**	**80**	
P.2.3	**50**	80	**80**	90	**80**	**80**	
P.2.4	**50**	80	**80**	90	**80**	**80**	
P.3.1	**50**	50	**60**	70	**50**	**50**	
P.3.2	**50**	50	**60**	70	**50**	**50**	
P.3.3	**50**	50	**60**	70	**50**	**50**	
P.4.1	**50**	50	**60**	70	**50**	**50**	
P.4.2	**50**	50	**60**	70	**50**	**50**	
M.1.1	**40**	**90**	60	**110**	**90**	**60**	40
M.2.1	**40**	**90**	60	**110**	**90**	**60**	40
M.3.1	**40**	**90**	60	**110**	**90**	**60**	40
K.1.1	**60**	120	**90**	140	**120**	**120**	**80**
K.1.2	**60**	120	**90**	140	**120**	**120**	**80**
K.2.1	**60**	100	**80**	120	**100**	**100**	**70**
K.2.2	**60**	100	**80**	120	**100**	**100**	**70**
K.3.1	**50**	100	**80**	110	**100**	**100**	**70**
K.3.2	**50**	100	**80**	110	**100**	**100**	**70**
N.1.1	500		**600**	700			**150**
N.1.2	300		**600**	700			**150**
N.2.1	120		**250**	280			**120**
N.2.2	120		**250**	280			**120**
N.2.3	120		**250**	280			**120**
N.3.1	110		**150**	190			**100**
N.3.2	150		**150**	190			**100**
N.3.3	150		**150**	190			**100**
N.4.1	300		**300**	220			**150**
S.1.1		**25**		20	**25**	20	20
S.1.2		**25**		20	**25**	20	20
S.2.1		**25**		20	**25**	20	20
S.2.2		**25**		20	**25**	20	20
S.2.3		**25**		20	**25**	20	20
S.3.1		**35**		30	**35**	30	30
S.3.2		**35**		30	**35**	30	30
S.3.3		**35**		30	**35**	30	30
H.1.1		35		30	35	30	
H.1.2		35		30	35	30	
H.1.3		35		30	35	30	
H.1.4		35		30	35	30	
H.2.1		25		20	25	20	
H.3.1		25		20	25	20	
O.1.1	150		200				
O.1.2	150		200				
O.2.1	150		200				
O.2.2	150		200				
O.3.1	150		200				

The cutting data depends extremely on the external conditions, the material and machine type.
The indicated values are possible values which have to be increased or reduced according to the application conditions.

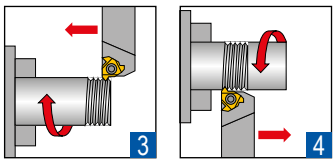
8

Thread turning methods

External right-hand thread

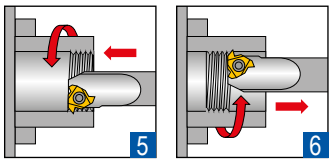


External left-hand thread

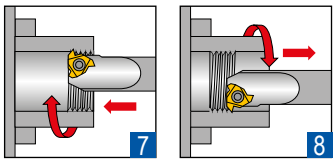


The machining examples 2, 4, 6 and 8 require negative shims!
These shims can be found on → **Page 43.**

Internal right-hand thread

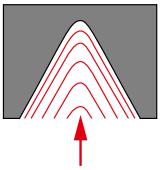


Internal left-hand thread



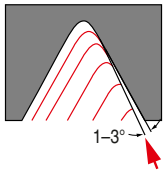
Thread infeed methods

Radial Infeed



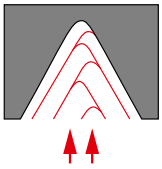
- for pitches less than 1.5 mm
- for short chipping materials
- for machining hardened materials
- simple and quick method

Flank infeed



- for pitches larger than 1.5 mm
- with radial penetration the effective cutting edge length is too large, which may lead to chattering
- with trapezoidal and ACME threads, chip flow on three sides can be problematic

Alternating infeed



- with large pitches
- for long chipping materials
- uniform wear of the cutting edges
- complicated programming process

Recommended number of cuts and cutting depths

Standard Threading Inserts

Pitch (TP/TPI)		mm	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,50	3,00	3,50	4,00	4,50	5,00	5,50	6,00	8,00
		TPI	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4	3
Number of passes			4–6	4–7	4–8	5–9	6–10	7–12	7–12	8–14	9–16	10–18	11–18	11–19	12–20	12–20	12–20	15–24
Number of passes	**(CCN7525)**		3–4	3–4	3–5	4–6	5–6	6–8	6–8	8–10								
Number of passes	**Mini Inserts**		6–9	6–11	6–12	8–14	9–15	11–18	11–18									

Multi edge thread turning insert

Standard	Insert	Insert size		Pitch (TP)	Number of flutes (NT)	Designation	Passes	Cutting depth per pass		
		IC	L mm					1	2	3
ISO external	M	3/8"	16	1,0 mm	3	3 ER 1.0 ISO 3M	2	0,38	0,25	
ISO external	M	3/8"	16	1,5 mm	2	3 ER 1.5 ISO 2M	3	0,42	0,30	0,20

Pitch angle

Important Information about Standard Shims

- ▲ the pitch angle should be determined through calculation or by using the chart below.
- ▲ the standard threading holder is supplied with a 1.5° inclined insert seat and a shim without angular correction.
  Hence the Tool holders are delivered with an angle of inclination β of 1.5°.

Without the appropriate correction of the helix angle, the following may occur

- ▲ the profile will be distorted.
- ▲ insufficient clearance angle.
- ▲ the tool life of the insert is greatly reduced.

Method 1: Calculation

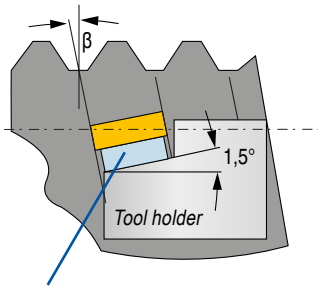
Calculating the helix angle β:

$$\beta = \frac{20 \times TP}{DMIN}$$

For trapezium:

$$\frac{15 \times TP}{DMIN}$$

20 = constant
β = Helix angle (°)
TP = Pitch (mm)
DMIN = Nominal diameter (mm)



Example calculation

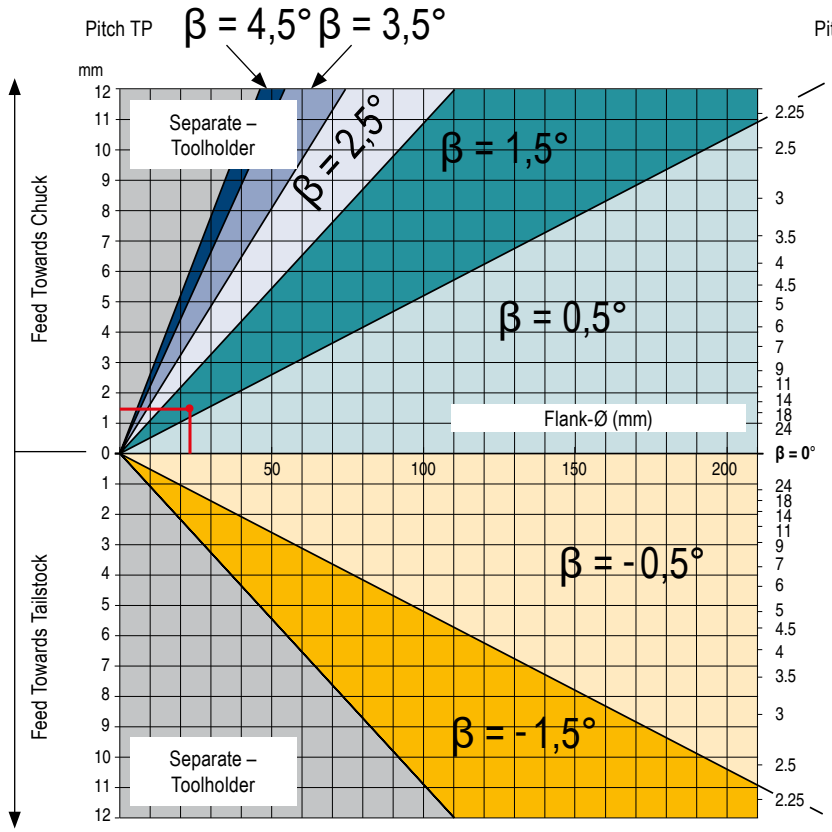
External thread M24 x 1.5
Feed towards chuck
DMIN = Nominal Ø: M24 = 24 mm
TP = Pitch: 1.5 mm

$$\beta = \frac{20 \times 1{,}5 \text{ mm}}{24 \text{ mm}}$$

β = 1,25°

Method 2: Diagram

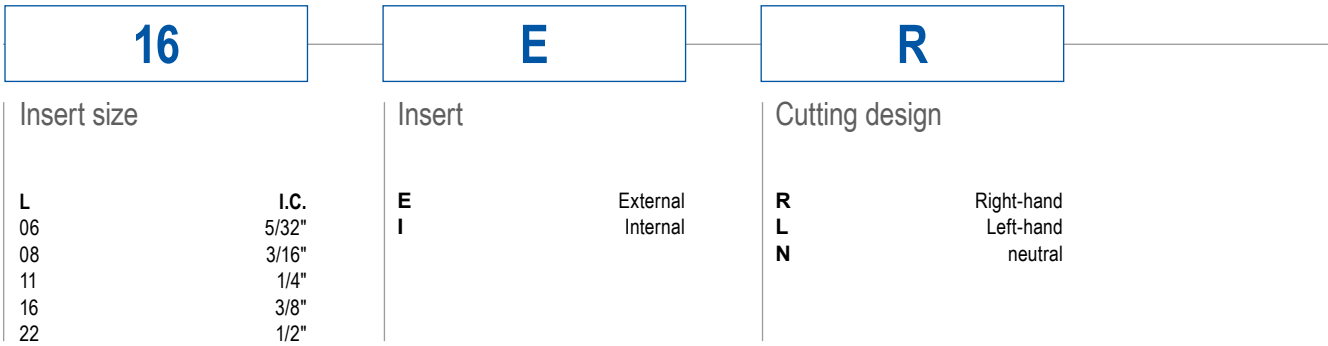
From the flank Ø in the diagram, a line is drawn vertically upwards until it intersects with the line of the pitch of the thread to be produced. In the color-coded region in which it is now, a horizontal line to the edge of the chart indicates the appropriate factor.



Calculated pitch angle β value	Correction angle α
0,0°–0,49°	-1,5°
0,5°–0,99°	-1°
1,0°–1,99°	0°
2,0°–2,99°	+1°
3,0°–3,99°	+2°
4,0°–4,99°	+3°
0,0°–(-0,49°)	-2°
-0,5°–(-1,5°)	-3°

8

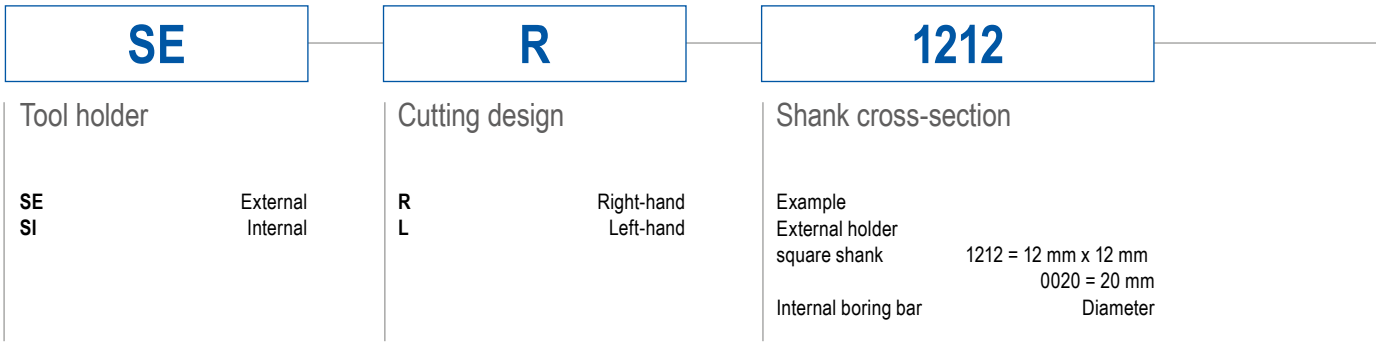
Designation key – indexable inserts



Example

16 ER AG 60
ER16 right hand – external insert with a pitch of 0.5-3.0 mm

Designation key – holders



Example

SE R 1212 F 16
Right hand holder with 12 x 12 mm square shank,
overall length of 80 mm, only suitable for an ER16 threading insert

AG 60

Pitch (TP/TPI)

Full profile

mm	G/Z
0,35	72–4

Partial profile

	mm	G/Z
A	0,5–1,5	48–16
AG	0,5–3,0	48–8
M	1,7–2,0	14–11
G	1,75–3,0	14–8
N	3,5–5,0	7–5
U	5,5–8,0	4,5–3,5

Flank angle
55°
60°

Number of flutes (NT)

2M	Multi-tooth insert with 2 teeth
3M	Multi-tooth insert with 3 teeth

8

F

Overall length

	mm
F	80
H	100
K	125
L	140
M	150
P	170
R	200
S	250
T	300

16

Insert size

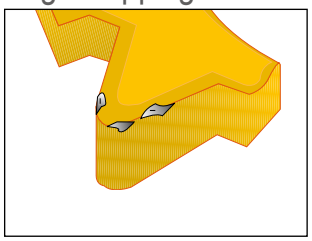
L	I.C.
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"

Properties

B	with thro' coolant
C	with carbide shank
U	neutral holder

Troubleshooting

Edge chipping



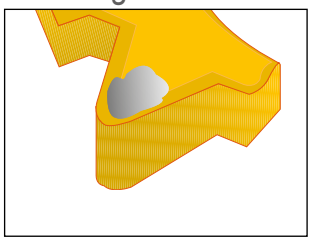
Cause

- Common in stainless materials
- Incorrect grade

Remedy

- Minimize tool overhang length
- Check that the insert is clamped
- Minimize vibration
- Use a tougher grade

Cratering



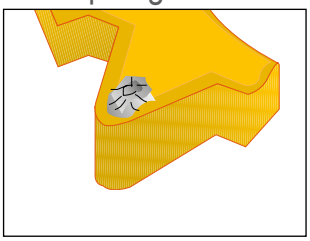
Cause

- Common in stainless materials
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Use a harder grade

Built-up edge



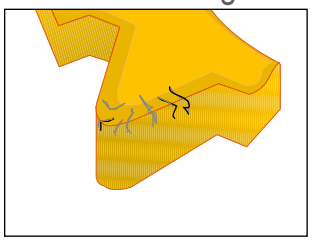
Cause

- Cutting speed too low
- Incorrect grade

Remedy

- Apply coolant
- Increase cutting speed
- Use a tougher grade

Thermal cracking



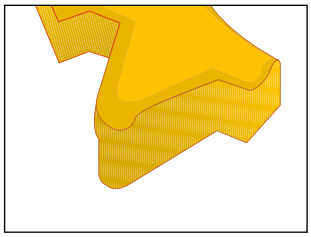
Cause

- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce cutting speed
- Use a tougher grade

Plastic deformation



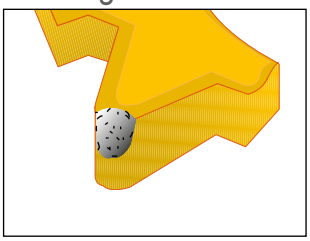
Cause

- Infeed too large
- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Reduce cutting speed
- Use a harder grade

Breakage



Cause

- Infeed too large
- Insufficient coolant
- Plastic deformation
- Instability
- Helix angle not appropriate
- Incorrect grade

Remedy

- Reduce depth of cut
- Check machine and tool stability
- Reduce cutting speed
- Check helix angle
- Use a tougher grade

Grade description

Universal

CCN7525
- Carbide, TiAlN-coated
- ISO | **P25** | **M25** | **K25** | **S25** | H25
- The universal carbide grade with sintered chip breaker for medium to high cutting speeds

CCN2520
- Carbide, TiAlN-coated
- ISO | P25 | **M25** | K25 | **S25** | H25
- The coated carbide grade for the machining of stainless steels at medium to high cutting speeds

CCN1525
- Carbide, TiN-coated
- ISO | **P25** | **M25** | **K25** | N25 | O25
- The coated carbide grade for machining steels and stainless steels at low cutting speeds

Non-ferrous metals

CWK20
- Carbide, uncoated
- ISO | M10 | **K10** | **N10** | S10
- The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

Steel

CCN20
- Carbide, TiAlN-coated
- ISO | **P20** | **M20** | **K20** | S20 | H20
- The all-round carbide grade for machining steels at low cutting speeds

CWN1525
- Carbide, TiN-coated
- ISO | **P25** | M25 | **K25** | **N25** | O25
- The universal carbide grade for machining steels and non-ferrous metals at low cutting speeds

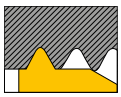
Stainless steel

HCN2525
- Carbide, TiAlN-coated
- ISO | P25 | **M25** | K25 | N25 | S25 | H25
- The coated carbide grade for machining stainless steels at high cutting speeds
- Also suitable for exotic materials

8

Profile Type Description

Full profile



- Thread diameter must not be turned to final thread size
- a minimum infeed of 0.07 mm is necessary
- Insert can only be used only for a specific pitch

Advantages:
- High-quality thread
- No burr formation
- No rework
- In part longer service life

Partial profile



- Core diameter must be premachined to the finished size
- A minimum infeed of 0.07 mm is required

Advantages:
- One threading insert can be used to machine several pitches
- Threading insert can be used for any application
- Reduced stock requirements

Multi-Tooth Thread Turning Insert



- Thread diameter must not be turned to final thread size
- a minimum infeed of 0.07 mm is necessary
- Insert can only be used only for a specific pitch

Advantages:
- Fewer passes required
- Thread production in less time

Attention:
- Check there is sufficient thread run-out

Mini Thread Turning Insert





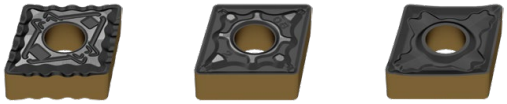
- From a min. core hole diameter of Ø 6 mm or Ø 8 mm

Advantages:
- Special cutting materials for low cutting speeds
- 3 cutting edges for miniature applications

New products for machining technicians

NEW

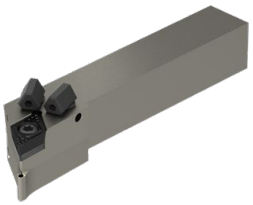
Steel machining with the new ISO-P grades



Thanks to a CVD multilayer coating with the latest Dragonskin coating technology, the indexable inserts are ideally suited to versatile steel machining. In combination with a balanced carbide base substrate, the new grades in the ISO-P category boast a wide application area with improved wear resistance. Depending on the cutting conditions, the perfect cutting material can be selected from three grades.

NEW

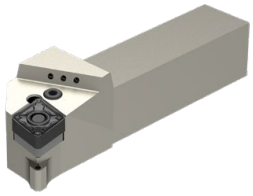
Tool holder with square shank – MaxiLock-S DC for positive indexable inserts



The new MaxiLock-S DC tool holders improve both your process security and the service life of the tool cutting edges with targeted cooling. Suitable for a wide range of positive indexable inserts.

NEW

Tool holder with square shank – MaxiLock-N DC for negative indexable inserts



Improve your machining process with precision cooling on the tool cutting edge. The cooling has a particularly efficient effect on the flank of the tool. Suitable for a wide range of negative indexable inserts using toggle clamps.

Suitable adapters for our square rotating- and grooving holders can be found in **Chapter 16 Adapters and accessories**.
Available for machine interfaces VDI and BMT.
New: Adapters with HSK-T machine interface → **Chapter 16, pages 194+195**

NEW

-M23 chip breaker

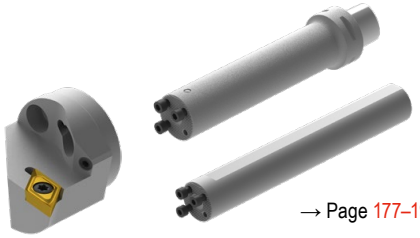


→ Page 125

Soft cutting geometry with excellent Chip breaking behavior at low cutting depths for steel machining. Available for positive round inserts in the ISO-P carbide grades.

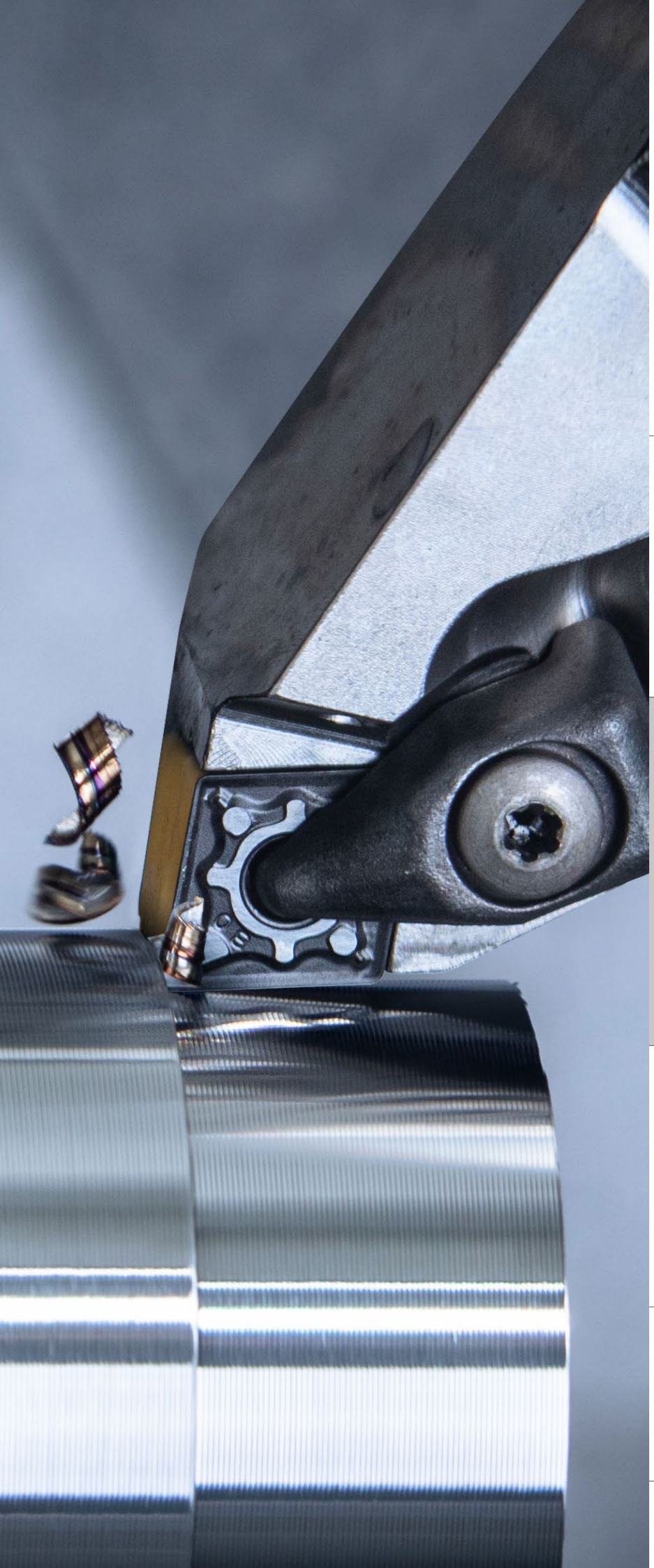
NEW

MaxiChange – Exchangeable head system



→ Page 177–192

The new actively vibration-dampened basic holder for demanding internal turning operations. Available with the Machine interface PSC, HSK-T and cylindrical shank.



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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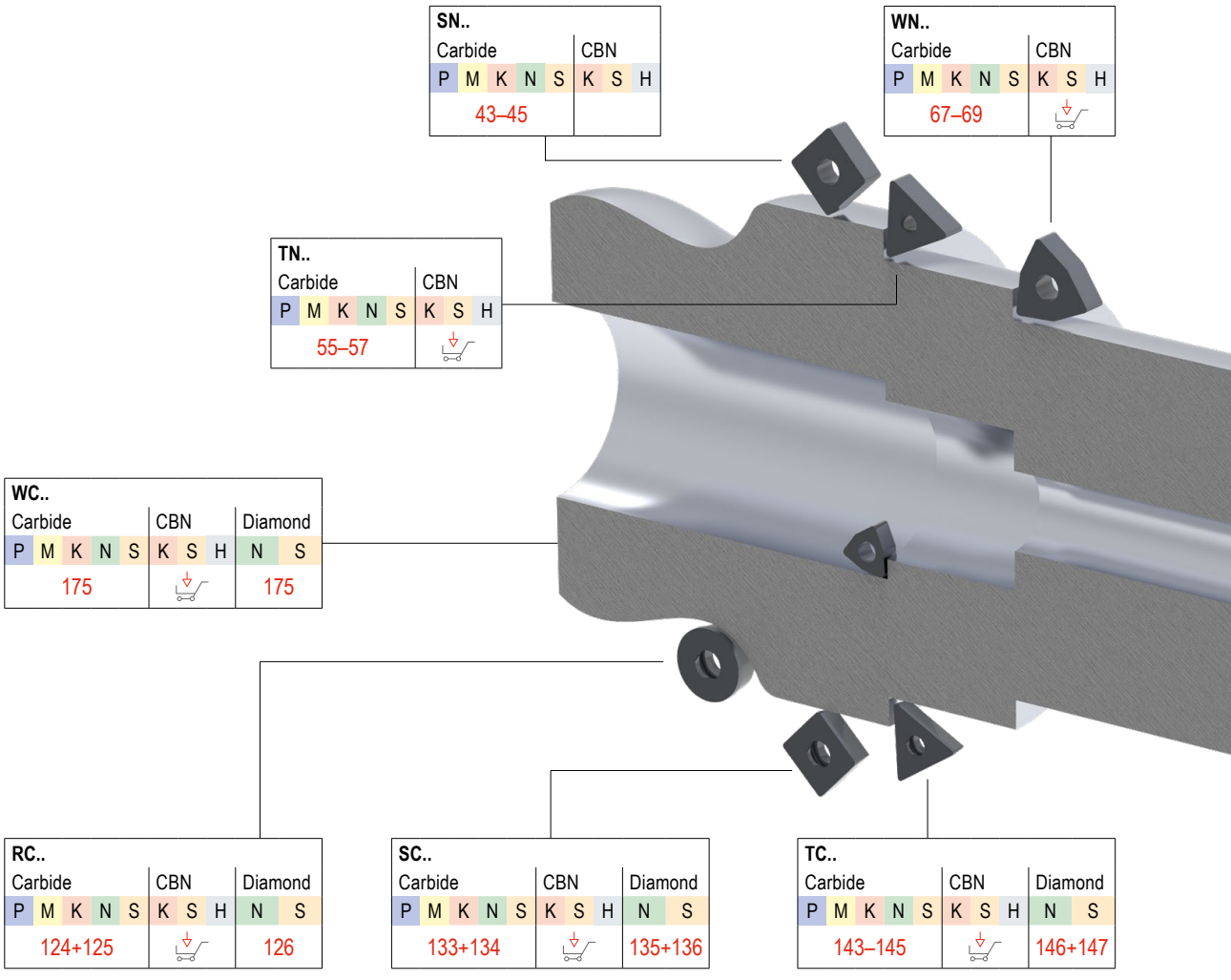
CERATIZIT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Toolfinder – Application



Symbol explanation

CTCP125-P *Carbide Grade*

F	Fine Machining
M	Medium Machining
R	Rough Machining

Smooth cut
Irregular cutting depth
Interrupted cut

Int. coolant supply

Direct Cooling DirectCooling

A detailed overview of grades can be found in the technical appendix on → **page** 228



Hard turning with PCBN indexable inserts

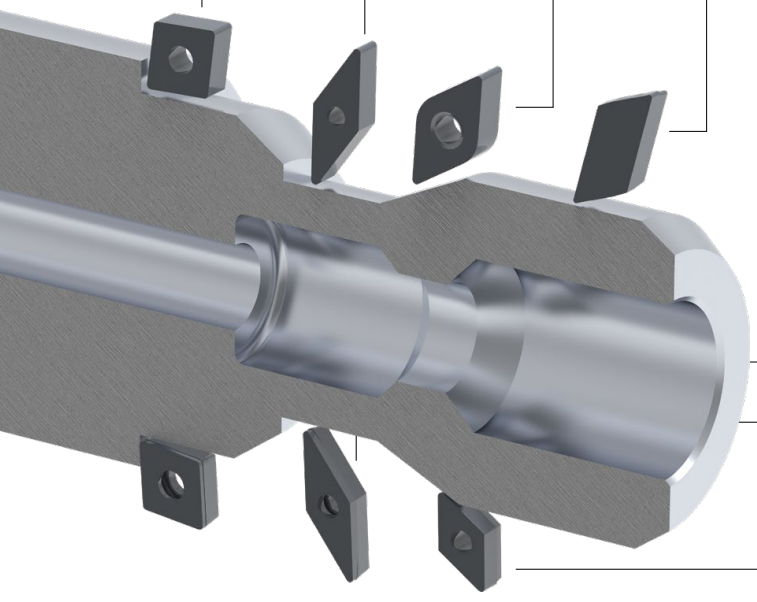
cts.ceratizit.com/gb/en/pcbn-indexable-inserts



The tool selection for Sliding head machines

cts.ceratizit.com/gb/en/sliding-head-turning

9



CN..										
Carbide						CBN			Diamond	
P	M	K	N	S		K	S	H	N	S
12–16									17	

DN..										
Carbide						CBN			Diamond	
P	M	K	N	S		K	S	H	N	S
26–29									30	

VN..								
Carbide						CBN		
P	M	K	N	S		K	S	H
62+63								

KN..				
Carbide				
P	M	K	N	S

CC..										
Carbide						CBN			Diamond	
P	M	K	N	S		K	S	H	N	S
76–79									80–84	

VC..										
Carbide						CBN			Diamond	
P	M	K	N	S		K	S	H	N	S
153–155									157–159	

DC..										
Carbide						CBN			Diamond	
P	M	K	N	S		K	S	H	N	S
99–102									104–108	

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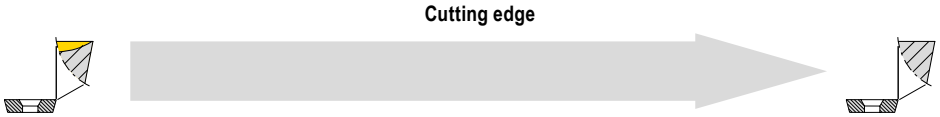
Chip Breakers Overview



			Sharp			medium		stable		
			5	10	20	30	40	50	60	70
increasing wedge angle	fine	F	-F05 -CF05	-SF -23P	-CF / -CF20	-F30 -SMF	-F34 -F40 -TFQ	-F50 -CF55		
	medium	M		-M23	-25P -25Q -M25	-XU -M30 -SM -SMQ	-M34 -M40 -TMQ	-M42 -M50 -M55 -27	-M60 -29	-M70
	rough	R					-NMA	-R28	-R58	-R88

Grade description

C T C P 1 2 5 -P (Example)

CT
CERATIZIT

-P
Performance

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
20	ISO 20
25	ISO 25
30	ISO 30
35	ISO 35
40	ISO 40

Application

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Others
7	Several processes

Main application – material

P	Steel
M	Stainless steel
K	Cast iron
N	Non-ferrous metals
S	Heat-resistant
H	Tempered steel
O	Non-metal materials
X	Universal application

Coating

W	Uncoated carbide
C	CVD-coated carbide
P	PVD-coated carbide
T	Cermet, uncoated
E	Cermet, coated
N	Silicon nitride, uncoated
M	Silicon nitride, coated
S	Mixed ceramic
K	Whisker ceramic
I	SiAlON
D	PDC
B	PcBN
H	HSS sintered

Toolfinder – negative inserts

				Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Geometry						
				P	M	K	N	S	H	O	CN..	DN..	KN..	SN..	TN..	VN..	WN..
Main application: **Steel and cast iron**	Sharp → stable	Fine	-CF / -CF20	●	○	○					12	26			55		67
			-F40	●		○										62	
			-F50	●		○					12	26		43	55	62	67
			-TFQ	●	○	○					12+13	27					67
		Medium	-XU	●		○					13	27				62	68
			-M40	●		○										62	
			-M50	●	○	○					13	27		43	55	62	68
			-TMQ	●		○					13	27					68
			-M70 | -11, -12	●	○	○					13+14	28	🛒	44	56		68
		Rough	.NMA	●	○						14	28		44	56		69
			-R28	●	○	○					14	28		45	56		
			-R58	●	○	○					14+15	28+29		45	56+57		
			-R88	●	○	○					15			45			
Main application: **Stainless**	Sharp → stable	Fine	-F30	○	●			○			15	29		46	57	62	69
		Medium	-M30	○	●			○			15	29		46	57	62+63	69
			-42	○	●			○			15						
			-M42	○	●			●			16	29		46	57		69
			-M60	○	●			○			16	29		45	57		69
			-M70	○	●			○			13–15	28+29		46	57		69
Main application: **Heat-resistant**	Sharp → stable	Fine	-F32		●		○	●			🛒	🛒				🛒	
			-F34	○	●		○	●			16						70
		Medium	-M34	●	●		○	●			16	29		45	57	63	70
			-M42	○	●		○	●			16	29			🛒		🛒
			-M52		●		○	●			🛒	🛒		🛒	🛒		🛒
Main application: **Non-ferrous metals**		Diamond	FN , FL, FR				●			●	17	30					

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

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Toolfinder – positive inserts

				Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Geometry								
				P	M	K	N	S	H	O	CC..	DC..	RC..	SC..	SP..	TC..	TP..	VC..	WC..
Main application: **Steel and cast iron**	Sharp	Fine	-CF05	●	○	○					76	99		133		143		153	
			-SF	●	○	○					76–78	99–101		133		143		153+154	175
		Medium	-CF55	●	○	○					76	99		133		143		153	
			-M23	●		○							125						
			-SMF	●	○	○					76–78	99+105	124	133		143		153+154	
			-SM	●	○	●					77+78	100	124+125	133		143		154	
			-SMQ	●		○					77+78	101							
	stable		-EN, -EL, -ER	●	○	●													
Main application: **Stainless**	Sharp	Fine	-F43	○	●			○			78	101				144			
			-M81	○	●			○											
		Medium	-M25	○	●			●			78	101		134		144		154	
	stable		-M55	○	●			●			78	101		133+134		144+145		154+155	
Main application: **Non-ferrous metals**	Sharp	Fine	-23P			○	●			○	78	102							
		Medium	-25P	●	●	○	●	●		○	78	102	125	134				155	
			-25Q	●	●	○	●	●		○	79	102						155	
			-27	●	●	○	●	●		○	79	102	125	134		145		156	
	stable		-29			○	●			○	79	103						156	
		Diamond	-FN , -FL, -FR				●			●	80–84	104–108	126	135+136		146+147		157–159	175
			CB1				●			●	81+84	105–108	126	135		146		158+159	
			CB2				●			●	81+84	105 107+108	126	136		147		158+159	
			CB3				●			●	83	107		136		147		159	
Main application: **Heat-resistant**	Sharp	Fine	-F05	●	●		●	●			79	103						156	
	stable		-F23		●	○	○	●											

This article can be found in our online shop at cuttingtools.ceratizit.com

Toolfinder – holders

Toolholders and boring bars for negative inserts

Geometry	Tool holder	Boring bars	HSK-T	PSC
CN..	18–21	24+25	22	23
DN..	31–34	41+42	34–36	37–40
SN..	47–52	54	52	
TN..	58–60	61		
VN..	64		65	65+66
WN..	71+72	74+75	73	73

Toolholders and boring bars for positive inserts

Geometry	Tool holder	Boring bars	HSK-T	PSC
CC..	85–91	94–98	92	93
DC..	109–115	119–123	116	117+118
RC..	127–131		132	
SC..	137–141	142		
TC..	148–151	152		
VC..	160–168	172–174	168–170	170+171
WC..		176		

Suitable coolant accessories can be found on → **page** 193–195.

MaxiChange – Overview of the product range

As the MaxiChange exchangeable head system is modular, it is extremely flexible and can be used for a variety of applications thanks to the wide selection of exchangeable heads. On top of these advantages, the MaxiChange GX also includes a grooving function for internal and external machining as well as axial and radial machining.

Exchangeable heads

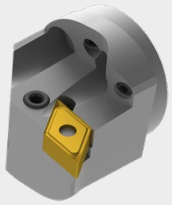
For negative inserts

PCLN 95°



187

PDUN 93°



187

PDQN 107,5°



188

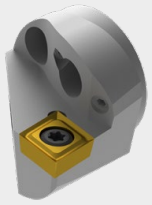
PWLN 95°



188

For positive inserts

SCLC 95°



189

SDUC 93°



189

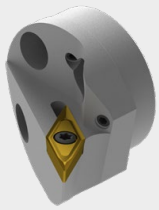
SDQC 107,5°



190

NEW

SVPC 117,5°



190

NEW

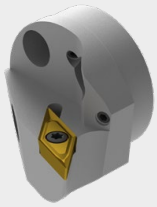
SVUC 93°



191

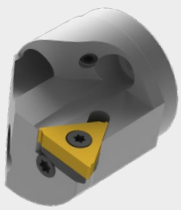
NEW

SVQC 107,5°



191

For internal thread



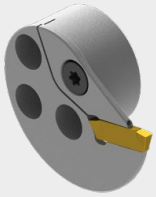
192

→ Chapter 11 – Grooving tools

For radial grooving

NEW

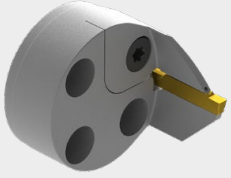
GX 16



For axial grooving

NEW

GX 24

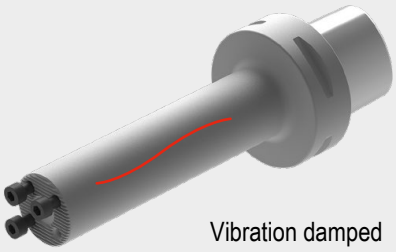


Tool holder

PSC



177



Vibration damped

178



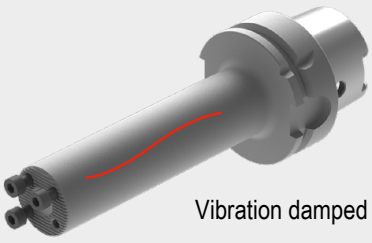
Actively vibration-damped

179

HSK-T

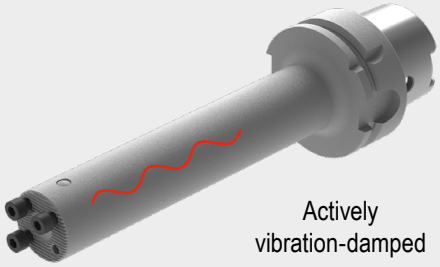


180



Vibration damped

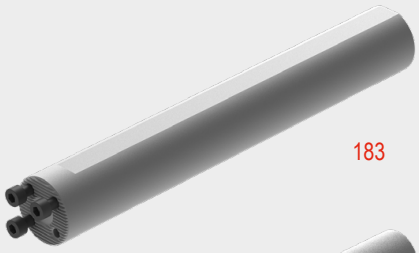
181



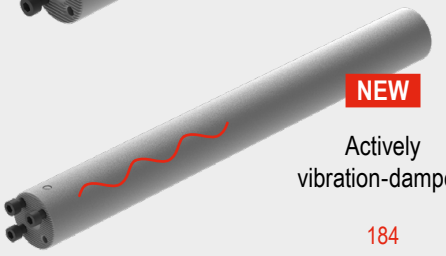
Actively vibration-damped

182

Cylindrical shank



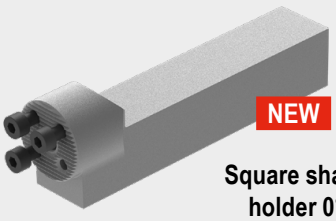
183



NEW

Actively vibration-damped

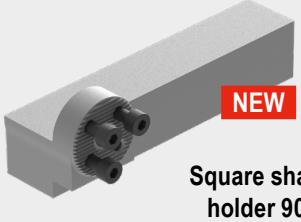
184



NEW

Square shank holder 0°

185



NEW

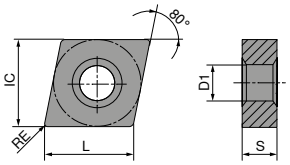
Square shank holder 90°

186

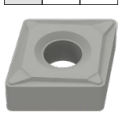
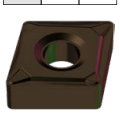
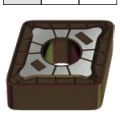
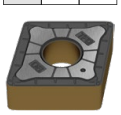
9

CNMG / CNMA / CNMM

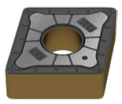
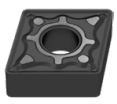
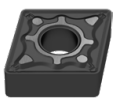
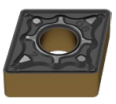
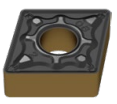
Designation	L	S	D1	IC
	mm	mm	mm	mm
CNMG 0903..	9.7	3.18	3.81	9.52
CNM. 1204..	12.9	4.76	5.16	12.70
CNM. 1606..	16.1	6.35	6.35	15.87
CNM. 1906..	19.3	6.35	7.94	19.05
CNMM 2509..	25.8	9.52	9.12	25.40



CNMG

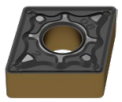
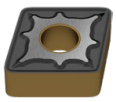
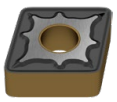
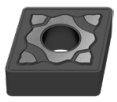
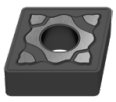
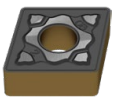
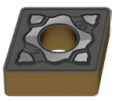
		NEW	NEW	NEW	NEW
	-CF TCM10	-CF20 CTEP110	-TFQ CTEP110	-F50 CTCP115-P	-F50 CTCP125-P	-F50 CTCP135-P	-TFQ CTCP115-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET CNMG	CERMET CNMG	CERMET CNMG	CNMG	CNMG	CNMG	CNMG
	70 101 ...	76 101 ...	76 110 ...	76 132 ...	76 132 ...	76 132 ...	76 110 ...
ISO / RE mm	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
090304EN 0.4				8.98 31601	9.03 51601	8.98 71601	
090308EN 0.8				8.98 31801	9.03 51801	8.98 71801	
120404EN 0.4	11.73 904	12.24 028	14.22 028	13.84 32801	13.84 52801	13.84 72801	15.86 32801
120408EN 0.8	11.73 908	12.24 030	14.22 030	13.84 33001	13.84 53001	13.84 73001	15.86 33001
120412EN 1.2			14.22 032	13.84 33201	13.84 53201	13.84 73201	15.86 32001
P	●	●	●	●	●	●	●
M	○	○	○			○	
K	○	○	○	○	○		○
N							
S							
H							
O							

CNMG

		NEW	NEW	NEW			NEW	NEW
		-TFQ CTCP125-P	-XU CTCP115-P	-XU CTCP125-P	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115-P	-M50 CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	M	M	M	M	M	M
		CNMG	CNMG	CNMG	CNMG	CNMG	CNMG	CNMG
		76 110 ...	76 290 ...	76 290 ...	70 132 ...	70 132 ...	76 135 ...	76 135 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
120404EN	0.4	15.86 52801	13.88 32801	13.88 52801	13.84 028		13.84 32801	13.84 52801
120408EN	0.8	15.86 53001	13.88 33001	13.88 53001	13.84 030	13.84 530	13.84 33001	13.84 53001
120412EN	1.2	15.86 53201	13.88 33201	13.88 53201	13.84 032	13.84 532	13.84 32001	13.84 53201
120416EN	1.6						13.84 33401	13.84 53401
160608EN	0.8						22.35 34201	22.35 54201
160612EN	1.2						22.35 34401	22.35 54401
160616EN	1.6						22.35 34601	22.35 54601
P		●	●	●	○	○	●	●
M								
K		○	○	○	●	●	○	○
N								
S								
H								
O								

9

CNMG

		NEW	NEW	NEW			NEW	NEW
		-M50 CTCP135-P	-TMQ CTCP115-P	-TMQ CTCP125-P	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115-P	-M70 CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
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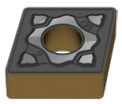
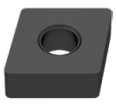
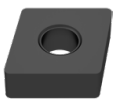
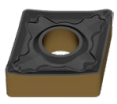
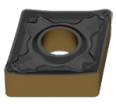
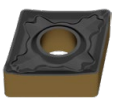
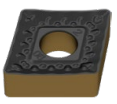
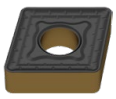
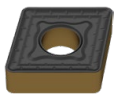
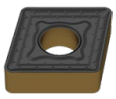
		CNMG	CNMG	CNMG	CNMG	CNMG	CNMG	CNMG
		76 135 ...	76 196 ...	76 196 ...	70 119 ...	70 119 ...	76 119 ...	76 119 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
120404EN	0.4	13.84 72801						
120408EN	0.8	13.84 73001	16.32 33001	15.86 53001	13.84 030	13.84 530	13.84 33001	13.84 53001
120412EN	1.2	13.84 73201	15.86 32001	15.86 53201	13.84 032	13.84 532	13.84 32001	13.84 53201
120416EN	1.6	13.84 73401			13.84 034	13.84 534	13.84 33401	13.84 53401
160608EN	0.8	22.35 74201			22.35 042	22.35 542	22.35 34201	22.35 54201
160612EN	1.2	22.35 74401			22.35 044	22.35 544	22.35 34401	22.35 54401
160616EN	1.6	22.35 74601			22.35 046	22.35 546	22.35 34601	22.35 54601
160624EN	2.4						22.35 34801	22.35 54801
190608EN	0.8						31.57 35401	31.57 55401
190612EN	1.2				31.57 056	31.57 556	31.57 35601	31.57 55601
190616EN	1.6				31.57 058	31.57 558	31.57 35801	31.57 55801
190624EN	2.4						31.57 36001	31.57 56001
P		●	●	●	○	○	●	●
M		○						
K			○	○	●	●	○	○
N								
S								
H								
O								

CNMG / CNMA / CNMM

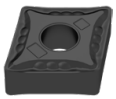
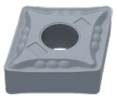
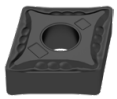
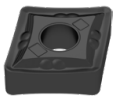
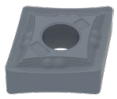
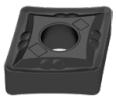
		NEW			NEW	NEW	NEW	NEW
		-M70 CTCP135-P	CTCK110	CTCK120	-R28 CTCP115-P	-R28 CTCP125-P	-R28 CTCP135-P	-R58 CTCP115-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	R	R	R	R	R	R
		CNMG	CNMA	CNMA	CNMM	CNMM	CNMM	CNMM
		76 119 ...	70 100 ...	70 100 ...	76 114 ...	76 114 ...	76 114 ...	76 115 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
120404EN	0.4		13.84 028	13.84 528				
120408EN	0.8	13.84 73001	13.84 030	13.84 530	14.09 33001	14.09 53001		14.09 33001
120412EN	1.2	13.84 73201	13.84 032	13.84 532	14.09 33201	14.09 53201	14.09 73201	14.09 33201
120416EN	1.6	13.84 73401	13.84 034	13.84 534	14.09 33401	14.09 53401	14.09 73401	14.09 33401
160608EN	0.8	22.35 74201	22.35 042	22.35 542				
160612EN	1.2	22.35 74401	22.35 044	22.35 544	22.35 34401	22.35 54401	22.35 74401	22.35 34401
160616EN	1.6	22.35 74601	22.35 046	22.35 546	22.35 34601	22.35 54601	22.35 74601	22.35 34601
160624EN	2.4	22.35 74801						22.35 34801
190608EN	0.8	31.57 75401						
190612EN	1.2	31.57 75601	31.57 056	31.57 556	31.57 35601	31.57 55601	31.57 75601	31.57 35601
190616EN	1.6	31.57 75801	31.57 058	31.57 558	31.57 35801	31.57 55801	31.57 75801	31.57 35801
190624EN	2.4	31.57 76001			31.57 36001	31.57 56001	31.57 76001	31.57 36001
250924EN	2.4				72.88 38401	72.88 58401	72.88 78401	72.88 38401
P		●	○	○	●	●	●	●
M		○					○	
K			●	●	○	○		○
N								
S								
H								
O								

CNMM

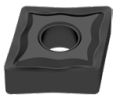
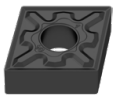
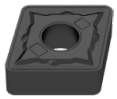
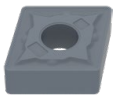
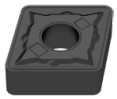
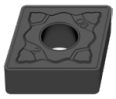
		NEW	NEW	NEW	NEW	NEW
		-R58 CTCP125-P	-R58 CTCP135-P	-R88 CTCP115-P	-R88 CTCP125-P	-R88 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		R CNMM	R CNMM	R CNMM	R CNMM	R CNMM
		76 115 ...	76 115 ...	76 133 ...	76 133 ...	76 133 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
120408EN	0.8	14.09 53001	14.09 73001			
120412EN	1.2	14.09 53201	14.09 73201			
120416EN	1.6	14.09 53401	14.09 73401			
160612EN	1.2	22.35 54401	22.35 74401			
160616EN	1.6	22.35 54601	22.35 74601			
160624EN	2.4	22.35 54801	22.35 74801			
160624SN	2.4			22.35 34801	22.35 54801	22.35 74801
190612EN	1.2	31.57 55601	31.57 75601			
190616EN	1.6	31.57 55801	31.57 75801			
190616SN	1.6			31.57 35801	31.57 55801	31.57 75801
190624EN	2.4	31.57 52401	31.57 76001			
190624SN	2.4			31.57 36001	31.57 56001	31.57 76001
250924EN	2.4	72.88 58401	72.88 78401			
250924SN	2.4			72.88 38401	72.88 58401	72.88 78401
P		●	●	●	●	●
M			○			○
K		○		○	○	
N						
S						
H						
O						

9

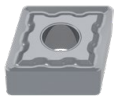
CNMG

		-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F CNMG	F CNMG	F CNMG	M CNMG	M CNMG	M CNMG
		75 010 ...	75 010 ...	75 010 ...	75 011 ...	75 011 ...	75 011 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
120404EN	0.4	13.84 12800	13.84 280	13.84 32800			
120408EN	0.8	13.84 13000	13.84 230	13.84 33000	13.84 13000	13.84 230	13.84 33000
120412EN	1.2				13.84 13200	13.84 232	13.84 33200
120416EN	1.6				13.84 13400	13.84 234	13.84 33400
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S				○			○
H							
O							

CNMG

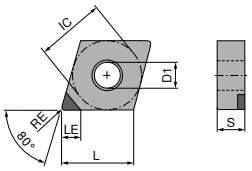
		NEW	NEW				NEW
		-42 CTCM130	-M42 CTCM130	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M70 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		M CNMG	M CNMG	M CNMG	M CNMG	M CNMG	M CNMG
		75 030 ...	75 029 ...	75 012 ...	75 012 ...	75 012 ...	75 037 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
120404EN	0.4		14.25 32800				
120408EN	0.8	14.26 33000	14.25 33000	13.84 13000	13.84 230	13.84 33000	14.26 33000
120412EN	1.2		14.25 33200	13.84 13200	13.84 232	13.84 33200	14.26 33200
120416EN	1.6			13.84 13400	13.84 234	13.84 33400	
160612EN	1.2			23.03 14400	23.03 24400	23.03 34400	23.03 34400
190612EN	1.2						32.52 35600
190616EN	1.6						32.52 35800
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S		○	○			○	○
H							
O							

CNMG

		NEW			NEW
		-F34 CTPX710	-M34 CTPX710	-M42 CTPX710	
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
					
		F CNMG	M CNMG	M CNMG	
		75 299 ...	75 003 ...	75 007 ...	
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	
120404EN	0.4	13.62 62800	13.02 62800		
120408EN	0.8	13.62 63000	13.02 63000	15.57 63000	
120412EN	1.2	13.62 63200	13.02 63200	15.57 63200	
120416EN	1.6		13.02 63400		
P		●	●	●	
M		●	●	●	
K					
N		○	○	○	
S		●	●	●	
H					
O					

CNGA

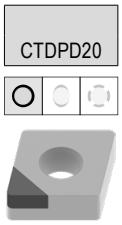
Designation	L mm	S mm	D1 mm	IC mm
CNGA 1204..	12.9	4.76	5.13	12.7

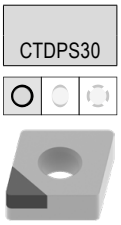


CNGA A

CNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners





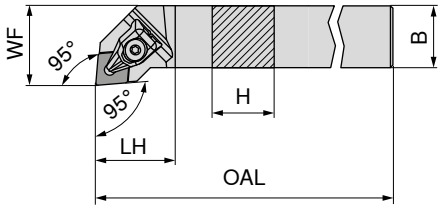
ISO	RE mm	TCE (NOI)	LE mm	F DIAMOND CNGA 71 127 ... £ Y0		F DIAMOND CNGA 71 127 ... £ Y0	
120404FN	0.4	**A (1)**	6.3	106.96	**10001**	106.96	**20001**
120408FN	0.8	**A (1)**	6.0	106.96	**10101**	106.96	**20101**
120412FN	1.2	**A (1)**	5.7	121.38	**10201**	121.38	**20201**
P							
M							
K							
N					●		●
S							
H							
O					●		●

9

MaxiLock-D – DCLN 95° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 509 ... £ 2A/24		Right-hand 70 508 ... £ 2A/24	
DCLN R/L 1616 H09	16	16	100	23	20	2	CN.. 0903	92.43	**516**	92.43	**516**
DCLN R/L 2020 K09	20	20	125	24	25	2	CN.. 0903	102.99	**520**	102.99	**520**
DCLN R/L 2020 K12	20	20	125	32	25	4	CN.. 1204	102.99	**620**	102.99	**620**
DCLN R/L 2525 M12	25	25	150	32	32	4	CN.. 1204	106.53	**625**	106.53	**625**
DCLN R/L 3225 P12	32	25	170	32	32	4	CN.. 1204	114.27	**632**	114.27	**632**
DCLN R/L 2525 M16	25	25	150	38	32	6,5	CN.. 1606	106.53	**725**	106.53	**725**
DCLN R/L 3232 P16	32	32	170	36	40	6,5	CN.. 1606	143.86	**732**	143.86	**732**
DCLN R/L 3232 P19	32	32	170	42	40	6,5	CN.. 1906	143.86	**832**	143.86	**832**
DCLN R/L 4040 S19	40	40	250	42	50	6,5	CN.. 1906	178.85	**940**	178.85	**940**
DCLN R/L 4040 S25	40	40	250	60	50	6,5	CN.. 2509	178.85	**440**	178.85	**440**


XPress type


Key D


Clamping screw

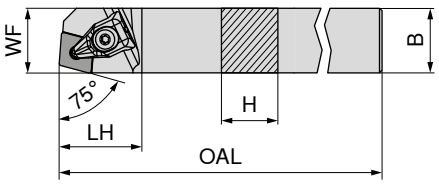

Carbide type C

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 508 516 / 70 509 516	29.18	**823**	T09 - IP	19.68 **126**	M3x7 - IP	3.79	**819**	8.61 **848**
70 508 520 / 70 509 520	29.18	**823**	T09 - IP	19.68 **126**	M3x7 - IP	3.79	**819**	8.61 **848**
70 508 620 / 70 509 620	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62	**820**	9.56 **810**
70 508 625 / 70 509 625	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62	**820**	9.56 **810**
70 508 632 / 70 509 632	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62	**820**	9.56 **810**
70 508 725 / 70 509 725	32.31	**825**	T20 - IP	22.06 **129**	M5x14 - IP	5.13	**821**	14.59 **814**
70 508 732 / 70 509 732	32.31	**825**	T20 - IP	22.06 **129**	M5x14 - IP	5.13	**821**	14.59 **814**
70 508 832 / 70 509 832	35.35	**826**	T20 - IP	22.06 **129**	M5x14 - IP	5.13	**821**	15.64 **816**
70 508 940 / 70 509 940	35.35	**826**	T20 - IP	22.06 **129**	M5x14 - IP	5.13	**821**	15.64 **816**
70 508 440 / 70 509 440	55.07	**827**	T25 - IP	17.97 **122**	M6x16 - IP	9.73	**822**	29.98 **625**

MaxiLock-D – DCBN 75° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 501 ... £ 2A/24		Right-hand 70 500 ... £ 2A/24	
DCBN R/L 2525 M12	25	25	150	32	22	4	CN.. 1204	102.99	**825**	102.99	**825**


XPress type

Key D


Clamping screw

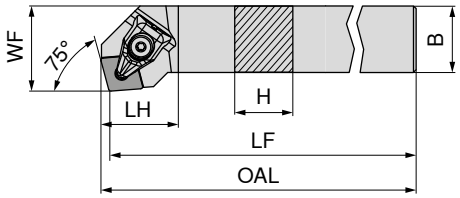

Carbide type C

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 501 825 / 70 500 825	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62	**820**	9.56 **810**

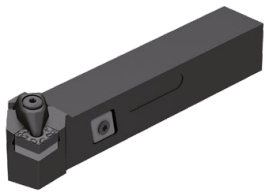
MaxiLock-D – DCKN 75° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 505 ... £ 2A/24		Right-hand 70 504 ... £ 2A/24	
DCKN R/L 2525 M12	25	25	152.9	150	28.9	32	4	CN.. 1204	102.99	**825**	102.99	**825**


XPress type

Key D


Clamping screw

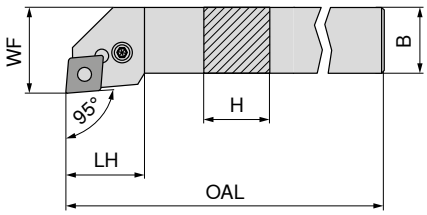

Carbide type C

Spare parts for Article no.	XPress type 70 950 ... £ 2A/28		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28		Carbide type C 70 950 ... £ 2A/28	
70 505 825 / 70 504 825	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**810**

MaxiLock-N – PCLN 95° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 509 ... £ 2A/24		Right-hand 70 508 ... £ 2A/24	
PCLN R/L 1616 H12	16	16	100	26.2	20	4	CN.. 1204	92.43	**016**	92.43	**016**
PCLN R/L 2020 K12	20	20	125	27.5	25	4	CN.. 1204	102.99	**020**	102.99	**020**
PCLN R/L 2525 M12	25	25	150	28.1	32	4	CN.. 1204	106.53	**025**	106.53	**025**
PCLN R/L 3225 P12	32	25	170	28.1	32	4	CN.. 1204	114.27	**032**	114.27	**032**
PCLN R/L 2525 M16	25	25	150	32.7	32	4	CN.. 1606	106.53	**125**	106.53	**125**
PCLN R/L 3232 P16	32	32	170	32.6	40	4	CN.. 1606	143.86	**132**	143.86	**132**
PCLN R/L 3232 P19	32	32	170	38.0	40	8	CN.. 1906	143.86	**232**	143.86	**232**
PCLN R/L 4040 S19	40	40	250	38.0	50	8	CN.. 1906	178.85	**54000**	178.85	**54000**
PCLN R/L 4040 S25	40	40	250	50.0	50	8	CN.. 2509	178.85	**340**	178.85	**340**


Key I


Shim

Assembly pin


Lever


Clamping screw


Carbide type C

Spare parts for Article no.		Key I 70 950 ... £ 2A/28		Shim 70 950 ... £ 2A/28		Assembly pin 70 950 ... £ 2A/28		Lever 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Carbide type C 70 950 ... £ 2A/28	
70 508 016 / 70 509 016	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	9.56	**233**
70 508 020 / 70 509 020	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	9.56	**233**
70 508 025 / 70 509 025	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	9.56	**233**
70 508 032 / 70 509 032	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	9.56	**233**
70 508 125 / 70 509 125	SW3	2.97	**176**	1.34	**391**	1.49	**394**	15.13	**385**	4.59	**388**	15.13	**380**
70 508 132 / 70 509 132	SW3	2.97	**176**	1.34	**391**	1.49	**394**	15.13	**385**	4.59	**388**	15.13	**380**
70 508 232 / 70 509 232	SW4	3.13	**396**	2.13	**392**	1.49	**395**	23.14	**386**	4.59	**389**	23.26	**381**
70 508 54000 / 70 509 54000	SW4	3.13	**396**	2.13	**392**	1.49	**395**	23.14	**386**	4.59	**389**	23.26	**381**
70 508 340 / 70 509 340	SW5	4.47	**265**	1.34	**621**	2.30	**623**	31.27	**620**	2.75	**622**	29.98	**624**

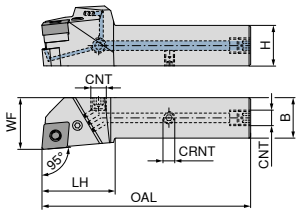
MaxiLock-N – PCLN 95° DC – Toolholder with lever clamping

Scope of supply:

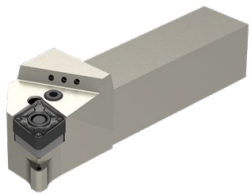
Tool holder with allen key







Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	CNT	CRNT	torque moment	Insert	NEW Left-hand 70 592 ... £ 2A/24		NEW Right-hand 70 592 ... £ 2A/24	
	mm	mm	mm	mm	mm			Nm					
PCLN R/L 2020 X12-T DC	20	20	109	40	25	G1/8"	M6	4	CN.. 1204	207.80	**02000**	207.80	**02001**
PCLN R/L 2525 X12-T DC	25	25	124	40	32	G1/8"	M6	4	CN.. 1204	218.74	**02500**	218.74	**02501**
PCLN R/L 3225 X12-T DC	32	25	140	40	32	G1/8"	M6	4	CN.. 1204	229.68	**03200**	229.68	**03201**
PCLN R/L 2525 X16-T DC	25	25	129	45	32	G1/8"	M6	4	CN.. 1606	218.74	**12500**	218.74	**12501**
PCLN R/L 3232 X16-T DC	32	32	145	45	40	G1/8"	M6	4	CN.. 1606	240.62	**13200**	240.62	**13201**
PCLN R/L 3232 X19-T DC	32	32	150	50	40	G1/8"	M6	8	CN.. 1906	240.62	**23200**	240.62	**23201**
PCLN R/L 4040 X19-T DC	40	40	175	50	48	G1/8"	M6	8	CN.. 1906	262.51	**04000**	262.51	**04001**
PCLN R/L 4040 X25-T DC	40	40	185	60	48	G1/8"	M6	8	CN.. 2509	262.51	**14000**	262.51	**14001**


Key I


Shim


Assembly pin


Coolant screw plug


Lever


Clamping screw


Carbide type C


Grubscrew

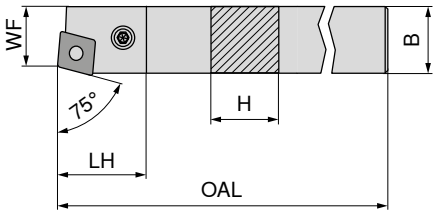
Spare parts for Article no.	70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 592 02000 / 70 592 02001	2.97	**176**	2.13	**198**	1.49	**192**	4.31	**294**	15.25	**187**	4.24	**209**	9.56	**233**	3.51	**86700**
70 592 02500 / 70 592 02501	2.97	**176**	2.13	**198**	1.49	**192**	4.31	**294**	15.25	**187**	4.24	**209**	9.56	**233**	3.51	**86700**
70 592 03200 / 70 592 03201	2.97	**176**	2.13	**198**	1.49	**192**	4.31	**294**	15.25	**187**	4.24	**209**	9.56	**233**	3.51	**86700**
70 592 12500 / 70 592 12501	2.97	**176**	1.34	**391**	1.49	**394**	4.31	**294**	15.13	**385**	4.59	**388**	15.13	**380**	3.51	**86700**
70 592 13200 / 70 592 13201	2.97	**176**	1.34	**391**	1.49	**394**	4.31	**294**	15.13	**385**	4.59	**388**	15.13	**380**	3.51	**86700**
70 592 23200 / 70 592 23201	3.13	**396**	2.13	**392**	1.49	**395**	4.31	**294**	23.14	**386**	4.59	**389**	23.26	**381**	3.51	**86700**
70 592 04000 / 70 592 04001	3.13	**396**	2.13	**392**	1.49	**395**	4.31	**294**	23.14	**386**	4.59	**389**	23.26	**381**	3.51	**86700**
70 592 14000 / 70 592 14001	4.47	**265**	1.34	**621**	2.30	**623**	4.31	**294**	31.27	**620**	2.75	**622**	29.98	**624**	3.51	**86700**

MaxiLock-N – PCBN 75° – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key





Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand 70 501 ... £ 2A/24		Right-hand 70 500 ... £ 2A/24	
	mm	mm	mm	mm	mm	Nm					
PCBN R/L 2525 M12	25	25	150	27.70	22	4	CN.. 1204	102.99	**025**	102.99	**025**
PCBN R/L 2525 M16	25	25	150	31.81	22	4	CN.. 1606	102.99	**12500**	102.99	**125**
PCBN R/L 3232 P19	32	32	170	38.00	27	8	CN.. 1906	143.86	**032**	143.86	**032**


Key I


Shim


Assembly pin


Lever


Clamping screw

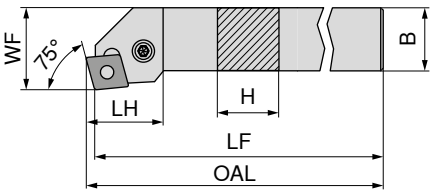

Carbide type C

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 500 025 / 70 501 025	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	9.56	**233**
70 500 125 / 70 501 12500	SW3	2.97	**176**	1.34	**391**	1.49	**394**	15.13	**385**	4.59	**388**	15.13	**380**
70 500 032 / 70 501 032	SW4	3.13	**396**	2.13	**392**	1.49	**395**	23.14	**386**	4.59	**389**	23.26	**381**

MaxiLock-N – PCKN 75° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 505 ... £ 2A/24		Right-hand 70 504 ... £ 2A/24	
PCKN R/L 2525 M12	25	25	153.07	150	31.4	32	4	CN.. 1204	102.99	**025**	102.99	**025**

		Key I	Shim	Assembly pin	Lever	Clamping screw	Carbide type C
		70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.		£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28
70 505 025 / 70 504 025	SW3	2.97 **176**	2.13 **198**	1.49 **192**	15.25 **187**	4.24 **209**	9.56 **233**

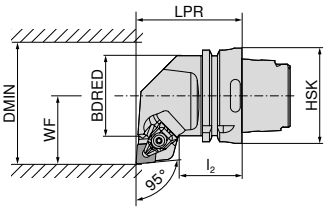
9

MaxiLock-D – DCLN 95° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 504 ... £ 2D/80		Right-hand 74 503 ... £ 2D/80	
HSK T63 DCLN R/L 12	HSK-T 63	70	42	53	45	100	4	CN.. 1204	415.94	**512**	415.94	**512**
HSK T63 DCLN R/L 16	HSK-T 63	70	42	53	45	125	4	CN.. 1606	415.94	**516**	415.94	**516**
HSK T63 DCLN R/L 19	HSK-T 63	70	42	53	45	125	8	CN.. 1906	415.94	**519**	415.94	**519**
HSK T100 DCLN R/L 12	HSK-T 100	80	45	88	55	125	4	CN.. 1204	488.29	**712**	488.29	**712**
HSK T100 DCLN R/L 19	HSK-T 100	80	45	88	55	125	8	CN.. 1906	488.29	**719**	488.29	**719**


XPress type


Key D


Clamping screw


Carbide type C

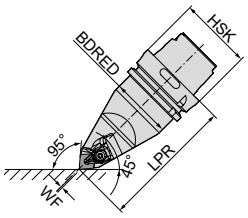
Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 504 512 / 74 503 512	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**810**
74 504 516 / 74 503 516	32.31	**825**	T20 - IP	22.06 **129**	M5x14 - IP	5.13 **821**	14.59	**814**
74 504 519 / 74 503 519	35.35	**826**	T20 - IP	22.06 **129**	M5x14 - IP	5.13 **821**	15.64	**816**
74 504 712 / 74 503 712	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**810**
74 504 719 / 74 503 719	35.35	**826**	T20 - IP	22.06 **129**	M5x14 - IP	5.13 **821**	15.64	**816**

MaxiLock-D – DCMN 95° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key









ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 506 ... £ 2D/80	
HSK T63 DCMN N 12	HSK-T 63	115	53	0	4	CN.. 1204	570.59	**512**
HSK T100 DCMN N 12	HSK-T 100	150	88	0	4	CN.. 1204	671.12	**712**


XPress type

Key D


Clamping screw

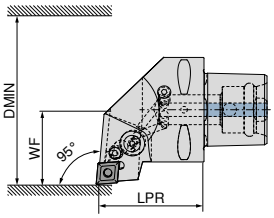

Carbide type C

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 506 512	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**810**
74 506 712	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**810**

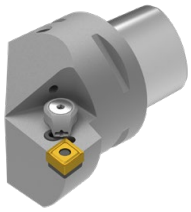
MaxiLock-N – PCLN 95° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 657 ... £ Y8		Right-hand 84 656 ... £ Y8	
PSC40 PCLN R/L 50050-12	PSC 40	50	27	50	5	CN.. 1204	DC	635.36	**01295**	635.36	**01295**
PSC50 PCLN R/L 65060-12	PSC 50	60	35	65	5	CN.. 1204	DC	699.54	**01294**	699.54	**01294**
PSC63 PCLN R/L 80065-12	PSC 63	65	45	80	5	CN.. 1204	DC	794.19	**01293**	794.19	**01293**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**


Shim

Elbow lever screw

Lever

Carbide type C

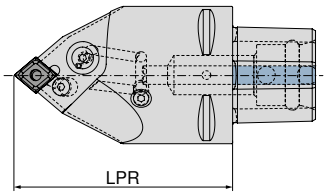
Spare parts for Article no.	84 950 ... £ Y8			84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8	
84 656 01295 / 84 657 01295	3.22	**29200**	M8X1/L17 SW3	12.55	**28700**	37.25	**29000**	36.36	**27800**
84 656 01294 / 84 657 01294	3.22	**29200**	M8X1/L17 SW3	12.55	**28700**	37.25	**29000**	36.36	**27800**
84 656 01293 / 84 657 01293	3.22	**29200**	M8X1/L17 SW3	12.55	**28700**	37.25	**29000**	36.36	**27800**

9

MaxiLock-N – PCMN 50° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set




Neutral

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	84 675 ... £ Y8	
PSC63 PCMN N 0100-12	PSC 63	100	5	CN.. 1204	DC	794.19	**01293**
PSC63 PCMN N 0130-12	PSC 63	130	5	CN.. 1204	DC	794.19	**11293**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**


Shim

Elbow lever screw

Lever

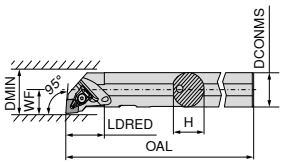
Carbide type C

Spare parts for Article no.	84 950 ... £ Y8			84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8	
84 675 01293	3.22	**29200**	M8X1/L17 SW3	12.55	**28700**	37.25	**29000**	36.36	**27800**
84 675 11293	3.22	**29200**	M8X1/L17 SW3	12.55	**28700**	37.25	**29000**	36.36	**27800**

MaxiLock-D – DCLN 95° – Boring bar with top clamping

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 557 ... £ 2A/24		Right-hand 70 556 ... £ 2A/24	
A20Q DCLN R/L 09	20	19	180	35	13	25	2	CN.. 0903	241.46	**720**	241.46	**720**
A25R DCLN R/L 12	25	24	200	36	17	32	4	CN.. 1204	269.08	**825**	269.08	**825**
A32S DCLN R/L 12	32	31	250	40	22	40	4	CN.. 1204	278.30	**832**	278.30	**832**
A40T DCLN R/L 12	40	39	300	45	27	50	4	CN.. 1204	310.02	**840**	310.02	**840**
A40U DCLN L 16	50	47	350	45	35	63	6,5	CN.. 1606	383.64	**85000**		


XPress type


Key D


Clamping screw


Carbide type C

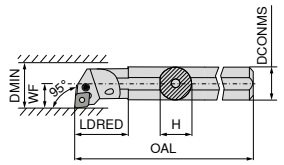
Spare parts for Article no.	XPress type 70 950 ... £ 2A/28		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28		Carbide type C 70 950 ... £ 2A/28	
70 556 720 / 70 557 720	29.18	**823**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	8.61	**848**
70 556 825 / 70 557 825	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**		
70 556 832 / 70 557 832	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**810**
70 556 840 / 70 557 840	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**810**
70 557 85000	32.31	**825**	T20 - IP	22.06 **129**	M5x14 - IP	5.13 **821**	14.59	**814**

MaxiLock-N – PCLN 95° – Boring bar with lever clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Boring bar with Allen key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 557 ... £ 2A/24		Right-hand 70 556 ... £ 2A/24	
A25R PCLN R/L 12	25	23	200	36.0	17	32	4	CN.. 1204	269.08	**225**	269.08	**225**
S25T PCLN R/L 12	25	23	300	22.0	17	32	4	CN.. 1204	269.08	**025**	269.08	**025**
A32S PCLN R/L 12	32	30	250	50.0	22	40	4	CN.. 1204	278.30	**232**	278.30	**232**
S32U PCLN R/L 12	32	30	350	24.1	22	40	4	CN.. 1204	278.30	**032**	278.30	**032**
A40T PCLN R/L 12	40	38	300	60.0	27	50	4	CN.. 1204	310.02	**240**	310.02	**240**
S40V PCLN R/L 12	40	38	400	24.1	27	50	4	CN.. 1204	310.02	**040**	310.02	**04000**[1)]
S50W PCLN R/L 16	50	47	450	31.0	35	63	4	CN.. 1606	383.64	**050**	383.64	**050**

1) nickel-plated


Key I


Shim


Assembly pin


Lever


Clamping screw


Carbide type C

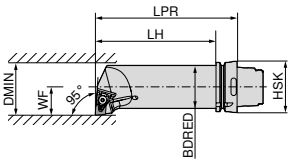
Spare parts for Article no.		Key I 70 950 ... £ 2A/28		Shim 70 950 ... £ 2A/28		Assembly pin 70 950 ... £ 2A/28		Lever 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Carbide type C 70 950 ... £ 2A/28	
70 556 225 / 70 557 225	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	5.17	**205**	9.56	**233**
70 556 025 / 70 557 025	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	5.17	**205**	9.56	**233**
70 556 232 / 70 557 232	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	5.17	**205**	9.56	**233**
70 556 032 / 70 557 032	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	5.17	**205**	9.56	**233**
70 556 240 / 70 557 240	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	9.56	**233**
70 556 04000 / 70 557 040	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	9.56	**233**
70 556 050 / 70 557 050	SW3	2.97	**176**	1.34	**391**	1.49	**394**	15.13	**385**	4.59	**388**	15.13	**380**

MaxiLock-D – DCLN 95° – Boring bar with top clamping

Scope of supply:
Boring bar with Torx key









Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 529 ... £ 2D/80		Right-hand 74 528 ... £ 2D/80	
HSK T63 50Q DCLN R/L 12	HSK-T 63	175	149	50	35	63	4	CN.. 1204	570.59	**512**	570.59	**512**



XPress type



Key D



Clamping screw



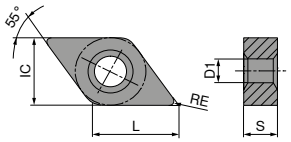
Carbide type C

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 528 512 / 74 529 512	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**810**

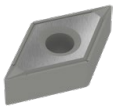
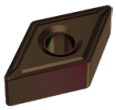
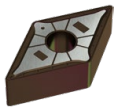
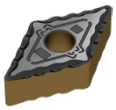
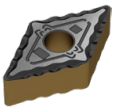
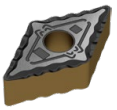
9

DNMG / DNMA / DNMM

Designation	L	S	D1	IC
	mm	mm	mm	mm
DNMG 1104..	11.6	4.76	3.81	9.52
DNMG 1504..	15.5	4.76	5.16	12.70
DNM. 1506..	15.5	6.35	5.16	12.70



DNMG

		NEW	NEW	NEW
	-CF TCM10	-CF20 CTEP110	-TFQ CTEP110	-F50 CTCP115-P	-F50 CTCP125-P	-F50 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
	F	F	F	F	F	F
	CERMET DNMG	CERMET DNMG	CERMET DNMG	DNMG	DNMG	DNMG
	70 155 ...	76 102 ...	76 153 ...	76 134 ...	76 134 ...	76 134 ...
ISO / RE mm	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/08	£ 1A/08	£ 1A/08
110402EN 0.2				14.76 30201	14.76 50201	14.76 70201
110404EN 0.4	14.09 904	14.76 004		14.76 30401	14.76 50401	14.76 70401
110408EN 0.8		14.76 006		14.76 30601	14.76 50601	14.76 70601
110412EN 1.2				14.76 30801	14.76 50801	14.76 70801
150404EN 0.4				17.90 31601	17.90 51601	17.90 71601
150408EN 0.8				17.90 31801	17.90 51801	17.90 71801
150412EN 1.2				17.90 32001	17.90 52001	17.90 72001
150604EN 0.4	18.45 914	19.39 028	21.54 028	19.39 32801	19.39 52801	19.39 72801
150608EN 0.8		19.39 030	21.54 030	19.39 33001	19.39 53001	19.39 73001
150612EN 1.2		19.39 032		19.39 33201	19.39 53201	19.39 73201
P	●	●	●	●	●	●
M	○	○	○			○
K	○	○	○	○	○	
N						
S						
H						
O						

DNMG

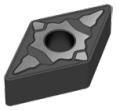
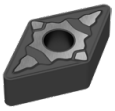
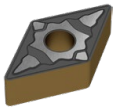
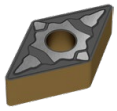
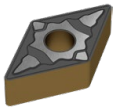
		NEW	NEW	NEW	NEW	NEW	NEW	
		-TFQ CTCP115-P	-TFQ CTCP125-P	-TFQ CTCP115-P	-TFQ CTCP125-P	-XU CTCP115-P	-XU CTCP125-P	-M50 CTCK110
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	M	M	M	M	M
		DNMG	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
		76 153 ...	76 153 ...	76 169 ...	76 169 ...	76 291 ...	76 291 ...	70 133 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
150408EN	0.8							17.90 018
150412EN	1.2							17.90 020
150604EN	0.4	22.35 32801	22.35 52801			19.39 32801	19.39 52801	
150608EN	0.8	22.35 33001	22.35 53001			19.39 33001	19.39 53001	19.39 030
150612EN	1.2			23.03 33201	23.03 53201	19.39 33201	19.39 53201	19.39 032
P		●	●	●	●	●	●	○
M								
K		○	○	○	○	○	○	●
N								
S								
H								
O								

DNMG

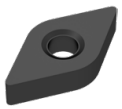
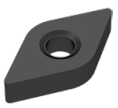
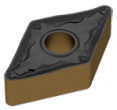
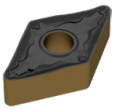
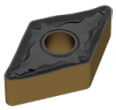
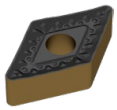
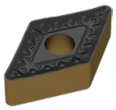
9

			NEW	NEW	NEW	NEW	NEW
		-M50 CTCK120	-M50 CTCP115-P	-M50 CTCP125-P	-M50 CTCP135-P	-TMQ CTCP125-P	-TMQ CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		M	M	M	M	M	M
		DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
		70 133 ...	76 136 ...	76 136 ...	76 136 ...	76 168 ...	76 197 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
110404EN	0.4		14.76 30401	14.76 50401	14.76 70401		
110408EN	0.8		14.76 30601	14.76 50601	14.76 70601		
110412EN	1.2		14.76 30801	14.76 50801	14.76 70801		
150404EN	0.4		17.90 31601	17.90 51401	17.90 71601		
150408EN	0.8	17.90 518	17.90 31801	17.90 51801	17.90 71801		
150412EN	1.2	17.90 520	17.90 32001	17.90 51601	17.90 72001		
150416EN	1.6		17.90 32201	17.90 52201	17.90 72201		
150604EN	0.4		19.39 32801	19.39 52801	19.39 72801		
150608EN	0.8	19.39 530	19.39 33001	19.39 53001	19.39 73001	23.03 33001	22.35 53001
150612EN	1.2	19.39 532	19.39 33201	19.39 53201	19.39 73201	23.03 33201	22.35 53201
150616EN	1.6		19.39 33401	19.39 53401	19.39 73401		
P		○	●	●	●	●	●
M					○		
K		●	○	○		○	○
N							
S							
H							
O							

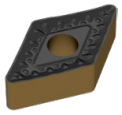
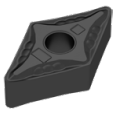
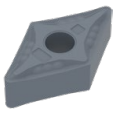
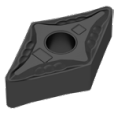
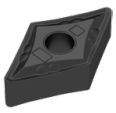
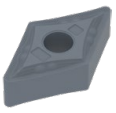
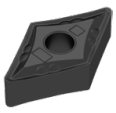
DNMG

						NEW		NEW		NEW					
		-M70 CTCK110		-M70 CTCK120		-M70 CTCP115-P		-M70 CTCP125-P		-M70 CTCP135-P					
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN					
															
		M		M		M		M		M					
		DNMG		DNMG		DNMG		DNMG		DNMG					
		70 263 ...		70 263 ...		76 263 ...		76 263 ...		76 263 ...					
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08					
110408EN	0.8					14.76	30601	14.76	50601	14.76	70601				
110412EN	1.2					14.76	30801	14.76	50801	14.76	70801				
150408EN	0.8	17.90	018	17.90	518	17.90	31801	17.90	51801	17.90	71801				
150412EN	1.2	17.90	020	17.90	520	17.90	32001	17.90	52001	17.90	72001				
150416EN	1.6					17.90	32201	17.90	52201	17.90	72201				
150608EN	0.8	19.39	030	19.39	530	19.39	33001	19.39	53001	19.39	73001				
150612EN	1.2	19.39	032	19.39	532	19.39	33201	19.39	53201	19.39	73201				
150616EN	1.6	19.39	034	19.39	534	19.39	33401	19.39	53401	19.39	73401				
P		○		○		●		●		●					
M										○					
K		●		●		○		○							
N															
S															
H															
O															

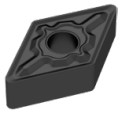
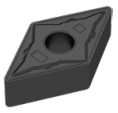
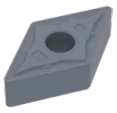
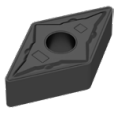
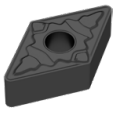
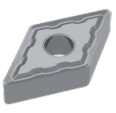
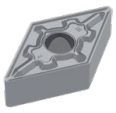
DNMA / DNMM

						NEW		NEW		NEW		NEW		NEW	
		CTCK110		CTCK120		-R28 CTCP115-P		-R28 CTCP125-P		-R28 CTCP135-P		-R58 CTCP115-P		-R58 CTCP125-P	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		R		R		R		R		R		R		R	
		DNMA		DNMA		DNMM		DNMM		DNMM		DNMM		DNMM	
		70 156 ...		70 156 ...		76 165 ...		76 165 ...		76 165 ...		76 166 ...		76 166 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08		£ 1A/08	
150408EN	0.8	17.90	018	17.90	518										
150412EN	1.2	17.90	020	17.90	520										
150608EN	0.8	19.39	030	19.39	530										
150612EN	1.2	19.39	032	19.39	532	19.39	33201	19.39	53201	19.39	73201	19.39	33201	19.39	53201
150616EN	1.6					19.39	33401	19.39	53401	19.39	73401	19.39	33401	19.39	53401
P		○		○		●		●		●		●		●	
M										○					
K		●		●		○		○				○		○	
N															
S															
H															
O															

DNMM / DNMG

ISO	RE mm	NEW -R58 CTCP135-P DRAGONSKIN	-F30 CTCM120 DRAGONSKIN	-F30 CTPM125 DRAGONSKIN	-F30 CTCM130 DRAGONSKIN	-M30 CTCM120 DRAGONSKIN	-M30 CTPM125 DRAGONSKIN	-M30 CTCM130 DRAGONSKIN
								
		R	F	F	F	M	M	M
		DNMM	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
		76 166 ...	75 013 ...	75 013 ...	75 013 ...	75 014 ...	75 014 ...	75 014 ...
		£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
110404EN	0.4		14.76 10400	14.76 204	14.76 30400			
110408EN	0.8		14.76 10600	14.76 206	14.76 30600	14.76 10600	14.76 206	14.76 30600
110412EN	1.2					14.76 10800	14.76 208	14.76 30800
150404EN	0.4		18.69 11600		18.69 31600			
150408EN	0.8		18.69 11800		18.69 31800	18.69 11800		18.69 31800
150412EN	1.2					18.69 12000		18.69 32000
150604EN	0.4		19.39 12800	19.39 228	19.39 32800			
150608EN	0.8		19.39 13000	19.39 230	19.39 33000	19.39 13000	19.39 230	19.39 33000
150612EN	1.2	19.39 73201				19.39 13200	19.39 232	19.39 33200
150616EN	1.6	19.39 73401						
P		●	○	○	○	○	○	○
M		○	●	●	●	●	●	●
K								
N								
S					○			○
H								
O								

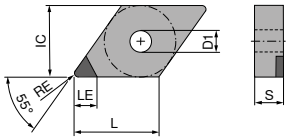
DNMG

ISO	RE mm	NEW -M42 CTCM130 DRAGONSKIN	NEW -M60 CTCM120 DRAGONSKIN	-M60 CTPM125 DRAGONSKIN	NEW -M60 CTCM130 DRAGONSKIN	NEW -M70 CTCM130 DRAGONSKIN	-M34 CTPX710 DRAGONSKIN	NEW -M42 CTPX710 DRAGONSKIN
								
		M	M	M	M	M	M	M
		DNMG	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
		75 027 ...	75 015 ...	75 015 ...	75 015 ...	75 038 ...	75 004 ...	75 027 ...
		£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
110404EN	0.4	15.21 30400						
110408EN	0.8	15.21 30600				15.21 30600		
150404EN	0.4	18.43 31600					18.69 61600	
150408EN	0.8	18.43 31800	18.69 11800		18.69 31800		18.69 61800	
150412EN	1.2		18.69 12000		18.69 32000		18.69 62000	
150604EN	0.4	19.96 32800						
150608EN	0.8	19.96 33000	19.39 13000	19.39 230	19.39 33000		20.48 63000	23.36 63000
150612EN	1.2		19.39 13200	19.39 232	19.39 33200		20.48 63200	
P		○	○	○	○	○	●	●
M		●	●	●	●	●	●	●
K								
N							○	○
S		○			○	○	●	●
H								
O								

9

DNGA

Designation	L mm	S mm	D1 mm	IC mm
DNGA 1504..	15.5	4.76	5.16	12.7
DNGA 1506..	15.5	6.35	5.16	12.7

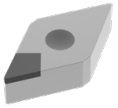


DNGA A

DNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners

CTDPD20



F

DIAMOND

DNGA

71 128 ...

ISO	RE mm	TCE (NOI)	LE mm	£ Y0	
150404FN	0.4	A (1)	6.4	106.96	10001
150408FN	0.8	A (1)	6.0	106.96	10101
150412FN	1.2	A (1)	5.6	125.49	10201
150604FN	0.4	A (1)	6.4	106.96	10301
150608FN	0.8	A (1)	6.0	106.96	10401
150612FN	1.2	A (1)	5.6	125.49	10501

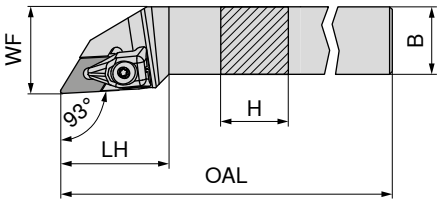
P	
M	
K	
N	●
S	
H	
O	●

MaxiLock-D – DDJN 93° – Toolholder with top clamping

Scope of supply:

Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 541 ... £ 2A/24		Right-hand 70 540 ... £ 2A/24	
DDJN R/L 1616 H11	16	16	100	33	20	2	DN.. 1104	92.43	**816**	92.43	**816**
DDJN R/L 2020 K11	20	20	125	33	25	2	DN.. 1104	102.99	**820**	102.99	**820**
DDJN R/L 2525 M11	25	25	150	33	32	2	DN.. 1104	106.53	**825**	106.53	**825**
DDJN R/L 2020 K15	20	20	125	40	25	4	DN.. 1504 / 1506	102.99	**720**	102.99	**720**
DDJN R/L 2525 M15	25	25	150	40	32	4	DN.. 1504 / 1506	106.53	**725**	106.53	**725**
DDJN R/L 3225 P15	32	25	170	40	32	4	DN.. 1504 / 1506	114.27	**832**	114.27	**832**

When using DN.. 1504 indexable inserts, use insert seat article no. **70 950 40000**.



XPress type



Key D



Clamping screw



Solid Carbide Seat D

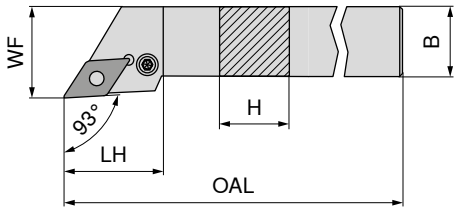
Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 541 816 / 70 540 816	34.83	**835**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	4.27	**808**
70 541 820 / 70 540 820	34.83	**835**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	4.27	**808**
70 541 825 / 70 540 825	34.83	**835**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	4.27	**808**
70 541 720 / 70 540 720	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**811**
70 541 725 / 70 540 725	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**811**
70 541 832 / 70 540 832	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**811**

MaxiLock-N – PDJN 93° – Toolholder with lever clamping

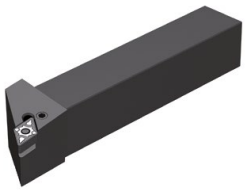
Scope of supply:

Tool holder with allen key





Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand 70 541 ... £		Right-hand 70 540 ... £	
	mm	mm	mm	mm	mm	Nm		2A/24		2A/24	
PDJN R/L 1616 H11	16	16	100	30.0	20	3	DN.. 1104	92.43	**116**	92.43	**116**
PDJN R/L 2020 K11	20	20	125	30.0	25	3	DN.. 1104	102.99	**12000**[1)]	102.99	**12000**[1)]
PDJN R/L 2525 M11	25	25	150	30.0	32	3	DN.. 1104	106.53	**12500**[1)]	106.53	**12500**[1)]
PDJN R/L 2020 K15	20	20	125	34.9	25	3,2	DN.. 1506	102.99	**020**	102.99	**020**
PDJN R/L 2525 M15	25	25	150	35.4	32	3,2	DN.. 1506	106.53	**025**	106.53	**025**
PDJN R/L 3225 P15	32	25	170	35.4	32	3,2	DN.. 1506	114.27	**032**	114.27	**032**
PDJN R/L 3232 P15	32	32	170	34.7	40	3,2	DN.. 1506	143.86	**13200**	143.86	**13200**

1) nickel-plated

Key I



Shim

Assembly pin



Lever



Clamping screw



Solid Carbide Seat D

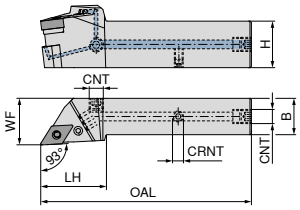
Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 540 116 / 70 541 116	SW2,5	2.97	**175**	2.49	**122**	1.49	**191**	18.13	**121**	3.87	**208**	8.72	**120**
70 540 12000 / 70 541 12000	SW2,5	2.97	**175**	2.49	**122**	1.49	**191**	18.13	**121**	3.87	**208**	8.72	**120**
70 540 12500 / 70 541 12500	SW2,5	2.97	**175**	2.49	**122**	1.49	**191**	18.13	**121**	3.87	**208**	8.72	**120**
70 540 020 / 70 541 020	SW3	2.97	**176**	2.13	**198**	1.49	**192**	16.56	**188**	4.59	**388**	9.56	**236**
70 540 025 / 70 541 025	SW3	2.97	**176**	2.13	**198**	1.49	**192**	16.56	**188**	4.59	**388**	9.56	**236**
70 540 032 / 70 541 032	SW3	2.97	**176**	2.13	**198**	1.49	**192**	16.56	**188**	4.59	**388**	9.56	**236**
70 540 13200 / 70 541 13200	SW3	2.97	**176**	2.13	**198**	1.49	**192**	16.56	**188**	4.59	**388**	9.56	**236**

MaxiLock-N – PDJN 93° DC – Toolholder with lever clamping

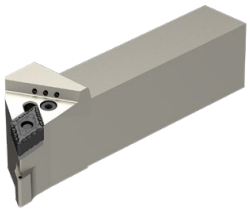
Scope of supply:
Tool holder with allen key







Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert	NEW Left-hand 70 593 ... £ 2A/24		NEW Right-hand 70 593 ... £ 2A/24	
	mm	mm	mm	mm	mm			Nm					
PDJN R/L 2020 X11-T DC	20	20	104	35	25	M6	G1/8"	3	DN.. 1104	207.80	**02000**	207.80	**02001**
PDJN R/L 2525 X11-T DC	25	25	114	45	32	M6	G1/8"	3	DN.. 1104	218.74	**02500**	218.74	**02501**
PDJN R/L 2020 X15-T DC	20	20	114	45	25	M6	G1/8"	3,2	DN.. 1506	207.80	**12000**	207.80	**12001**
PDJN R/L 2525 X15-T DC	25	25	129	45	32	M6	G1/8"	3,2	DN.. 1506	218.74	**12500**	218.74	**12501**
PDJN R/L 3225 X15-T DC	32	25	145	45	32	M6	G1/8"	3,2	DN.. 1506	229.68	**03200**	229.68	**03201**
PDJN R/L 3232 X15-T DC	32	32	145	45	40	M6	G1/8"	3,2	DN.. 1506	229.68	**13200**	229.68	**13201**


Key I


Shim

Assembly pin


Coolant screw plug


Lever


Clamping screw


Solid Carbide Seat D


Grubscrew

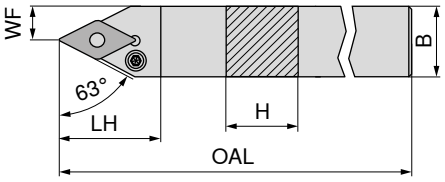
Spare parts for Article no.	70 950 ... £ 2A/28		Key I £ 2A/28		Shim £ 2A/28		Assembly pin £ 2A/28		Coolant screw plug £ 2A/28		Lever £ 2A/28		Clamping screw £ 2A/28		Solid Carbide Seat D £ 2A/28		Grubscrew £ 2A/28	
70 593 02001 / 70 593 02000	2.97	**175**	2.49	**122**	1.49	**191**	4.31	**294**	18.13	**121**	3.87	**208**	8.72	**120**	3.51	**86700**		
70 593 02501 / 70 593 02500	2.97	**175**	2.49	**122**	1.49	**191**	4.31	**294**	18.13	**121**	3.87	**208**	8.72	**120**	3.51	**86700**		
70 593 12001 / 70 593 12000	2.97	**176**	2.13	**198**	1.49	**192**	4.31	**294**	16.56	**188**	4.24	**209**	9.56	**236**	3.51	**86700**		
70 593 12501 / 70 593 12500	2.97	**176**	2.13	**198**	1.49	**192**	4.31	**294**	16.56	**188**	4.24	**209**	9.56	**236**	3.51	**86700**		
70 593 03201 / 70 593 03200	2.97	**176**	2.13	**198**	1.49	**192**	4.31	**294**	16.56	**188**	4.24	**209**	9.56	**236**	3.51	**86700**		
70 593 13201 / 70 593 13200	2.97	**176**	2.13	**198**	1.49	**192**	4.31	**294**	16.56	**188**	4.24	**209**	9.56	**236**	3.51	**86700**		

9

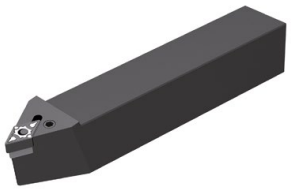
MaxiLock-N – PDNN 63° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key





Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand 70 537 ... £ 2A/24		Right-hand 70 536 ... £ 2A/24	
	mm	mm	mm	mm	mm	Nm					
PDNN R/L 2525 M11	25	25	150	30.0	12.5	3	DN.. 1104	106.53	**125**	106.53	**125**
PDNN R/L 2525 M15	25	25	150	36.5	12.5	3,2	DN.. 1506	106.53	**025**	106.53	**025**


Key I


Shim

Assembly pin


Lever


Clamping screw


Solid Carbide Seat D

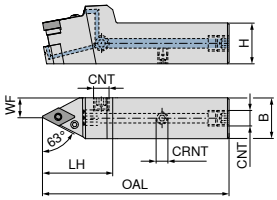
Spare parts for Article no.		70 950 ... £ 2A/28		Key I £ 2A/28		Shim £ 2A/28		Assembly pin £ 2A/28		Lever £ 2A/28		Clamping screw £ 2A/28		Solid Carbide Seat D £ 2A/28	
70 537 125 / 70 536 125	SW2,5	2.97	**175**	2.49	**122**	1.49	**191**	18.13	**121**	3.87	**208**	8.72	**120**		
70 537 025 / 70 536 025	SW3	2.97	**176**	2.13	**198**	1.49	**192**	16.56	**188**	4.59	**388**	9.56	**236**		

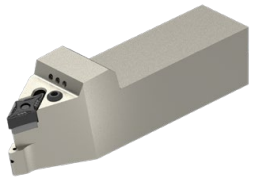
MaxiLock-N – PDNN 63° DC – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key









Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 594 ... £ 2A/24		NEW Right-hand 70 594 ... £ 2A/24	
PDNN R/L 2525 X11-T DC	25	25	114	45	12.5	M6	G1/8"	3	DN.. 1104	218.74	**02500**	218.74	**02501**
PDNN R/L 2525 X15-T DC	25	25	119	50	12.5	M6	G1/8"	3,2	DN.. 1506	218.74	**12500**	218.74	**12501**


Key I


Shim


Assembly pin


Coolant screw plug


Lever


Clamping screw


Solid Carbide Seat D


Grubscrew

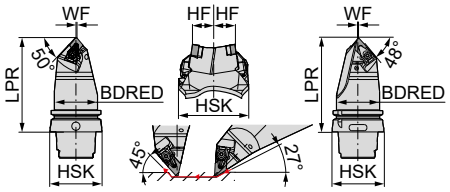
Spare parts for Article no.	70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 594 02501 / 70 594 02500	2.97	**175**	2.49	**122**	1.49	**191**	4.31	**294**	18.13	**121**	3.87	**208**	8.72	**120**	3.51	**86700**
70 594 12501 / 70 594 12500	2.97	**176**	2.13	**198**	1.49	**192**	4.31	**294**	16.56	**188**	4.24	**209**	9.56	**236**	3.51	**86700**

MaxiLock-D – DCMN + DDMN – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key









ISO designation	Adapter	LPR mm	BDRED mm	WF mm	HF mm	torque moment Nm	Insert	Neutral 74 600 ... £ 2D/80	
HSK T63 DCMN L 12 + DDMN L 15	HSK-T 63	115	53	0.5	20	4	CN.. 1204 / DN.. 1506	1,076.95	**501**
HSK T100 DCMN L 12 + DDMN L 15	HSK-T 100	150	88	0.5	20	4	CN.. 1204 / DN.. 1506	1,229.68	**701**

Face turning maximum 78 mm


XPress type


Key D


Clamping screw


Solid Carbide Seat D


Carbide type C

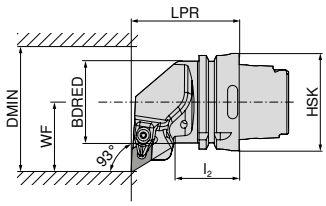
Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 600 501	28.78	**824**	T15 - IP	21.01	**128**	M4,5x12 - IP	3.62	**820**	9.56	**811**	9.56	**810**
74 600 701	28.78	**824**	T15 - IP	21.01	**128**	M4,5x12 - IP	3.62	**820**	9.56	**811**	9.56	**810**

MaxiLock-D – DDUN 93° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 516 ... £ 2D/80		Right-hand 74 515 ... £ 2D/80	
HSK T63 DDUN R/L 15	HSK-T 63	70	42	53	45	125	4	DN.. 1506	415.94	**515**	415.94	**515**
HSK T100 DDUN R/L 15	HSK-T 100	80	45	88	55	125	4	DN.. 1506	488.29	**715**	488.29	**715**


XPress type


Key D


Clamping screw


Solid Carbide Seat D

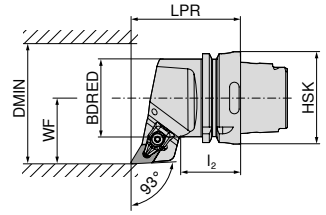
Spare parts for Article no.	XPress type 70 950 ... £ 2A/28		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat D 70 950 ... £ 2A/28	
74 516 515 / 74 515 515	28.78	**824**	T15 - IP 21.01	**128**	M4,5x12 - IP 3.62	**820**	9.56	**811**
74 516 715 / 74 515 715	28.78	**824**	T15 - IP 21.01	**128**	M4,5x12 - IP 3.62	**820**	9.56	**811**

MaxiLock-D – DDJN 93° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 512 ... £ 2D/80		Right-hand 74 511 ... £ 2D/80	
HSK T63 DDJN R/L 15	HSK-T 63	75	42	53	45	125	4	DN.. 1506	415.94	**515**	415.94	**515**
HSK T100 DDJN R/L 15	HSK-T 100	85	45	88	55	125	4	DN.. 1506	488.29	**715**	488.29	**715**


XPress type


Key D


Clamping screw


Solid Carbide Seat D

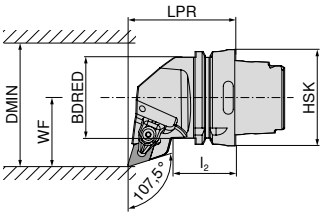
Spare parts for Article no.	XPress type 70 950 ... £ 2A/28		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat D 70 950 ... £ 2A/28	
74 512 515 / 74 511 515	28.78	**824**	T15 - IP 21.01	**128**	M4,5x12 - IP 3.62	**820**	9.56	**811**
74 512 715 / 74 511 715	28.78	**824**	T15 - IP 21.01	**128**	M4,5x12 - IP 3.62	**820**	9.56	**811**

9

MaxiLock-D – DDHN 107.5° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 508 ... £ 2D/80		Right-hand 74 507 ... £ 2D/80	
HSK T63 DDHN R/L 15	HSK-T 63	70	42	53	45	125	4	DN.. 1506	415.94	**515**	415.94	**515**


XPress type
70 950 ...


Key D
80 950 ...


Clamping screw
70 950 ...

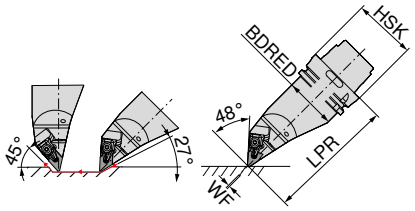

Solid Carbide Seat D
70 950 ...

Spare parts for Article no.	£ 2A/28			£ Y7			£ 2A/28		£ 2A/28	
74 508 515 / 74 507 515	28.78	**824**	T15 - IP	21.01	**128**	M4,5x12 - IP	3.62	**820**	9.56	**811**

MaxiLock-D – DDMN 48° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 519 ... £ 2D/80	
HSK T63 DDMN L 15	HSK-T 63	130	53	0	4	DN.. 1506	570.59	**515**
HSK T100 DDMN L 15	HSK-T 100	160	88	0	4	DN.. 1506	671.12	**715**


XPress type
70 950 ...

Key D
80 950 ...


Clamping screw
70 950 ...

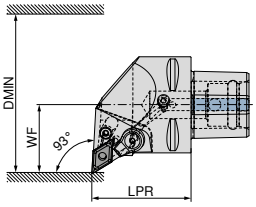

Solid Carbide Seat D
70 950 ...

Spare parts for Article no.	£ 2A/28		£ Y7		£ 2A/28		£ 2A/28	
74 519 515	28.78	**824**	21.01	**128**	3.62	**820**	9.56	**811**
74 519 715	28.78	**824**	21.01	**128**	3.62	**820**	9.56	**811**

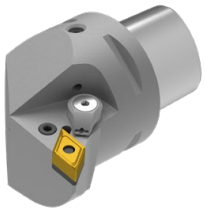
MaxiLock-N – PDUN 93° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 661 ... £ Y8		Right-hand 84 660 ... £ Y8	
PSC40 PDUN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1504 / 1506	DC	635.36	**01595**	635.36	**01595**
PSC50 PDUN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1504 / 1506	DC	699.54	**01594**	699.54	**01594**
PSC63 PDUN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1504 / 1506	DC	794.19	**01593**	794.19	**01593**


Shim
84 950 ...


Elbow lever screw
84 950 ...


Lever
84 950 ...

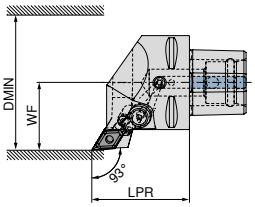

Solid Carbide Seat D
84 950 ...

Spare parts	£ Y8			£ Y8		£ Y8		£ Y8	
84 660 01593 / 84 661 01595	3.22	**29200**	M8X1/L17 SW3	12.55	**28700**	43.38	**28900**	66.87	**27900**

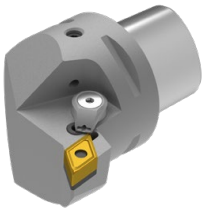
MaxiLock-N – PDJN 93° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 665 ... £ Y8		Right-hand 84 664 ... £ Y8	
PSC40 PDJN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1504 / 1506	DC	635.36	**01595**	635.36	**01595**
PSC50 PDJN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1504 / 1506	DC	699.54	**01594**	699.54	**01594**
PSC63 PDJN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1504 / 1506	DC	794.19	**01593**	794.19	**01593**


Shim
84 950 ...


Elbow lever screw
84 950 ...


Lever
84 950 ...


Solid Carbide Seat D
84 950 ...

Spare parts Adapter	£ Y8			£ Y8		£ Y8		£ Y8	
PSC 40	3.22	**29200**	M8X1/L17 SW3	12.55	**28700**	43.38	**28900**	66.87	**27900**
PSC 50	3.22	**29200**	M8X1/L17 SW3	12.55	**28700**	43.38	**28900**	66.87	**27900**
PSC 63	3.22	**29200**	M8X1/L17 SW3	12.55	**28700**	43.38	**28900**	66.87	**27900**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

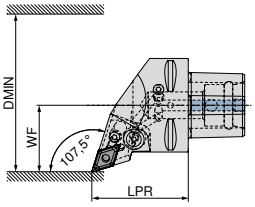
When using DN1504.. inserts Shim item no. **84 950 28200**

9

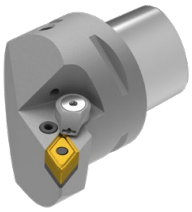
MaxiLock-N – PDHN 107,5° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 669 ... £ Y8	Right-hand 84 668 ... £ Y8
PSC40 PDHN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1504 / 1506	DC	635.36 **01595**	635.36 **01595**
PSC50 PDHN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1504 / 1506	DC	699.54 **01594**	699.54 **01594**
PSC63 PDHN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1504 / 1506	DC	794.19 **01593**	794.19 **01593**


Shim


Elbow lever screw


Lever

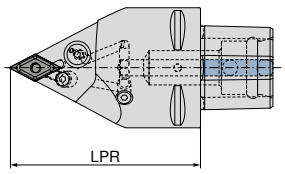

Solid Carbide Seat D

Spare parts for Article no.	84 950 ... £ Y8	84 950 ... £ Y8	84 950 ... £ Y8	84 950 ... £ Y8
84 668 01595 / 84 669 01595	3.22 **29200**	12.55 **28700**	43.38 **28900**	66.87 **27900**
84 668 01594 / 84 669 01594	3.22 **29200**	12.55 **28700**	43.38 **28900**	66.87 **27900**
84 668 01593 / 84 669 01593	3.22 **29200**	12.55 **28700**	43.38 **28900**	66.87 **27900**

MaxiLock-N – PDNN 62,5° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





Neutral

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	84 676 ... £ Y8
PSC63 PDNN N 0100-15	PSC 63	100	5	DN.. 1504 / 1506	DC	794.19 **01593**
PSC63 PDNN N 0130-15	PSC 63	130	5	DN.. 1504 / 1506	DC	794.19 **11593**


Shim


Elbow lever screw


Lever


Solid Carbide Seat D

Spare parts for Article no.	84 950 ... £ Y8	84 950 ... £ Y8	84 950 ... £ Y8	84 950 ... £ Y8
84 676 01593	3.22 **29200**	12.55 **28700**	43.38 **28900**	66.87 **27900**
84 676 11593	3.22 **29200**	12.55 **28700**	43.38 **28900**	66.87 **27900**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

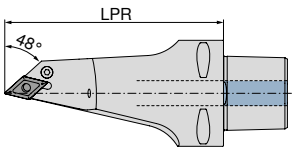
When using DN1504.. inserts Shim item no. **84 950 28200**

MaxiLock-N – PDMN 48° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set









Neutral

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	84 680 ... £ Y8	
PSC63 PDMN L 0130-15	PSC 63	130	5	DN.. 1504 / 1506	DC	978.53	**11593**

	 Shim	 Elbow lever screw	 Lever	 Solid Carbide Seat D
	84 950 ...	**84 950 ...**	**84 950 ...**	**84 950 ...**
Spare parts for Article no.	£ Y8	£ Y8	£ Y8	£ Y8
84 680 11593	3.22 **29200**	12.55 **28700**	43.38 **28900**	66.87 **27900**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

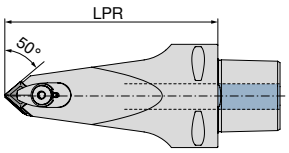
When using DN1504.. inserts Shim item no. **84 950 28200**

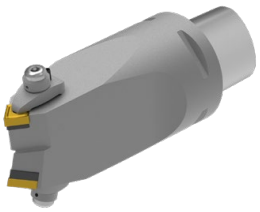
9

MaxiLock-D – DCMN + DDMN 50°/48° – Toolholder with top clamping









ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Neutral 84 683 ... £ Y8	
PSC63 DCMN-DDMN L 0130-12/15	PSC 63	130	10	CN.. 1204 / DN.. 1506	1,242.86	**01293**

	 Clamping Screw	 Clamping claw	 Ring-shaped nozzle	 Clamping screw	 Solid Carbide Seat D	 Carbide type C
	84 950 ...	**84 950 ...**	**84 950 ...**	**84 950 ...**	**84 950 ...**	**84 950 ...**
Spare parts for Article no.	£ Y8	£ Y8	£ Y8	£ Y8	£ Y8	£ Y8
84 683 01293	56.63 **28300**	67.08 **28500**	21.60 **28400**	13.36 **27500**	66.87 **27900**	36.36 **27800**

High-performance coolant set

- ▲ Using the DC kit blocks the other coolant outlet so that all of the pressure is concentrated by the kit!
- ▲ Can be used up to 100 bar

Scope of supply:
Direct cooling nozzle and O-ring

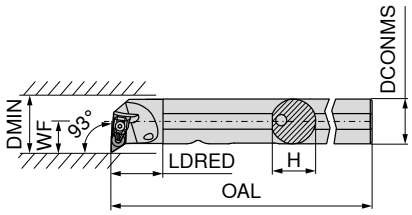


	84 950 ... £ Y8	
Coolant set	286.73	**27400**

MaxiLock-D – DDUN 93° – Boring bar with top clamping

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions



									Left-hand		Right-hand	
									70 569 ...		**70 568 ...**	
ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	£		£	
	mm	mm	mm	mm	mm	mm	Nm		2A/24		2A/24	
A25R DDUN R/L 11	25	24	200	30	17	32	2	DN.. 1104	269.08	**725**	269.08	**725**
A32S DDUN R/L 11	32	31	250	40	22	40	2	DN.. 1104	278.30	**732**	278.30	**732**
A40T DDUN R/L 15	40	39	300	45	27	50	4	DN.. 1506	310.02	**840**	310.02	**840**



XPress type



Key D



Clamping screw



Solid Carbide Seat D

	70 950 ...		**80 950 ...**		**70 950 ...**		**70 950 ...**	
Spare parts for Article no.	£ 2A/28		£ Y7		£ 2A/28		£ 2A/28	
70 568 725 / 70 569 725	34.83	**835**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	4.27	**808**
70 568 732 / 70 569 732	34.83	**835**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	4.27	**808**
70 568 840 / 70 569 840	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**811**

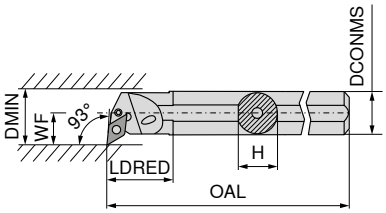
9

MaxiLock-N – PDUN 93° – Boring bar with lever clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Boring bar with Allen key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 569 ... £ 2A/24		Right-hand 70 568 ... £ 2A/24	
A20Q PDUN R/L 11	20	18.5	180	36	16.0	28	3	DN.. 1104	241.46	**12000**[1)]	241.46	**12000**[1)]
A25R PDUN R/L 11	25	23.0	200	36	18.5	32	3	DN.. 1104	269.08	**125**	269.08	**12500**[1)]
A32S PDUN R/L 11	32	30.0	250	36	22.0	40	3	DN.. 1104	278.30	**13200**[1)]	278.30	**132**
A32S PDUN R/L 15	32	30.0	250	50	22.0	40	3,2	DN.. 1506	278.30	**232**	278.30	**232**
A40T PDUN R/L 15	40	38.0	300	60	27.0	50	3,2	DN.. 1506	310.02	**240**	310.02	**240**
S50W PDUN R/L 15	50	47.0	450	31	35.0	63	3,2	DN.. 1506	383.64	**050**	383.64	**050**

1) nickel-plated


Key I


Shim


Assembly pin


Lever


Clamping screw


Solid Carbide Seat D

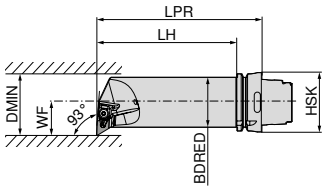
Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 568 12000 / 70 569 12000	SW2,5	2.97	**175**					18.13	**125**	2.62	**126**		
70 568 12500 / 70 569 125	SW2,5	2.97	**175**	2.49	**122**	1.49	**191**	18.13	**121**	3.87	**208**	8.72	**120**
70 568 132 / 70 569 13200	SW2,5	2.97	**175**	2.49	**122**	1.49	**191**	18.13	**121**	3.87	**208**	8.72	**120**
70 568 232 / 70 569 232	SW3	2.97	**176**	2.13	**198**	1.49	**192**	16.56	**188**	4.24	**209**	9.56	**236**
70 568 240 / 70 569 240	SW3	2.97	**176**	2.13	**198**	1.49	**192**	16.56	**188**	4.24	**209**	9.56	**236**
70 568 050 / 70 569 050	SW3	2.97	**176**	2.13	**198**	1.49	**192**	16.56	**188**	4.59	**388**	9.56	**236**

MaxiLock-D – DDUN 93° – Boring bar with top clamping

Scope of supply:
Boring bar with Torx key







Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 533 ... £ 2D/80		Right-hand 74 532 ... £ 2D/80	
HSK T63 50Q DDUN R/L 15	HSK-T 63	175	149	50	35	63	4	DN.. 1506	570.59	**515**	570.59	**515**


XPress type


Key D

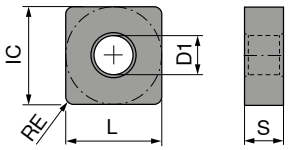

Clamping screw


Solid Carbide Seat D

Spare parts for Article no.		70 950 ... £ 2A/28			80 950 ... £ Y7			70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 533 515 / 74 532 515		28.78	**824**	T15 - IP	21.01	**128**	M4,5x12 - IP	3.62	**820**	9.56	**811**

SNMG / SNMA / SNMM

Designation	L	S	D1	IC
	mm	mm	mm	mm
SNMG 0903..	9.52	3.18	3.81	9.52
SNM. 1204..	12.70	4.76	5.16	12.70
SNM. 1506..	15.87	6.35	6.35	15.87
SNM. 1906..	19.05	6.35	7.94	19.05
SNMM 2507..	25.40	7.94	9.12	25.40
SNMM 2509..	25.40	9.52	9.12	25.40

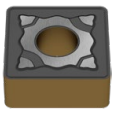


SNMG

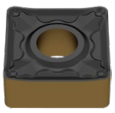
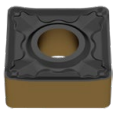
		NEW	NEW	NEW	NEW	NEW	NEW
		-F50 CTCP115-P	-F50 CTCP125-P	-F50 CTCP135-P	-M50 CTCP115-P	-M50 CTCP125-P	-M50 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	F	F	M	M	M
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
		76 140 ...	76 140 ...	76 140 ...	76 137 ...	76 137 ...	76 137 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
090308EN	0.8	8.98 30601	8.98 50601	8.98 70601			
120404EN	0.4	14.09 31601	14.09 51601	14.09 71601			
120408EN	0.8	14.09 31801	14.09 51801	14.09 71801	14.09 31801	14.09 51801	14.09 71801
120412EN	1.2	14.09 32001	14.09 52001	14.09 72001	14.09 32001	14.09 52001	14.09 72001
120416EN	1.6				14.09 32201	14.09 52201	14.09 72201
150608EN	0.8				22.35 33001	22.35 53001	22.35 73001
150612EN	1.2				22.35 33201	22.35 53201	22.35 73201
150616EN	1.6				22.35 33401	22.35 53401	22.35 73401
P		●	●	●	●	●	●
M				○			○
K		○	○		○	○	
N							
S							
H							
O							

9

SNMG / SNMA

			NEW	NEW	NEW	NEW		
		-M70 CTCK110	-M70 CTCP115-P	-M70 CTCP125-P	-M70 CTCP135-P	-M70 CTCP125-P	-M70 CTCK120	CTCK110
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	R	M	R
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG	SNMA
		70 225 ...	76 225 ...	76 225 ...	76 225 ...	76 188 ...	70 225 ...	70 114 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
120408EN	0.8	14.09 018	14.09 31801	14.09 51801	14.09 71801		14.09 518	14.09 018
120412EN	1.2	14.09 020	14.09 32001	14.09 52001	14.09 72001		14.09 520	14.09 020
120416EN	1.6	14.09 022	14.09 32201	14.09 52201	14.09 72201		14.09 522	14.09 022
150612EN	1.2	22.35 032	22.35 33201	22.35 53201	22.35 73201		22.35 532	22.35 032
150616EN	1.6	22.35 034	22.35 33401	22.35 53401	22.35 73401		22.35 534	22.35 034
190612EN	1.2	31.57 044	31.57 34401	31.57 54401	31.57 74401		31.57 544	31.57 044
190616EN	1.6	31.57 046	31.57 34601	31.57 54601	31.57 74601		31.57 546	31.57 046
190624EN	2.4		31.57 34801	31.57 54801	31.57 74801			
250924EN	2.4					75.07 57001		
P		○	●	●	●	●	○	○
M					○			
K		●	○	○		○	●	●
N								
S								
H								
O								

SNMA / SNMM

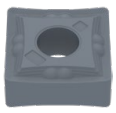
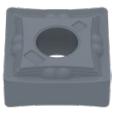
			NEW	NEW	NEW	NEW	NEW	NEW
		CTCK120	-R28 CTCP115-P	-R28 CTCP125-P	-R28 CTCP135-P	-R58 CTCP115-P	-R58 CTCP125-P	-R58 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	R	R	R	R	R	R
		SNMA	SNMM	SNMM	SNMM	SNMM	SNMM	SNMM
		70 114 ...	76 128 ...	76 128 ...	76 128 ...	76 129 ...	76 129 ...	76 129 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
120408EN	0.8	14.09 518				14.09 31801	14.09 51801	14.09 71801
120412EN	1.2	14.09 520				14.09 32001	14.09 52001	14.09 72001
120416EN	1.6	14.09 522						
150612EN	1.2	22.35 532	22.35 33201	22.35 53201	22.35 73201	22.35 33201	22.35 53201	22.35 73201
150616EN	1.6	22.35 534	22.35 33401	22.35 53401	22.35 73401	22.35 33401	22.35 53401	22.35 73401
190612EN	1.2	31.57 544				31.57 34401	31.57 54401	31.57 74401
190616EN	1.6	31.57 546	31.57 34601	31.57 54601	31.57 74601	31.57 34601	31.57 54601	31.57 74601
190624EN	2.4					31.57 34801	31.57 54801	31.57 74801
250724EN	2.4				62.06 76001	62.06 36001	62.06 56001	62.06 76001
250924EN	2.4		72.88 37001	72.88 57001	72.88 77001	72.88 37001	72.88 57001	72.88 77001
P		○	●	●	●	●	●	●
M					○			○
K		●	○	○		○	○	
N								
S								
H								
O								

SNMM

		NEW	NEW	NEW	NEW	NEW	NEW
		-R88 CTCP115-P	-R88 CTCP115-P	-R88 CTCP125-P	-R88 CTCP125-P	-R88 CTCP135-P	-R88 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		R	R	R	R	R	R
		SNMM	SNMM	SNMM	SNMM	SNMM	SNMM
		76 130 ...	76 325 ...	76 130 ...	76 326 ...	76 130 ...	76 327 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
190616SN	1.6	31.57 34601		31.57 54601		31.57 74601	
190624SN	2.4	31.57 34801		31.57 54801		31.57 74801	
250724SN	2.4	62.06 36001		62.06 56001		62.06 76001	
250732SN	3.2		61.75 36101		61.75 56101		61.75 76101
250924SN	2.4	72.88 37001		72.88 57001		72.88 77001	
250932SN	3.2		72.54 37201		72.54 57201		72.54 77201
P		●	●	●	●	●	●
M						○	○
K		○	○	○	○		
N							
S							
H							
O							

9

SNMG

		-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTPM125	-M30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	M	M	M	M
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
		75 016 ...	75 016 ...	75 016 ...	75 017 ...	75 017 ...	75 016 ...	75 017 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
120404EN	0.4	14.09 11600	14.09 216	14.09 31600				
120408EN	0.8	14.09 11800	14.09 218	14.09 31800	14.09 11800	14.09 218		14.09 31800
120412EN	1.2				14.09 12000		14.09 220	14.09 32000
P		○	○	○	○	○	○	○
M		●	●	●	●	●	●	●
K								
N								
S				○				○
H								
O								

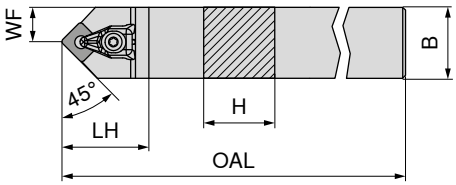
SNMG

		NEW -M42 CTCM130	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	NEW -M70 CTCM130	-M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		M	M	M	M	M	M
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
		75 034 ...	75 018 ...	75 018 ...	75 018 ...	75 039 ...	75 005 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
120408EN	0.8	14.51 31800	14.09 11800	14.09 218	14.09 31800	14.51 31800	14.77 61800
120412EN	1.2	14.51 32000	14.09 12000	14.09 210	14.09 32000	14.51 32000	14.77 62000
120416EN	1.6		14.09 12200	14.09 220	14.09 32200		
190616EN	1.6					32.52 34600	
P		○	○	○	○	○	●
M		●	●	●	●	●	●
K							
N							○
S		○			○	○	●
H							
O							

MaxiLock-D – DSDN 45° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key







ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 516 ... £ 2A/24	
DSDN N 2020 K12	20	20	125	38	10.3	4	SN.. 1204	102.99	**620**
DSDN N 2525 M12	25	25	150	38	12.5	4	SN.. 1204	106.53	**625**


XPress type

Key D


Clamping screw

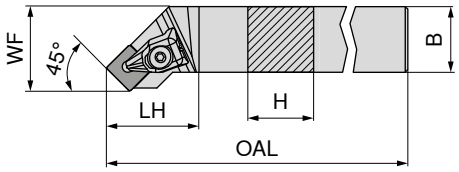

Solid Carbide support S

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 516 620	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**813**
70 516 625	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**813**

MaxiLock-D – DSSN 45° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 513 ... £ 2A/24		Right-hand 70 512 ... £ 2A/24	
DSSN R/L 2020 K12	20	20	125	35	25	4	SN.. 1204	102.99	**620**	102.99	**620**
DSSN R/L 2525 M12	25	25	150	35	32	4	SN.. 1204	106.53	**625**	106.53	**625**
DSSN R/L 3225 P12	32	25	170	35	32	4	SN.. 1204	114.27	**632**	114.27	**632**


XPress type


Key D


Clamping screw


Solid Carbide support S

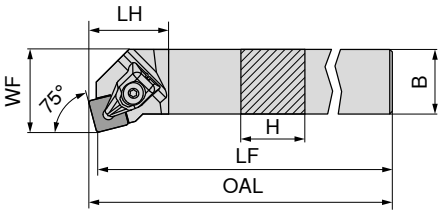
Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 512 620 / 70 513 620	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**813**
70 512 625 / 70 513 625	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**813**
70 512 632 / 70 513 632	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	9.56	**813**

9

MaxiLock-D – DSKN 75° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 525 ... £ 2A/24		Right-hand 70 524 ... £ 2A/24	
DSKN R/L 2525 M12	25	25	153.3	150	28	32	4	SN.. 1204	106.53	**625**	106.53	**625**



XPress type

70 950 ...

Key D

80 950 ...



Clamping screw

70 950 ...



Solid Carbide support S

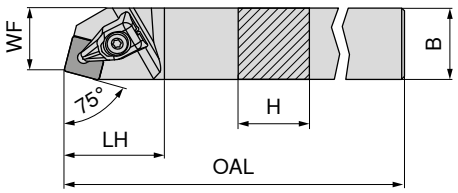
70 950 ...

Spare parts for Article no.	£ 2A/28			£ Y7			£ 2A/28		£ 2A/28	
70 525 625 / 70 524 625	28.78	**824**	T15 - IP	21.01	**128**	M4,5x12 - IP	3.62	**820**	9.56	**813**

MaxiLock-D – DSBN 75° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Right-hand 70 520 ... £ 2A/24	
DSBN R 2020 K12	20	20	125	35	17	4	SN.. 1204	102.99	**620**
DSBN R 2525 M12	25	25	150	35	22	4	SN.. 1204	106.53	**625**
DSBN R 2525 M15	25	25	150	42	22	6,5	SN.. 1506	106.53	**725**
DSBN R 3232 P15	32	32	170	42	27	6,5	SN.. 1506	143.86	**832**
DSBN R 3232 P19	32	32	170	48	27	6,5	SN.. 1906	143.86	**732**
DSBN R 4040 S19	40	40	250	48	35	6,5	SN.. 1906	178.85	**840**
DSBN R 4040 S25	40	40	250	57	35	6,5	SN.. 2507 / SN.. 2509	178.85	**940**

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40100.



XPress type

70 950 ...

Key D

80 950 ...



Clamping screw

70 950 ...



Solid Carbide support S

70 950 ...

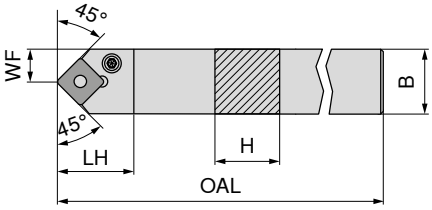
Spare parts for Article no.	£ 2A/28			£ Y7			£ 2A/28		£ 2A/28	
70 520 620	28.78	**824**	T15 - IP	21.01	**128**	M4,5x12 - IP	3.62	**820**	9.56	**813**
70 520 625	28.78	**824**	T15 - IP	21.01	**128**	M4,5x12 - IP	3.62	**820**	9.56	**813**
70 520 725	32.31	**825**	T20 - IP	22.06	**129**	M5x14 - IP	5.13	**821**	14.59	**833**
70 520 832	32.31	**825**	T20 - IP	22.06	**129**	M5x14 - IP	5.13	**821**	14.59	**833**
70 520 732	35.35	**826**	T20 - IP	22.06	**129**	M5x14 - IP	5.13	**821**	15.64	**817**
70 520 840	35.35	**826**	T20 - IP	22.06	**129**	M5x14 - IP	5.13	**821**	15.64	**817**
70 520 940	55.07	**827**	T25 - IP	17.97	**122**	M6x16 - IP	9.73	**822**	29.18	**818**

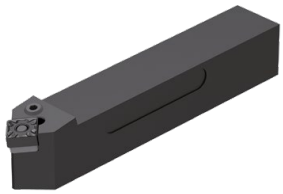
MaxiLock-N – PSDN 45° – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key







								Neutral	
								70 516 ...	
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	£ 2A/24	
PSDN N 2020 K12	20	20	125	27.6	10.3	4	SNM. 1204	102.99	**020**
PSDN N 2525 M12	25	25	150	27.6	12.8	4	SNM. 1204	106.53	**025**
PSDN N 3225 P19	32	25	170	40.4	12.5	8	SNM. 1906	114.27	**03200**
PSDN N 4040 S25	40	40	250	48.8	20.0	8	SNM. 2507 / 2509	178.85	**04000**

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.

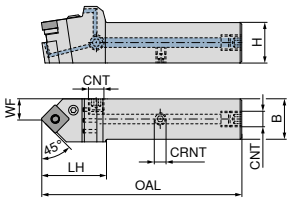
		 Key I	 Shim	 Assembly pin	 Lever	 Clamping screw	 Solid Carbide support S
		70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.		£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28
70 516 020	SW3	2.97 **176**	2.13 **198**	1.49 **192**	15.25 **187**	4.24 **209**	7.40 **230**
70 516 025	SW3	2.97 **176**	2.13 **198**	1.49 **192**	15.25 **187**	4.24 **209**	7.40 **230**
70 516 03200	SW4	3.13 **396**	2.13 **392**	1.49 **395**	23.14 **386**	4.59 **389**	23.26 **383**
70 516 04000	SW5	4.47 **265**	1.34 **621**	2.30 **623**	31.27 **620**	2.75 **622**	47.86 **27600**

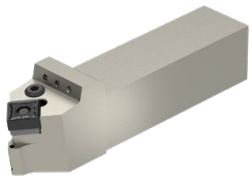
MaxiLock-N – PSDN 45° DC – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key









NEW
Neutral

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	70 596 ... £ 2A/24	
PSDN N 2020 X12-T DC	20	20	109	40	11.5	M6	G1/8"	4	SNM. 1204	207.80	**02000**
PSDN N 2525 X12-T DC	25	25	124	40	13.3	M6	G1/8"	4	SNM. 1204	218.74	**02500**
PSDN N 2525 X15-T DC	25	25	134	50	13.7	M6	G1/8"	4	SNM. 1506	218.74	**12500**
PSDN N 3225 X15-T DC	32	25	150	50	13.7	M6	G1/8"	4	SNM. 1506	229.68	**03200**
PSDN N 3225 X19-T DC	32	25	152	52	13.7	M6	G1/8"	8	SNM. 1906	229.68	**13200**
PSDN N 4040 X25-T DC	40	40	190	65	22.4	M6	G1/8"	8	SNM. 2507 / 2509	262.51	**04000**

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.

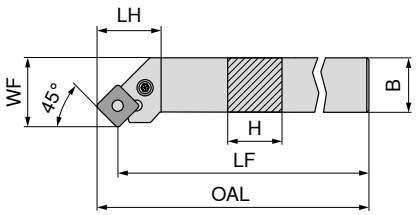
	Key I	Shim	Assembly pin	Coolant screw plug	Lever	Clamping screw	Solid Carbide support S	Grubscrew
	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28
70 596 02000	2.97 **176**	2.13 **198**	1.49 **192**	4.31 **294**	15.25 **187**	4.24 **209**	7.40 **230**	3.51 **86700**
70 596 02500	2.97 **176**	2.13 **198**	1.49 **192**	4.31 **294**	15.25 **187**	4.24 **209**	7.40 **230**	3.51 **86700**
70 596 12500	2.97 **176**	1.34 **391**	1.49 **394**	4.31 **294**	15.13 **385**	4.59 **388**	15.13 **382**	3.51 **86700**
70 596 03200	2.97 **176**	1.34 **391**	1.49 **394**	4.31 **294**	15.13 **385**	4.59 **388**	15.13 **382**	3.51 **86700**
70 596 13200	3.13 **396**	2.13 **392**	1.49 **395**	4.31 **294**	23.14 **386**	4.59 **389**	23.26 **383**	3.51 **86700**
70 596 04000	4.47 **265**	1.34 **621**	2.30 **623**	4.31 **294**	31.27 **620**	2.75 **622**	47.86 **27600**	3.51 **86700**

MaxiLock-N – PSSN 45° – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 513 ... £ 2A/24		Right-hand 70 512 ... £ 2A/24	
PSSN R/L 1616 H09	16	16	106.7	100	23.6	20	3	SNM. 0903	92.43	**016**	92.43	**01600**[1]
PSSN R/L 2020 K12	20	20	134.0	125	27.3	25	4	SNM. 1204	102.99	**020**	102.99	**020**
PSSN R/L 2525 M12	25	25	159.0	150	29.3	32	4	SNM. 1204	106.53	**025**	106.53	**025**
PSSN R/L 3225 P12	32	25	179.0	170	29.3	32	4	SNM. 1204	114.27	**032**	114.27	**032**
PSSN R 2525 M15	25	25	161.2	150	32.5	32	4	SNM. 1506			106.53	**125**
PSSN R 3232 P15	32	32	181.2	170	38.9	40	4	SNM. 1506			143.86	**132**
PSSN R 3232 P19	32	32	183.5	170	41.2	40	8	SNM. 1906			143.86	**232**
PSSN L 3232 P19	32	32	183.5	170	40.2	40	8	SNM. 1906	143.86	**232**		
PSSN R 4040 S25	40	40	268.0	250	50.8	50	8	SNM. 2507 / 2509			175.49	**04000**

1) nickel-plated

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.

Spare parts for Article no.		Key I 70 950 ... £ 2A/28		Shim 70 950 ... £ 2A/28		Assembly pin 70 950 ... £ 2A/28		Lever 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide support S 70 950 ... £ 2A/28	
70 512 01600 / 70 513 016	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	15.13	**185**	3.87	**208**	7.40	**229**
70 512 020 / 70 513 020	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	7.40	**230**
70 512 025 / 70 513 025	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	7.40	**230**
70 512 032 / 70 513 032	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	7.40	**230**
70 512 125	SW3	2.97	**176**	1.34	**391**	1.49	**394**	15.13	**385**	4.59	**388**	15.13	**382**
70 512 132	SW3	2.97	**176**	1.34	**391**	1.49	**394**	15.13	**385**	4.59	**388**	15.13	**382**
70 512 232	SW4	3.13	**396**	2.13	**392**	1.49	**395**	23.14	**386**	4.59	**389**	23.26	**383**
70 513 232	SW4	3.13	**396**	2.13	**392**	1.49	**395**	23.14	**386**	4.59	**389**	23.26	**383**
70 512 04000	SW5	4.47	**265**	1.34	**621**	2.30	**623**	31.27	**620**	2.75	**622**	47.86	**27600**

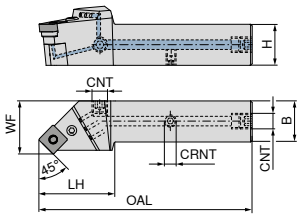
MaxiLock-N – PSSN 45° DC – Toolholder with lever clamping

Scope of supply:

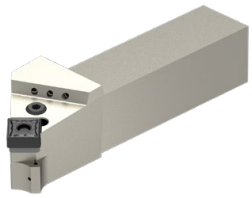
Tool holder with allen key







Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert	NEW Left-hand 70 597 ... £ 2A/24		NEW Right-hand 70 597 ... £ 2A/24	
	mm	mm	mm	mm	mm			Nm					
PSSN R/L 2020 X12-T DC	20	20	111.9	42.9	25	M6	G1/8"	4	SNM. 1204	207.80	**02000**	207.80	**02001**
PSSN R/L 2525 X12-T DC	25	25	129.9	45.9	32	M6	G1/8"	4	SNM. 1204	218.74	**02500**	218.74	**02501**
PSSN R/L 3225 X12-T DC	32	25	145.9	45.9	32	M6	G1/8"	4	SNM. 1204	229.68	**03200**	229.68	**03201**
PSSN R 2525 X15-T DC	25	25	131.5	47.5	32	M6	G1/8"	4	SNM. 1506			218.74	**12501**
PSSN R 3232 X15-T DC	32	32	145.9	45.9	40	M6	G1/8"	4	SNM. 1506			240.62	**13201**
PSSN R/L 3232 X19-T DC	32	32	151.8	51.8	40	M6	G1/8"	8	SNM. 1906	240.62	**13200**	240.62	**23201**
PSSN R 4040 X25-T DC	40	40	189.6	64.6	50	M6	G1/8"	8	SNM. 2507 / 2509			262.51	**04001**

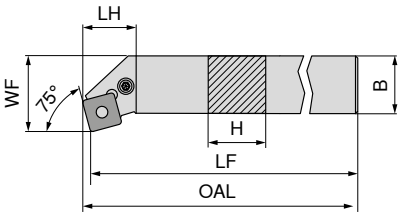
When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.

	Key I	Shim	Assembly pin	Coolant screw plug	Lever	Clamping screw	Solid Carbide support S	Grubscrew
	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...	70 950 ...
Spare parts for Article no.	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28
70 597 02001 / 70 597 02000	2.97 **176**	2.13 **198**	1.49 **192**	4.31 **294**	15.25 **187**	4.24 **209**	7.40 **230**	3.51 **86700**
70 597 02501 / 70 597 02500	2.97 **176**	2.13 **198**	1.49 **192**	4.31 **294**	15.25 **187**	4.24 **209**	7.40 **230**	3.51 **86700**
70 597 03201 / 70 597 03200	2.97 **176**	2.13 **198**	1.49 **192**	4.31 **294**	15.25 **187**	4.24 **209**	7.40 **230**	3.51 **86700**
70 597 12501	2.97 **176**	1.34 **391**	1.49 **394**	4.31 **294**	15.13 **385**	4.59 **388**	15.13 **382**	3.51 **86700**
70 597 13201	2.97 **176**	1.34 **391**	1.49 **394**	4.31 **294**	15.13 **385**	4.59 **388**	15.13 **382**	3.51 **86700**
70 597 23201 / 70 597 13200	3.13 **396**	2.13 **392**	1.49 **395**	4.31 **294**	23.14 **386**	4.59 **389**	23.26 **383**	3.51 **86700**
70 597 04001	4.47 **265**	1.34 **621**	2.30 **623**	4.31 **294**	31.27 **620**	2.75 **622**	47.86 **27600**	3.51 **86700**

MaxiLock-N – PSKN 75° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key





Illustrations show right-hand versions



ISO designation	H mm	LF mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 525 ... £ 2A/24		Right-hand 70 524 ... £ 2A/24	
PSKN R/L 1616 H09	16	100	16	102.5	18.7	20	3	SNM. 0903	92.43	**016**	92.43	**016**
PSKN R/L 2020 K12	20	125	20	128.3	24.1	25	4	SNM. 1204	102.99	**020**	102.99	**020**
PSKN R/L 2525 M12	25	150	25	153.3	24.1	32	4	SNM. 1204	106.53	**025**	106.53	**025**
PSKN R/L 3225 P12	32	170	25	173.1	24.1	32	4	SNM. 1204	114.27	**03200**	114.27	**03200**
PSKN R 4040 S19	40	250	40	254.6	38.3	50	8	SNM. 1906			178.85	**04000**


Key I


Shim


Assembly pin


Lever


Clamping screw


Solid Carbide support S

Spare parts for Article no.		70 950 ... £ 2A/28		Key I 70 950 ... £ 2A/28		Shim 70 950 ... £ 2A/28		Assembly pin 70 950 ... £ 2A/28		Lever 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide support S 70 950 ... £ 2A/28	
70 524 016 / 70 525 016	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	15.13	**185**	3.87	**208**	7.40	**229**
70 524 020 / 70 525 020	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	7.40	**230**
70 524 025 / 70 525 025	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	7.40	**230**
70 524 03200 / 70 525 03200	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	7.40	**230**
70 524 04000	SW4	3.13	**396**	2.13	**392**	1.49	**395**	23.14	**386**	4.59	**389**	23.26	**383**

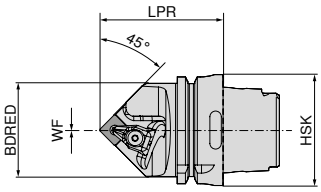
9

MaxiLock-D – DSDN 45° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key









ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 522 ... £ 2D/80	
HSK T63 DSDN N 12	HSK-T 63	70	53	0	4	SN.. 1204	415.94	**512**
HSK T63 DSDN N 15	HSK-T 63	75	53	0	4	SN.. 1506	415.94	**515**
HSK T100 DSDN N 12	HSK-T 100	80	88	0	4	SN.. 1204	488.29	**712**
HSK T100 DSDN N 19	HSK-T 100	85	88	0	8	SN.. 1906	488.29	**719**


XPress type

Key D


Clamping screw

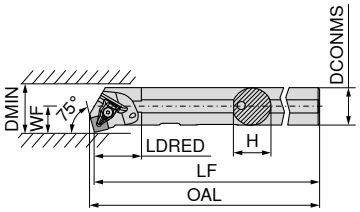

Solid Carbide support S

Spare parts for Article no.		70 950 ... £ 2A/28		Key D 80 950 ... £ Y7			Clamping screw 70 950 ... £ 2A/28		Solid Carbide support S 70 950 ... £ 2A/28	
74 522 512		28.78	**824**	T15 - IP	21.01	**128**	M4,5x12 - IP	3.62	**820**	9.56	**813**
74 522 515		32.31	**825**	T20 - IP	22.06	**129**	M5x14 - IP	5.13	**821**	14.59	**833**
74 522 712		28.78	**824**	T15 - IP	21.01	**128**	M4,5x12 - IP	3.62	**820**	9.56	**813**
74 522 719		35.35	**826**	T20 - IP	22.06	**129**	M5x14 - IP	5.13	**821**	15.64	**817**

MaxiLock-D – DSKN 75° – Boring bar with top clamping

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 561 ... £ 2A/24		Right-hand 70 560 ... £ 2A/24	
A32S DSKN R/L 12	32	31	250	254.2	40	22	40	4	SN.. 1204	278.30	**832**	278.30	**832**



XPress type



Key D



Clamping screw



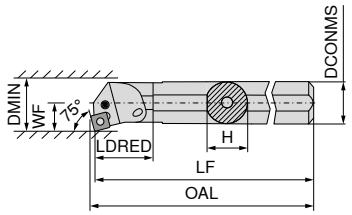
Solid Carbide support S

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 560 832 / 70 561 832	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62	**820**	9.56 **813**

MaxiLock-N – PSKN 75° – Boring bar with lever clamping

Scope of supply:
Boring bar with Allen key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 561 ... £ 2A/24		Right-hand 70 560 ... £ 2A/24	
A25R PSKN R/L 12	25	23	200	203	36	17	32	4	SNM. 1204	269.08	**225**	269.08	**225**
A32S PSKN R/L 12	32	30	250	253	50	22	40	4	SNM. 1204	278.30	**232**	278.30	**232**
A40T PSKN R/L 12	40	38	300	303	60	27	50	4	SNM. 1204	310.02	**240**	310.02	**240**



Key I



Shim

Assembly pin



Lever



Clamping screw

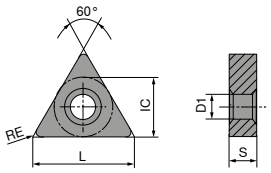


Solid Carbide support S

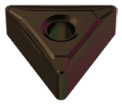
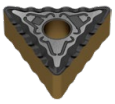
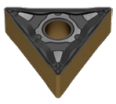
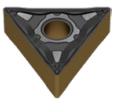
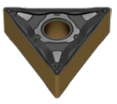
Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 561 225 / 70 560 225	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	5.17	**205**	7.40	**230**
70 561 232 / 70 560 232	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	5.17	**205**	7.40	**230**
70 561 240 / 70 560 240	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	7.40	**230**

TNMG / TNMA / TNMM

Designation	L	S	D1	IC
	mm	mm	mm	mm
TNMG 1103..	11.0	3.18	2.26	6.35
TNM. 1604..	16.5	4.76	3.81	9.52
TNM. 2204..	22.0	4.76	5.16	12.70



TNMG

			NEW	NEW	NEW	NEW	NEW	NEW
		-CF20 CTEP110	-F50 CTCP115-P	-F50 CTCP125-P	-F50 CTCP135-P	-M50 CTCP115-P	-M50 CTCP125-P	-M50 CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	F	M	M	M
		CERMET TNMG	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
		76 149 ...	76 146 ...	76 146 ...	76 146 ...	76 138 ...	76 138 ...	76 138 ...
ISO	RE	£ 1A/78	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
	mm							
110304EN	0.4		7.79 30401	7.79 50401	7.79 70401			
110308EN	0.8		7.79 30601	7.79 50601	7.79 70601			
160404EN	0.4	12.24 016	12.35 31601	12.35 51601	12.35 71601	12.35 31601	12.35 51601	12.35 71601
160408EN	0.8	12.24 018	12.35 31801	12.35 51801	12.35 71801	12.35 31801	12.35 51801	12.35 71801
160412EN	1.2	12.24 020	12.35 32001	12.35 52001	12.35 72001	12.35 32001	12.35 52001	12.35 72001
220408EN	0.8					16.68 33001	16.68 53001	16.68 73001
220412EN	1.2					16.68 33201	16.68 53201	16.68 73201
P		●	●	●	●	●	●	●
M		○			○			○
K		○	○	○		○	○	
N								
S								
H								
O								

9

TNMG

		NEW	NEW	NEW	NEW	NEW
	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115-P	-M70 CTCP125-P	-M70 CTCP135-P	CTCP125-P	CTCP135-P
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M	M	M	M	M	M	M
	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
	70 155 ...	70 155 ...	76 155 ...	76 155 ...	76 155 ...	76 142 ...	76 142 ...
ISO / RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
160404ER 0.4						12.35 51601	12.71 71601
160408EL 0.8						12.35 51801	
160408EN 0.8	12.35 018	12.35 518	12.35 31801	12.35 51801	12.35 71801		
160408ER 0.8						12.35 51701	12.71 71801
160412EN 1.2	12.35 020	12.35 520	12.35 32001	12.35 52001	12.35 72001		
220404EN 0.4				16.68 52801			
220408EN 0.8	16.68 030	16.68 530	16.68 33001	16.68 53001	16.68 73001		
220412EN 1.2	16.68 032	16.68 532	16.68 33201	16.68 53201	16.68 73201		
220416EN 1.6	16.68 034	16.68 534	16.68 33401	16.68 53401	16.68 73401		
P	○	○	●	●	●	●	●
M					○		○
K	●	●	○	○		○	
N							
S							
H							
O							

TNMA / TNMM

		NEW	NEW	NEW	NEW	NEW
	CTCK110	CTCK120	-R28 CTCP115-P	-R28 CTCP125-P	-R28 CTCP135-P	-R58 CTCP115-P	-R58 CTCP125-P
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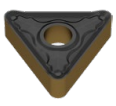
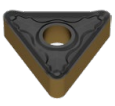
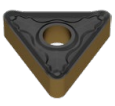
							
	R	M	R	R	R	R	R
	TNMA	TNMA	TNMM	TNMM	TNMM	TNMM	TNMM
	70 134 ...	70 134 ...	76 154 ...	76 154 ...	76 154 ...	76 152 ...	76 152 ...
ISO / RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
160408EN 0.8	12.35 018	12.35 518					
160412EN 1.2	12.35 020	12.35 520					
160416EN 1.6	12.35 022	12.35 522					
220408EN 0.8	16.68 030	16.68 530					
220412EN 1.2	16.68 032	16.68 532				16.68 33201	16.68 53201
220416EN 1.6	16.68 034	16.68 534	16.68 33401	16.68 53401	16.68 73401		
P	○	○	●	●	●	●	●
M					○		
K	●	●	○	○		○	○
N							
S							
H							
O							

TNMM / TNMG

		NEW						
		-R58 CTCP135-P	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		R	F	F	F	M	M	M
		TNMM	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
		76 152 ...	75 019 ...	75 019 ...	75 019 ...	75 020 ...	75 020 ...	75 020 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
160404EN	0.4		12.35 11600	12.35 216	12.35 31600			
160408EN	0.8		12.35 11800	12.35 218	12.35 31800	12.35 11800	12.35 218	12.35 31800
160412EN	1.2					12.35 12000	12.35 220	12.35 32000
220412EN	1.2	16.68 73201						
P		●	○	○	○	○	○	○
M		○	●	●	●	●	●	●
K								
N								
S					○			○
H								
O								

TNMG

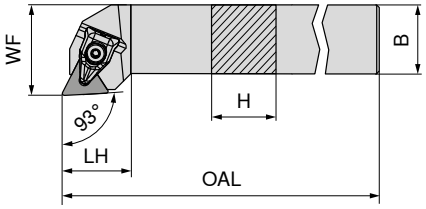
		NEW				NEW	
		-M42 CTCM130	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M70 CTCM130	-M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		M	M	M	M	M	M
		TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
		75 035 ...	75 021 ...	75 021 ...	75 021 ...	75 040 ...	75 006 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
160404EN	0.4	12.71 31600					
160408EN	0.8	12.71 31800	12.35 11800	12.35 218	12.35 31800	12.71 31800	12.25 61800
160412EN	1.2		12.35 12000	12.35 220	12.35 32000	12.71 32000	
220404EN	0.4						17.61 62800
220408EN	0.8						17.61 63000
220412EN	1.2					17.17 33200	
220416EN	1.6						17.61 63400
P		○	○	○	○	○	●
M		●	●	●	●	●	●
K							
N							○
S		○			○	○	●
H							
O							

9

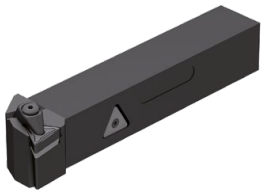
MaxiLock-D – DTJN 93° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions



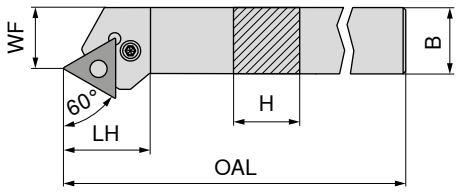
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 591 ... £ 2A/24		Right-hand 70 590 ... £ 2A/24	
DTJN R/L 2020 K16	20	20	125	23	25	2	TNM. 1604	102.99	**820**	102.99	**820**
DTJN R/L 2525 M16	25	25	150	24	32	2	TNM. 1604	106.53	**825**	106.53	**825**

Spare parts for Article no.	XPress type 70 950 ... £ 2A/28		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat T 70 950 ... £ 2A/28	
70 590 820 / 70 591 820	29.18	**823**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	8.41	**847**
70 590 825 / 70 591 825	29.18	**823**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	8.41	**847**

MaxiLock-N – PTTN 60° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 529 ... £ 2A/24		Right-hand 70 528 ... £ 2A/24	
PTTN R/L 2020 K16	20	20	125	25.9	17	3	TNM. 1604	102.99	**020**	102.99	**020**
PTTN R/L 2525 M22	25	25	150	32.7	22	4	TNM. 2204	106.53	**025**	106.53	**025**

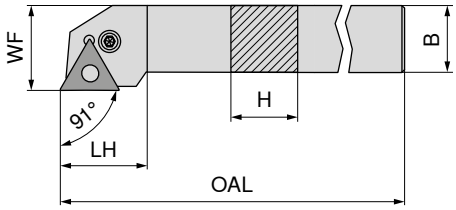
Spare parts for Article no.		Key I 70 950 ... £ 2A/28		Shim 70 950 ... £ 2A/28		Assembly pin 70 950 ... £ 2A/28		Lever 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat T 70 950 ... £ 2A/28	
70 529 020 / 70 528 020	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	15.13	**185**	3.87	**208**	8.41	**225**
70 529 025 / 70 528 025	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	12.02	**226**

MaxiLock-N – PTGN 91° – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 533 ... £ 2A/24		Right-hand 70 532 ... £ 2A/24	
PTGN R/L 1616 H16	16	16	100	20	20	3	TNM. 1604	92.43	**016**	92.43	**016**
PTGN R/L 2020 K16	20	20	125	20	25	3	TNM. 1604	102.99	**020**	102.99	**020**
PTGN R/L 2525 M16	25	25	150	22	32	3	TNM. 1604	106.53	**025**	106.53	**025**
PTGN R/L 3225 P16	32	25	170	22	32	3	TNM. 1604	114.27	**032**	114.27	**032**
PTGN R/L 2525 M22	25	25	150	29	32	4	TNM. 2204	106.53	**125**	106.53	**125**
PTGN R/L 3232 P22	32	32	170	29	40	4	TNM. 2204	143.86	**132**	143.86	**132**



Key I



Shim



Assembly pin



Lever



Clamping screw



Solid Carbide Seat T

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 532 016 / 70 533 016	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	15.13	**185**	3.87	**208**	8.41	**225**
70 532 020 / 70 533 020	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	15.13	**185**	3.87	**208**	8.41	**225**
70 532 025 / 70 533 025	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	15.13	**185**	3.87	**208**	8.41	**225**
70 532 032 / 70 533 032	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	15.13	**185**	3.87	**208**	8.41	**225**
70 532 125 / 70 533 125	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	12.02	**226**
70 532 132 / 70 533 132	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	12.02	**226**

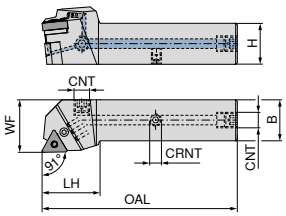
MaxiLock-N – PTGN 91° DC – Toolholder with lever clamping

Scope of supply:

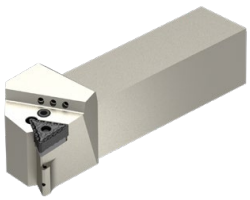
Tool holder with allen key







Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert	NEW Left-hand 70 598 ... £ 2A/24		NEW Right-hand 70 598 ... £ 2A/24	
	mm	mm	mm	mm	mm			Nm					
PTGN R/L 2020 X16-T DC	20	20	101	32	25	M6	G1/8"	3	TNM. 1604	207.80	**02000**	207.80	**02001**
PTGN R/L 2525 X16-T DC	25	25	119	35	32	M6	G1/8"	3	TNM. 1604	218.74	**02500**	218.74	**02501**
PTGN R/L 3225 X16-T DC	32	25	136	36	32	M6	G1/8"	3	TNM. 1604	229.68	**03200**	229.68	**03201**
PTGN R/L 2525 X22-T DC	25	25	122	38	32	M6	G1/8"	4	TNM. 2204	218.74	**12500**	218.74	**12501**
PTGN R/L 3232 X22-T DC	32	32	138	38	40	M6	G1/8"	4	TNM. 2204	240.62	**13200**	240.62	**13201**

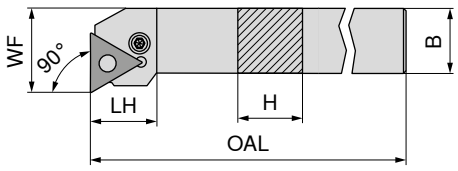
Spare parts for Article no.	Key I 70 950 ... £ 2A/28		Shim 70 950 ... £ 2A/28		Assembly pin 70 950 ... £ 2A/28		Coolant screw plug 70 950 ... £ 2A/28		Lever 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat T 70 950 ... £ 2A/28		Grubscrew 70 950 ... £ 2A/28	
70 598 02001 / 70 598 02000	2.97	**175**	2.13	**197**	1.49	**192**	4.31	**294**	15.13	**185**	3.87	**208**	8.41	**225**	3.51	**86700**
70 598 02501	2.97	**175**	2.13	**197**	1.49	**192**	4.31	**294**	15.13	**185**	3.87	**208**	8.41	**225**	3.51	**86700**
70 598 02500	2.97	**175**	2.13	**197**	1.49	**191**	4.31	**294**	15.13	**185**	3.87	**208**	8.41	**225**	3.51	**86700**
70 598 03201 / 70 598 03200	2.97	**175**	2.13	**197**	1.49	**192**	4.31	**294**	15.13	**185**	3.87	**208**	8.41	**225**	3.51	**86700**
70 598 12501 / 70 598 12500	2.97	**176**	2.13	**198**	1.49	**192**	4.31	**294**	15.25	**187**	4.24	**209**	12.02	**226**	3.51	**86700**
70 598 13201 / 70 598 13200	2.97	**176**	2.13	**198**	1.49	**192**	4.31	**294**	15.25	**187**	4.24	**209**	12.02	**226**	3.51	**86700**

MaxiLock-N – PTFN 90° – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key





Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	torque moment	Insert	Left-hand 70 535 ... £ 2A/24		Right-hand 70 534 ... £ 2A/24	
	mm	mm	mm	mm	mm	Nm					
PTFN R/L 1616 H16	16	16	100	19.7	20	3	TNM. 1604	92.43	**016**	92.43	**016**
PTFN R/L 2020 K16	20	20	125	20.2	25	3	TNM. 1604	102.99	**020**	102.99	**020**
PTFN R/L 2525 M16	25	25	150	20.2	32	3	TNM. 1604	106.53	**025**	106.53	**025**
PTFN R/L 2525 M22	25	25	150	25.2	32	4	TNM. 2204	106.53	**125**	106.53	**125**
PTFN R/L 3225 P22	32	25	170	25.2	32	4	TNM. 2204	114.27	**132**	114.27	**132**

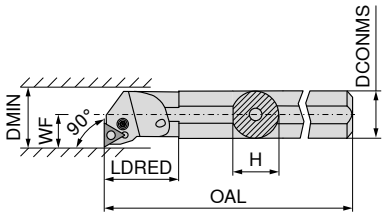
Spare parts for Article no.		Key I 70 950 ... £ 2A/28		Shim 70 950 ... £ 2A/28		Assembly pin 70 950 ... £ 2A/28		Lever 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat T 70 950 ... £ 2A/28	
70 534 016 / 70 535 016	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	15.13	**185**	3.87	**208**	8.41	**225**
70 534 020 / 70 535 020	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	15.13	**185**	3.87	**208**	8.41	**225**
70 534 025 / 70 535 025	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	15.13	**185**	3.87	**208**	8.41	**225**
70 534 125 / 70 535 125	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	12.02	**226**
70 534 132 / 70 535 132	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	12.02	**226**

MaxiLock-N – PTFN 90° – Boring bar with lever clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Boring bar with Allen key





Illustrations show right-hand versions

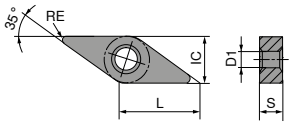


									Left-hand		Right-hand	
									70 565 ...		**70 564 ...**	
ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	£		£	
	mm	mm	mm	mm	mm	mm	Nm		2A/24		2A/24	
S25T PTFN R 16	25	23	300	36	17	32	3	TNM. 1604			269.08	**02500**
A25R PTFN R/L 16	25	23	200	36	17	32	3	TNM. 1604	269.08	**225**	269.08	**225**
A32S PTFN R/L 16	32	30	250	50	22	40	3	TNM. 1604	278.30	**232**	278.30	**232**
A40T PTFN R/L 22	40	38	300	60	27	50	4	TNM. 2204	310.02	**240**	310.02	**240**
S50W PTFN R 22	50	47	450	35	35	63	4	TNM. 2204			383.64	**050**

	 Key I	 Shim	Assembly pin	 Lever	 Clamping screw	 Solid Carbide Seat T
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28
70 564 02500	2.97 **175**	2.13 **197**	1.49 **191**	15.13 **185**	3.87 **208**	8.41 **225**
70 564 225 / 70 565 225	2.97 **175**	2.13 **197**	1.49 **191**	15.13 **185**	3.87 **208**	8.41 **225**
70 564 232 / 70 565 232	2.97 **175**	2.13 **197**	1.49 **191**	15.13 **185**	3.87 **208**	8.41 **225**
70 564 240 / 70 565 240	2.97 **176**	2.13 **198**	1.49 **192**	15.25 **187**	4.24 **209**	12.02 **226**
70 564 050	2.97 **176**	2.13 **198**	1.49 **192**	15.25 **187**	4.24 **209**	12.02 **226**

VNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
VNMG 1604..	16.6	4.76	3.81	9.52



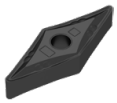
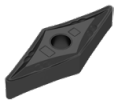
VNMG

		NEW	NEW	NEW	NEW	NEW	NEW	NEW
		-F40 CTCP125-P	-F50 CTCP115-P	-F50 CTCP125-P	-F50 CTCP135-P	-XU CTCP115-P	-XU CTCP125-P	-M40 CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F VNMG	F VNMG	F VNMG	F VNMG	M VNMG	M VNMG	M VNMG
		76 000 ...	76 156 ...	76 156 ...	76 156 ...	76 294 ...	76 294 ...	76 001 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
160404EN	0.4	24.92 51601	24.92 31601	24.92 51601	24.92 71601	24.87 31601	24.87 51601	24.92 51601
160408EN	0.8	24.92 51801	24.92 31801	24.92 51801	24.92 71801	24.87 31801	24.87 51801	24.92 51801
P		●	●	●	●	●	●	●
M					○			
K		○	○	○		○	○	○
N								
S								
H								
O								

VNMG

		NEW		NEW	NEW			
		-M50 CTCK110	-M50 CTCK120	-M50 CTCP115-P	-M50 CTCP125-P	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		M VNMG	M VNMG	M VNMG	M VNMG	F VNMG	F VNMG	F VNMG
		70 190 ...	70 131 ...	76 131 ...	76 131 ...	75 022 ...	75 022 ...	75 022 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
160404EN	0.4			24.92 31601	24.92 51601	24.92 11600	24.92 216	24.92 31600
160408EN	0.8		24.92 518	24.92 31801	24.92 51801	24.92 11800	24.92 218	24.92 31800
160412EN	1.2	25.67 01200	24.92 520	24.92 32001	24.92 52001			
P		○	○	●	●	○	○	○
M						●	●	●
K		●	●	○	○			
N								
S								○
H								
O								

VNMG

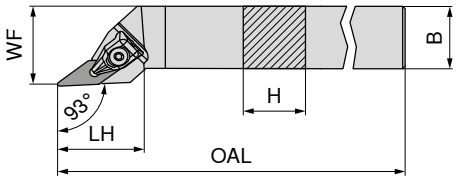
	-M30 CTCM120	-M30 CTPM125	-M30 CTCM130	-M34 CTPX710
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	M	M	M	M
	VNMG	VNMG	VNMG	VNMG
	75 023 ...	75 023 ...	75 023 ...	75 009 ...
ISO / RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
160404EN 0.4				23.70 61600
160408EN 0.8	24.92 11800	24.92 218	24.92 31800	23.70 61800
160412EN 1.2				23.70 62000
P	○	○	○	●
M	●	●	●	●
K				
N				○
S			○	●
H				
O				

9

MaxiLock-D – DVJN 93° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 503 ... £ 2A/24		Right-hand 70 502 ... £ 2A/24	
DVJN R/L 2020 K16	20	20	125	39	25	2	VN.. 1604	118.47	**620**	118.47	**620**
DVJN R/L 2525 M16	25	25	150	39	32	2	VN.. 1604	125.69	**725**	125.69	**725**


XPress type

Key D


Clamping screw

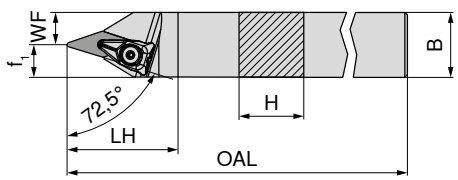

Solid Carbide Seat V

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 502 620 / 70 503 620	34.83	**835**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	6.77	**806**
70 502 725 / 70 503 725	34.83	**835**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	6.77	**806**

MaxiLock-D – DVVN 72.5° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key







ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	f_1 mm	torque moment Nm	Insert	Neutral 70 506 ... £ 2A/24	
DVVN N 2020 K16	20	20	125	43	7.5	12.5	2	VN.. 1604	118.47	**620**
DVVN N 2525 M16	25	25	150	43	12.5	12.5	2	VN.. 1604	125.69	**625**


XPress type

Key D


Clamping screw

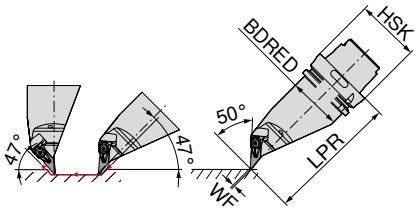

Solid Carbide Seat V

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 506 620	34.83	**835**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	6.77	**806**
70 506 625	34.83	**835**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	6.77	**806**

MaxiLock-D – DVMN 50° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 525 ... £ 2D/80	
HSK T63 DVMN L 16	HSK-T 63	130	53	0	2	VN.. 1604	663.14	**516**
HSK T100 DVMN L 16	HSK-T 100	160	88	0	2	VN.. 1604	813.75	**716**


XPress type

Key D

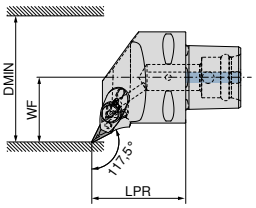

Clamping screw


Solid Carbide Seat V

Spare parts for Article no.	£ 2A/28		£ Y7		£ 2A/28		£ 2A/28	
	70 950 ...		80 950 ...		70 950 ...		70 950 ...	
74 525 516	34.83	**835**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	6.77	**806**
74 525 716	34.83	**835**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	6.77	**806**

MaxiLock-D – DVPN 117,5° – Toolholder with top clamping



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 84 673 ... £ Y8		Right-hand 84 672 ... £ Y8	
PSC40 DVPN R/L 50050-16	PSC 40	50	27	50	10	VN.. 1604	685.18	**01695**	685.18	**01695**
PSC50 DVPN R/L 65060-16	PSC 50	60	35	65	10	VN.. 1604	770.46	**01694**	770.46	**01694**
PSC63 DVPN R/L 80065-16	PSC 63	65	45	80	10	VN.. 1604	841.65	**01693**	841.65	**01693**


Clamping Screw


Clamping claw


Ring-shaped nozzle

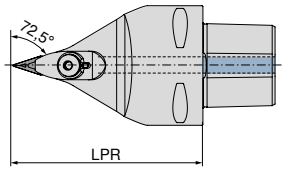

Clamping screw

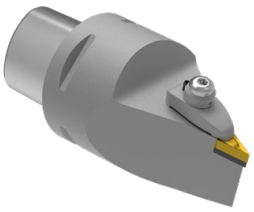

Solid Carbide Seat V

Spare parts for Article no.		£ Y8		£ Y8		£ Y8		£ Y8	
		84 950 ...		84 950 ...		84 950 ...		84 950 ...	
84 672 01695 / 84 673 01695	M6X28 SW4	56.63	**28300**	67.08	**28500**	21.60	**28400**	8.84 **27600**	66.87 **28000**
84 672 01694 / 84 673 01694	M6X28 SW4	56.63	**28300**	67.08	**28500**	21.60	**28400**	8.84 **27600**	66.87 **28000**
84 672 01693 / 84 673 01693	M6X28 SW4	56.63	**28300**	67.08	**28500**	21.60	**28400**	8.84 **27600**	66.87 **28000**

MaxiLock-D – DVVN 72,5° – Toolholder with top clamping





Neutral

84 679 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	£ Y8	
PSC63 DVVN N 0100-16	PSC 63	100	10	VN.. 1604	841.65	**01693**
PSC63 DVVN N 0130-16	PSC 63	130	10	VN.. 1604	841.65	**11693**


Clamping Screw


Clamping claw


Ring-shaped nozzle

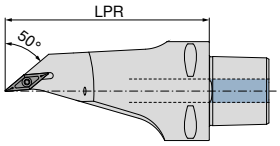

Clamping screw

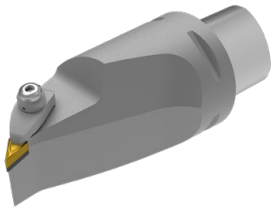

Solid Carbide Seat V

Spare parts for Article no.		**84 950 ...** £ Y8		**84 950 ...** £ Y8		**84 950 ...** £ Y8		**84 950 ...** £ Y8		**84 950 ...** £ Y8	
84 679 01693	M6X28 SW4	56.63	**28300**	67.08	**28500**	21.60	**28400**	8.84	**27600**	66.87	**28000**
84 679 11693	M6X28 SW4	56.63	**28300**	67.08	**28500**	21.60	**28400**	8.84	**27600**	66.87	**28000**

MaxiLock-D – DVMN 50° – Toolholder with top clamping





Neutral

84 682 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	£ Y8	
PSC63 DVMN L 0130-16	PSC 63	130	10	VN.. 1604	978.53	**01693**


Clamping Screw


Clamping claw


Ring-shaped nozzle

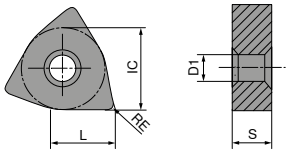

Clamping screw


Solid Carbide Seat V

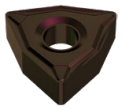
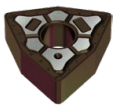
Spare parts for Article no.		**84 950 ...** £ Y8		**84 950 ...** £ Y8		**84 950 ...** £ Y8		**84 950 ...** £ Y8		**84 950 ...** £ Y8	
84 682 01693	M6X28 SW4	56.63	**28300**	67.08	**28600**	21.60	**28400**	8.84	**27600**	66.87	**28000**

WNMG / WNMA

Designation	L	S	D1	IC
	mm	mm	mm	mm
WNMG 0604..	6.5	4.76	3.81	9.52
WNM. 0804..	8.6	4.76	5.16	12.70



WNMG

		NEW	NEW	NEW	NEW	NEW
		-CF20 CTEP110	-TFQ CTEP110	-F50 CTCP115-P	-F50 CTCP125-P	-F50 CTCP135-P	-TFQ CTCP115-P	-TFQ CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	F	F	F	F
		CERMET	CERMET					
		WNMG	WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		76 171 ...	76 177 ...	76 157 ...	76 157 ...	76 157 ...	76 177 ...	76 177 ...
ISO	RE	£	£	£	£	£	£	£
	mm	1A/78	1A/78	1A/08	1A/08	1A/08	1A/08	1A/08
060404EN	0.4	11.73 004		12.06 30401	12.06 50401	12.06 70401	13.95 30401	13.95 51401
060408EN	0.8	11.73 006	13.95 006	12.06 30601	12.06 50601	12.06 70601	13.95 30601	13.95 50601
080404EN	0.4		17.48 016	15.18 31601	15.18 51601	15.18 71601		
080408EN	0.8	15.18 018	17.48 018	15.18 31801	15.18 51801	15.18 71801	17.48 31801	17.48 51801
080412EN	1.2			15.18 32001	15.18 52001	15.18 72001	17.48 32001	17.48 52001
P		●	●	●	●	●	●	●
M		○	○			○		
K		○	○	○	○		○	○
N								
S								
H								
O								

9

WNMG

		NEW	NEW			NEW	NEW	NEW
		-XU CTCP115-P	-XU CTCP125-P	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115-P	-M50 CTCP125-P	-M50 CTCP135-P
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						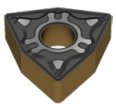	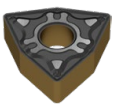	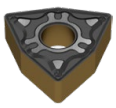
		M	M	M	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		76 295 ...	76 295 ...	70 139 ...	70 139 ...	76 139 ...	76 139 ...	76 139 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
060404EN	0.4					12.06 30401	12.06 50401	12.06 70401
060408EN	0.8					12.06 30601	12.06 50601	12.06 70601
060412EN	1.2					12.06 30801	12.06 50801	12.06 70801
080404EN	0.4	15.19 31601	15.19 51601			15.18 31601	15.18 51601	15.18 71601
080408EN	0.8	15.19 31801	15.19 51801	15.18 018	15.18 518	15.18 31801	15.18 51801	15.18 71801
080412EN	1.2	15.19 32001	15.19 52001	15.18 020	15.18 520	15.18 32001	15.18 52001	15.18 72001
080416EN	1.6					15.18 32201	15.18 52201	15.18 72201
P		●	●	○	○	●	●	●
M								○
K		○	○	●	●	○	○	
N								
S								
H								
O								

WNMG

		NEW	NEW			NEW	NEW	NEW
		-TMQ CTCP115-P	-TMQ CTCP125-P	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115-P	-M70 CTCP125-P	-M70 CTCP135-P
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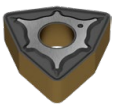
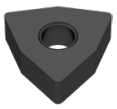
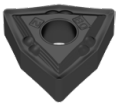
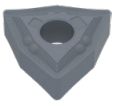
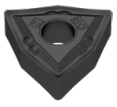
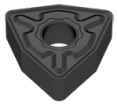
								
		M	M	M	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		76 198 ...	76 198 ...	70 273 ...	70 273 ...	76 273 ...	76 273 ...	76 273 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
060408EN	0.8					12.06 30601	12.06 50601	12.06 70601
060412EN	1.2					12.06 30801	12.06 50801	12.06 70801
080408EN	0.8	17.48 31801	17.48 51801	15.18 018	15.18 518	15.18 31801	15.18 51801	15.18 71801
080412EN	1.2	17.48 32001	17.48 52001	15.18 020	15.18 520	15.18 32001	15.18 52001	15.18 72001
080416EN	1.6			15.18 022	15.18 522	15.18 32201	15.18 52201	15.18 72201
P		●	●	○	○	●	●	●
M								○
K		○	○	●	●	○	○	
N								
S								
H								
O								

WNMA / WNMG

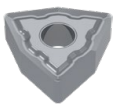
		CTCK110	CTCK120	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		R	R	F	F	F
		WNMA	WNMA	WNMG	WNMG	WNMG
		70 169 ...	70 169 ...	75 024 ...	75 024 ...	75 024 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
060404EN	0.4			12.06 10400	12.06 204	12.06 30400
060408EN	0.8			12.06 10600	12.06 206	12.06 30600
080404EN	0.4			15.18 11600	15.18 216	15.18 31600
080408EN	0.8	15.18 018	15.18 518	15.18 11800	15.18 218	15.18 31800
080412EN	1.2	15.18 020	15.18 520			
080416EN	1.6	15.18 022	15.18 522			
P		○	○	○	○	○
M				●	●	●
K		●	●			
N						
S						○
H						
O						

WNMG

9

		NEW						
		-M30 CTCM120	-M30 CTPM125	-M30 CTCM130	-M42 CTCM130	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		75 025 ...	75 025 ...	75 025 ...	75 036 ...	75 026 ...	75 026 ...	75 026 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
060404EN	0.4				12.42 30400			
060408EN	0.8	12.06 10600	12.06 206	12.06 30600	12.42 30600	12.06 10600	12.06 206	12.06 30600
060412EN	1.2	12.06 10800	12.06 208	12.06 30800		12.06 10800	12.06 208	12.06 30800
080404EN	0.4				15.64 31600			
080408EN	0.8	15.18 11800	15.18 218	15.18 31800	15.64 31800	15.18 11800	15.18 218	15.18 31800
080412EN	1.2	15.18 12000	15.18 220	15.18 32000	15.64 32000	15.18 12000	15.18 220	15.18 32000
P		○	○	○	○	○	○	○
M		●	●	●	●	●	●	●
K								
N								
S				○	○			○
H								
O								

WNMG

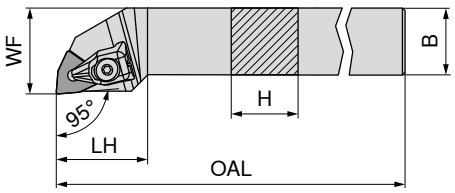
		NEW	NEW	
		-M70 CTCM130	-F34 CTPX710	-M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
		M	F	M
		WNMG	WNMG	WNMG
		75 041 ...	75 313 ...	75 008 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08
060408EN	0.8	12.42 30600		
080408EN	0.8	15.64 31800	16.13 61800	15.86 61800
080412EN	1.2	15.64 32000		15.86 62000
P		○	●	●
M		●	●	●
K				
N			○	○
S		○	●	●
H				
O				

MaxiLock-D – DWLN 95° – Toolholder with top clamping

Scope of supply:

Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 543 ... £ 2A/24		Right-hand 70 542 ... £ 2A/24	
DWLN R/L 1616 H06	16	16	100	25	20	2	WN.. 0604	92.43	**716**	92.43	**716**
DWLN R/L 2020 K06	20	20	125	27	25	2	WN.. 0604	102.99	**720**	102.99	**720**
DWLN R/L 2525 M06	25	25	150	27	32	2	WN.. 0604	106.53	**725**	106.53	**725**
DWLN R/L 2020 K08	20	20	125	34	25	4	WN.. 0804	102.99	**620**	102.99	**620**
DWLN R/L 2525 M08	25	25	150	34	32	4	WN.. 0804	106.53	**625**	106.53	**625**

Spare parts for Article no.	XPress type 70 950 ... £ 2A/28		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat W 70 950 ... £ 2A/28	
70 543 716 / 70 542 716	29.18	**823**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	4.11	**807**
70 543 720 / 70 542 720	29.18	**823**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	4.11	**807**
70 543 725 / 70 542 725	29.18	**823**	T09 - IP	19.68 **126**	M3x7 - IP	3.79 **819**	4.11	**807**
70 543 620 / 70 542 620	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	12.02	**812**
70 543 625 / 70 542 625	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	12.02	**812**

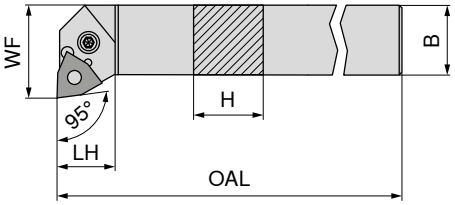
9

MaxiLock-N – PWLN 95° – Toolholder with lever clamping

Scope of supply:

Tool holder with allen key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 543 ... £ 2A/24		Right-hand 70 542 ... £ 2A/24	
PWLN R/L 1616 H06	16	16	100	20	22.5	3	WNMG 0604	92.43	**116**	92.43	**11600**[1)]
PWLN R/L 2020 K06	20	20	125	26	25.0	3	WNMG 0604	102.99	**12000**[1)]	102.99	**12000**[1)]
PWLN R/L 2525 M06	25	25	150	19	32.0	3	WNMG 0604	106.53	**125**	106.53	**12500**[1)]
PWLN R/L 2020 K08	20	20	125	22	25.0	4	WNMG 0804	102.99	**020**	102.99	**020**
PWLN R/L 2525 M08	25	25	150	22	32.0	4	WNMG 0804	106.53	**025**	106.53	**025**
PWLN R/L 3225 P08	32	25	170	22	32.0	4	WNMG 0804	114.27	**032**	114.27	**032**

1) nickel-plated

Spare parts for Article no.		Key I 70 950 ... £ 2A/28		Shim 70 950 ... £ 2A/28		Assembly pin 70 950 ... £ 2A/28		Lever 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat W 70 950 ... £ 2A/28	
70 542 11600 / 70 543 116	SW2,5	2.97	**175**	2.49	**122**	1.49	**191**	15.13	**185**	3.87	**208**	8.72	**127**
70 542 12000 / 70 543 12000	SW2,5	2.97	**175**	2.49	**122**	1.49	**191**	15.13	**185**	3.87	**208**	8.72	**127**
70 542 12500 / 70 543 125	SW2,5	2.97	**175**	2.49	**122**	1.49	**191**	15.13	**185**	3.87	**208**	8.72	**127**
70 542 020 / 70 543 020	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	10.57	**235**
70 542 025 / 70 543 025	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	10.57	**235**
70 542 032 / 70 543 032	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	10.57	**235**

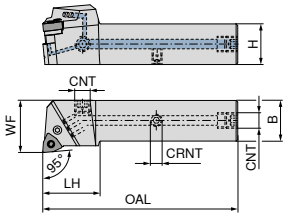
MaxiLock-N – PWLN 95° DC – Toolholder with lever clamping

Scope of supply:

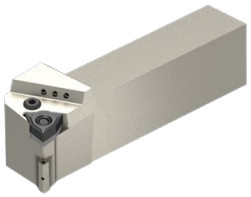
Tool holder with allen key







Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert	NEW Left-hand 70 599 ... £ 2A/24		NEW Right-hand 70 599 ... £ 2A/24	
	mm	mm	mm	mm	mm			Nm					
PWLN R/L 2020 X06-T DC	20	20	104	35	25	M6	G1/8"	3	WNMG 0604	207.80	**02000**	207.80	**02001**
PWLN R/L 2525 X06-T DC	25	25	120	35	32	M6	G1/8"	3	WNMG 0604	218.74	**02500**	218.74	**02501**
PWLN R/L 2020 X08-T DC	20	20	104	35	25	M6	G1/8"	4	WNMG 0804	207.80	**12000**	207.80	**12001**
PWLN R/L 2525 X08-T DC	25	25	120	35	32	M6	G1/8"	4	WNMG 0804	218.74	**12500**	218.74	**12501**
PWLN R/L 3225 X08-T DC	32	25	135	35	32	M6	G1/8"	4	WNMG 0804	229.68	**03200**	229.68	**03201**



Coolant screw plug



Lever



Clamping screw



Solid Carbide Seat W



Grubscrew

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
70 599 02001 / 70 599 02000	G 1/8"	4.31	**294**	15.13	**185**	3.87	**208**	8.72	**127**	M6x6	3.51	**86700**
70 599 02501 / 70 599 02500	G 1/8"	4.31	**294**	15.13	**185**	3.87	**208**	8.72	**127**	M6x6	3.51	**86700**
70 599 12001 / 70 599 12000	G 1/8"	4.31	**294**	15.25	**187**	4.24	**209**	10.57	**235**	M6x6	3.51	**86700**
70 599 12501 / 70 599 12500	G 1/8"	4.31	**294**	15.25	**187**	4.24	**209**	10.57	**235**	M6x6	3.51	**86700**
70 599 03201 / 70 599 03200	G 1/8"	4.31	**294**	15.25	**187**	4.24	**209**	10.57	**235**	M6x6	3.51	**86700**



Key I



Shim



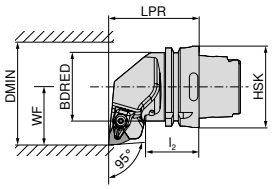
Assembly pin

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 599 02001 / 70 599 02000	SW2,5	2.97	**175**	2.49	**122**	1.49	**191**
70 599 02501 / 70 599 02500	SW2,5	2.97	**175**	2.49	**122**	1.49	**191**
70 599 12001 / 70 599 12000	SW3	2.97	**176**	2.13	**198**	1.49	**192**
70 599 12501 / 70 599 12500	SW3	2.97	**176**	2.13	**198**	1.49	**192**
70 599 03201 / 70 599 03200	SW3	2.97	**176**	2.13	**198**	1.49	**192**

MaxiLock-D – DWLN 95° – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	Insert	Left-hand 74 529 ... £ 2D/80		Right-hand 74 528 ... £ 2D/80	
HSK T63 DWLN R/L 08	HSK-T 63	70	42.00	52.6	45	125	WN.. 0804	415.94	**508**	415.94	**508**
HSK T100 DWLN R 08	HSK-T 100	80	45.00	87.6	55	125	WN.. 0804			488.29	**708**
HSK T100 DWLN L 08	HSK-T 100	80	53.96	87.6	55	125	WN.. 0804	488.29	**708**		


XPress type

Key D


Clamping screw

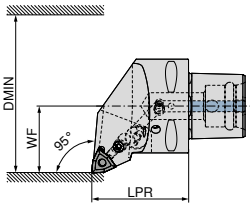

Solid Carbide Seat W

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 528 508 / 74 529 508	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	12.02	**812**
74 528 708 / 74 529 708	28.78	**824**	T15 - IP	21.01 **128**	M4,5x12 - IP	3.62 **820**	12.02	**812**

MaxiLock-N – PWLN 95° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 653 ... £ Y8		Right-hand 84 652 ... £ Y8	
PSC40 PWLN R/L 50050-08	PSC 40	50	27	50	5	WN.. 0804	DC	635.36	**00895**	635.36	**00895**
PSC50 PWLN R/L 65060-08	PSC 50	60	35	65	5	WN.. 0804	DC	699.54	**00894**	699.54	**00894**
PSC63 PWLN R/L 80065-08	PSC 63	65	45	80	5	WN.. 0804	DC	794.19	**00893**	794.19	**00893**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**


Shim


Elbow lever screw


Lever


Solid Carbide Seat W

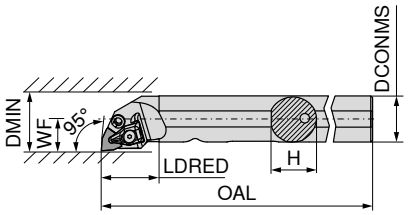
Spare parts for Article no.	84 950 ... £ Y8			84 950 ... £ Y8		84 950 ... £ Y8		84 950 ... £ Y8	
84 652 00895 / 84 653 00895	3.22	**29200**	M8X1/L17 SW3	12.55	**28700**	43.38	**28900**	66.87	**27700**
84 652 00894 / 84 653 00894	3.22	**29200**	M8X1/L17 SW3	12.55	**28700**	43.38	**28900**	66.87	**27700**
84 652 00893 / 84 653 00893	3.22	**29200**	M8X1/L17 SW3	12.55	**28700**	43.38	**28900**	66.87	**27700**

MaxiLock-D – DWLN 95° – Boring bar with top clamping

Scope of supply:

Boring bar with Torx key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 573 ... £ 2A/24		Right-hand 70 572 ... £ 2A/24	
A25R DWLN R/L 06	25	24	200	32	17	32	2	WN.. 0604	269.08	**725**	269.08	**725**
A32S DWLN R/L 08	32	31	250	40	22	44	4	WN.. 0804	278.30	**732**	278.30	**732**
A40T DWLN R/L 08	40	39	300	45	27	50	4	WN.. 0804	310.02	**64000**	310.02	**640**



XPress type



Key D



Clamping screw



Hydrant



Solid Carbide Seat W

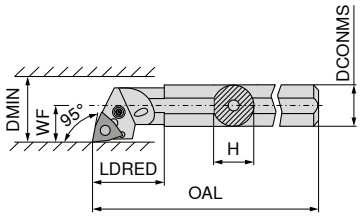
Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 572 725 / 70 573 725	29.18	**823**	T09 - IP	19.68	**126**	M3x7 - IP	3.79	**819**	25.25	**834**	4.11	**807**
70 572 732 / 70 573 732	28.78	**824**	T15 - IP	21.01	**128**	M4,5x12 - IP	3.62	**820**	25.25	**834**	12.02	**812**
70 572 640 / 70 573 64000	28.78	**824**	T15 - IP	21.01	**128**	M4,5x12 - IP	3.62	**820**	25.25	**834**	12.02	**812**

MaxiLock-N – PWLN 95° – Boring bar with lever clamping

Scope of supply:

Boring bar with Allen key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 573 ... £ 2A/24		Right-hand 70 572 ... £ 2A/24	
A16M PWLN R/L 06	16	15	150	20	11	20	3	WNMG 0604	218.57	**11600**[1)]	218.57	**11600**[1)]
A20Q PWLN R/L 06-1	20	19	180	30	13	25	3	WNMG 0604	241.46	**12100**[1)]	241.46	**12100**[1)]
A25R PWLN R/L 06	25	23	200	25	17	32	3	WNMG 0604	269.08	**12500**[1)]	269.08	**12500**[1)]
A32S PWLN R/L 06	32	30	250	50	22	40	3	WNMG 0604	278.30	**132**	278.30	**132**
A25R PWLN R/L 08	25	23	200	40	17	31	4	WNMG 0804	269.19	**225**	269.19	**225**
A32S PWLN R/L 08	32	30	250	50	22	40	4	WNMG 0804	278.30	**032**	278.30	**032**
A40T PWLN R/L 08	40	39	300	60	27	50	4	WNMG 0804	310.02	**040**	310.02	**040**

1) nickel-plated



Key I



Shim



Assembly pin



Lever



Clamping screw



Solid Carbide Seat W

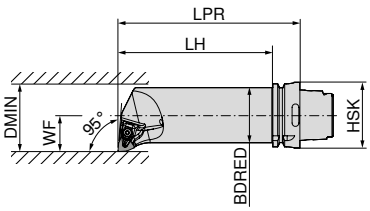
Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 572 11600 / 70 573 11600	SW2	2.97	**177**					18.13	**129**	5.13	**217**		
70 572 12100 / 70 573 12100	SW2	2.97	**177**					18.13	**129**	5.13	**217**		
70 572 12500 / 70 573 12500	SW2,5	2.97	**175**	2.49	**122**	1.49	**191**	15.13	**185**	3.87	**208**	8.72	**127**
70 572 132 / 70 573 132	SW2,5	2.97	**175**	2.49	**122**	1.49	**191**	15.13	**185**	3.87	**208**	8.72	**127**
70 572 225 / 70 573 225	SW3	2.97	**176**					15.25	**187**	5.17	**205**		
70 572 032 / 70 573 032	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	10.57	**235**
70 572 040 / 70 573 040	SW3	2.97	**176**	2.13	**198**	1.49	**192**	15.25	**187**	4.24	**209**	10.57	**235**

MaxiLock-D – DWLN 95° – Boring bar with top clamping

Scope of supply:
Boring bar with Torx key







Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 537 ... £ 2D/80		Right-hand 74 536 ... £ 2D/80	
HSK T63 50Q DWLN R/L 08	HSK-T 63	175	149	50	35	63	4	WN.. 0804	570.59	**508**	570.59	**508**



XPress type

70 950 ...



Key D

80 950 ...



Clamping screw

70 950 ...



Solid Carbide Seat W

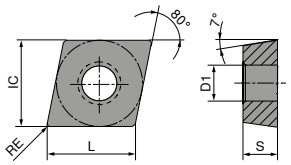
70 950 ...

Spare parts for Article no.	£ 2A/28		£ Y7		£ 2A/28		£ 2A/28	
74 536 508 / 74 537 508	28.78	**824**	T15 - IP 21.01	**128**	M4,5x12 - IP 3.62	**820**	12.02	**812**

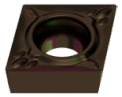
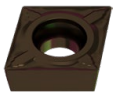
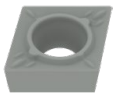
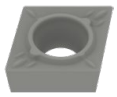
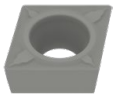
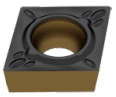
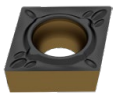
9

CCGT / CCMT / CCET

Designation	L	S	D1	IC
	mm	mm	mm	mm
CC.T 0602..	6.4	2.38	2.8	6.35
CC.T 09T3..	9.7	3.97	4.4	9.52
CC.T 1204..	12.9	4.76	5.5	12.70



CCGT / CCMT

		-CF05 CTEP110	-CF55 CTEP110	-SF TCM407	-SF TCM10	-SMF TCM10	NEW -SF CTCP125-P	NEW -SF CTCP135-P
		DRAGONSKIN	DRAGONSKIN				DRAGONSKIN	DRAGONSKIN
								
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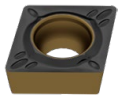
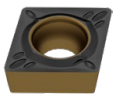
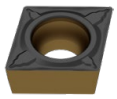
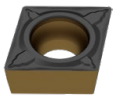
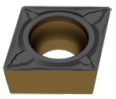
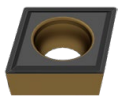
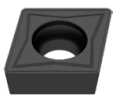
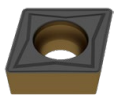
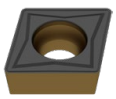
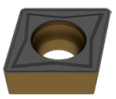
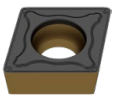
		CERMET CCGT	CERMET CCMT	CERMET CCGT	CERMET CCGT	CERMET CCMT	CCGT	CCGT
		76 247 ...	76 248 ...	70 251 ...	70 251 ...	70 249 ...	76 251 ...	76 251 ...
ISO	RE mm	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/08	£ 1A/08
060202EN	0.2	16.78 002		16.26 850	16.26 900		16.78 50201	16.78 70201
060204EN	0.4	16.78 004	9.13 004	16.26 852	16.26 902	8.82 900		
09T302EN	0.2	17.90 014		16.78 854	16.78 904			
09T304EN	0.4	17.90 016	11.73 016		16.78 906	10.93 904		
09T308EN	0.8	17.90 018	11.73 018		16.78 908	10.93 906		
120404EN	0.4		16.54 028		21.00 910			
P		●	●	●	●	●	●	●
M		○	○	○	○	○		○
K		○	○	○	○	○	○	
N								
S								
H								
O								

CCMT / CCGT

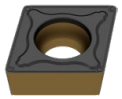
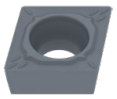
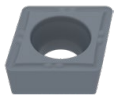
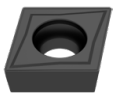
		NEW	NEW	NEW	NEW	NEW	NEW	NEW
		-SF CTCP115-P	-SF CTCP125-P	-SF CTCP135-P	-SMF CTCP115-P	-SMF CTCP125-P	-SMF CTCP135-P	-SM CTCP125-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	F	F	F	M
		CCMT	CCMT	CCMT	CCMT	CCMT	CCMT	CCGT
		76 253 ...	76 253 ...	76 253 ...	76 249 ...	76 249 ...	76 249 ...	76 250 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
060202EN	0.2							16.78 50201
060204EN	0.4	9.41 30401	9.41 50401	9.41 70401		9.41 50401	9.41 70401	
060208EN	0.8					9.41 50601		
09T304EN	0.4	11.75 31601	11.75 51601	11.75 71601	11.75 31601	11.75 51601	11.75 71601	
09T308EN	0.8	11.75 31801	11.75 51801		11.75 31801	11.75 51801		
120404EN	0.4		16.54 52801			16.54 52801		
120408EN	0.8		16.54 53001		16.54 33001		16.54 73001	
P		●	●	●	●	●	●	●
M				○			○	
K		○	○		○	○		○
N								
S								
H								
O								

9

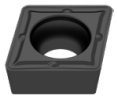
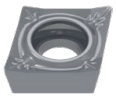
CCGT / CCMT

		NEW			NEW	NEW	NEW	NEW
		-SM CTCP135-P	-SM CTCK110	-SM CTCK120	-SM CTCP115-P	-SM CTCP125-P	-SM CTCP135-P	-SMQ CTCP115-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	F
		CCGT	CCMT	CCMT	CCMT	CCMT	CCMT	CCMT
		76 250 ...	70 252 ...	70 252 ...	76 252 ...	76 252 ...	76 252 ...	76 194 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
060202EN	0.2	16.78 70201						
060204EN	0.4		9.41 004	9.41 554	9.41 30401	9.41 50401	9.41 70401	
060208EN	0.8		9.41 006	9.41 506	9.41 30601		9.41 70601	
09T304EN	0.4		11.75 016	11.75 516	11.75 31601	11.75 51601	11.75 71601	13.23 31601
09T308EN	0.8		11.75 018	11.75 518	11.75 31801	11.75 51801	11.75 71801	13.23 31801
09T312EN	1.2		11.75 020	11.75 520				
120404EN	0.4		16.54 028	16.54 528	16.54 32801	16.54 52801	16.54 72801	18.57 32801
120408EN	0.8		16.54 030	16.54 530	16.54 33001	16.54 53001	16.54 73001	18.57 33001
120412EN	1.2					16.54 53201		
P		●	○	○	●	●	●	●
M		○					○	
K			●	●	○	○		○
N								
S								
H								
O								

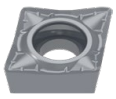
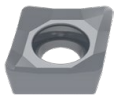
CCMT

		NEW		NEW		NEW		NEW
		-SMQ CTCP125-P	-M25 CTCM120	-SF CTPM125	-M25 CTPM125	-F43 CTCM130	-M25 CTCM130	-SM CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	F	F	F	M
		CCMT	CCMT	CCMT	CCMT	CCMT	CCMT	CCMT
		76 194 ...	75 210 ...	75 042 ...	75 210 ...	75 031 ...	75 210 ...	75 047 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
060204EN	0.4		9.41 10400	9.70 20400	9.41 204		9.41 30400	9.70 30400
09T304EN	0.4	13.23 51601	11.75 11600	12.11 21600	11.75 216	12.11 31600	11.75 31600	12.11 31600
09T308EN	0.8	13.23 51801	11.75 11800		11.75 218	12.11 31800	11.75 31800	12.11 31800
120404EN	0.4	18.57 52801						17.05 32800
120408EN	0.8	18.57 53001						17.05 33000
P		●	○	○	○	○	○	○
M			●	●	●	●	●	●
K		○						
N								
S						○	○	○
H								
O								

CCMT / CCGT

		-M55 CTCM120	-M55 CTPM125	-M55 CTCM130	-23P H216T	-25P H210T	-25P CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN			DRAGONSKIN
							
		M	M	M	F	F	M
		CCMT	CCMT	CCMT	CCGT	CCGT	CCGT
		75 211 ...	75 211 ...	75 211 ...	70 255 ...	70 248 ...	70 248 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/90	£ 1A/90	£ 1A/90
060202FN	0.2				13.23 652	13.23 636	15.74 70200
060204EN	0.4	9.41 10400	9.41 204	9.71 30400			
060204FN	0.4				13.23 654	13.23 638	15.74 70400
09T302FN	0.2					13.84 639	16.11 71400
09T304EN	0.4	11.75 11600	11.75 216	11.75 31600			
09T304FN	0.4				13.84 656	13.84 640	16.11 71600
09T308EN	0.8	11.75 11800	11.75 218	11.75 31800			
09T308FN	0.8				13.84 658	13.84 641	16.11 71800
120402FN	0.2					16.12 643	
120404EN	0.4	16.54 12800	16.54 228	16.54 32800			
120404FN	0.4					16.12 642	20.57 72800
120408EN	0.8	16.54 13000	16.54 230	16.54 33000			
120408FN	0.8					16.12 644	20.57 73000
P		○	○	○			●
M		●	●	●			●
K					○	○	
N					●	●	●
S				○		○	●
H							
O					○	○	

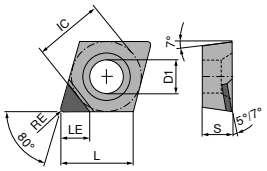
CCGT / CCMT / CCET

		-25Q H210T	-25Q CTPX710 DRAGONSKIN	-27 H10T	-27 CTPX715 DRAGONSKIN	-29 H216T	NEW -29 CTPX715 DRAGONSKIN	NEW -F05 CTPX710 DRAGONSKIN
								
		M	M	M	M	M	M	F
		CCGT	CCGT	CCGT	CCGT	CCMT	CCMT	CCET
		70 248 ...	70 248 ...	70 254 ...	70 254 ...	70 245 ...	70 245 ...	76 243 ...
ISO	RE mm	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/08
060201FN	0.1							23.53 10100
060202FN	0.2			12.37 600	15.03 80200			23.53 10200
060204EN	0.4					9.54 60400	11.90 70400	
060204FN	0.4	14.36 678	19.00 75400	12.37 602	15.03 80400			23.53 10400
09T302FN	0.2			13.23 604	15.46 81400			
09T304EN	0.4					10.13 61600	12.29 71600	
09T304FN	0.4	15.18 680	19.89 76600	13.23 606	15.46 81600			
09T308EN	0.8					10.13 61800	12.29 71800	
09T308FN	0.8	15.18 681	19.89 76800	13.23 608	15.46 81800			
09T316FN	1.6				19.07 72200			
120402FN	0.2			15.44 610	19.25 82600			
120404FN	0.4	17.90 682	22.36 77800	15.44 612	19.25 82800			
120408FN	0.8	17.90 686	22.36 78000	15.44 614	19.25 83000			
P			●		●		●	●
M			●		●		●	●
K		○		○	○	○	○	
N		●	●	●	●	●	●	●
S		○	●		●		●	●
H								
O		○		○	○	○	○	

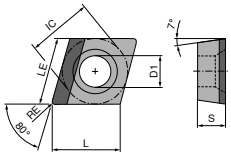
9

CCGW / CCGT

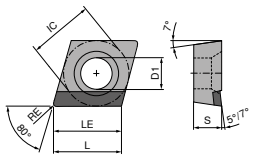
Designation	L	S	D1	IC
	mm	mm	mm	mm
CCG. 0602..	6.4	2.38	2.8	6.35
CCG. 09T3..	9.7	3.97	4.4	9.52
CCG. 1204..	12.9	4.76	5.5	12.70



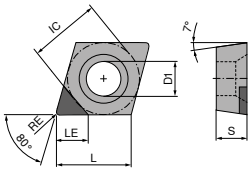
CCGT A



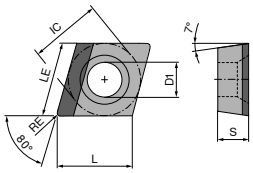
CCGT A LL



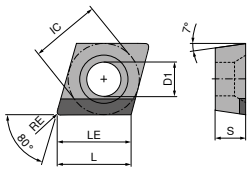
CCGT A RR



CCGW A



CCGW A LL



CCGW A RR

CCGW / CCGT

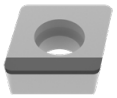
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDMD05		CTDPD20		CTDPD20		-Q CTDPD20		-Q CTDPD20	
				F		F		F		F		F	
				DIAMOND CCGW		DIAMOND CCGW		DIAMOND CCGT		DIAMOND CCGW		DIAMOND CCGT	
				71 120 ...		71 120 ...		71 124 ...		71 125 ...		71 126 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
060201FN	0.1	A (1)	3.4									131.40	101
060201FN	0.1	A (1)	3.5					121.54	10100				
060202FN	0.2	A (1)	2.5	461.06	050								
060202FN	0.2	A (1)	3.3							131.40	102	131.40	102
060202FN	0.2	A (1)	3.4			129.55	100	121.54	100				
060204FN	0.4	A (1)	2.5	461.06	052								
060204FN	0.4	A (1)	3.1									131.40	104
060204FN	0.4	A (1)	3.2			129.55	102	121.54	102	131.40	104		
060208FN	0.8	A (1)	2.5	461.06	05300								
060208FN	0.8	A (1)	3.0			129.55	10300	121.54	10300				
09T301FN	0.1	A (1)	4.5							131.37	111	131.37	111
09T302FN	0.2	A (1)	4.4							131.37	112	131.37	112
09T302FN	0.2	A (1)	4.5			133.82	10500	124.43	10500				
09T304FN	0.4	A (1)	2.5	470.22	054								
09T304FN	0.4	A (1)	4.2							131.37	114	131.37	114
09T304FN	0.4	A (1)	4.3			133.82	104	124.43	104				
09T308FN	0.8	A (1)	2.5	470.22	056								
09T308FN	0.8	A (1)	4.1			133.82	106	124.43	106				
120402FN	0.2	A (1)	4.4							136.22	122	136.22	122
120404FN	0.4	A (1)	4.2							136.22	124	136.22	124
120404FN	0.4	A (1)	4.3			106.56	108	106.56	108				
120408FN	0.8	A (1)	4.1			106.56	110	106.56	110				
P													
M													
K													
N				●		●		●		●		●	
S													
H													
O				●		●		●		●		●	

→ v_c Page 198+199

CCGW / CCGT

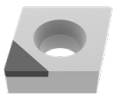
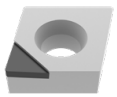
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPD20		CTDPD20		-CB1 CTDPD20		-CB2 CTDPD20		-CB1 CTDPD20		-Q-CB2 CTDPD20	
															
				F		F		F		M		F		M	
				DIAMOND CCGW		DIAMOND CCGW		DIAMOND CCGT		DIAMOND CCGT		DIAMOND CCGT		DIAMOND CCGT	
				71 172 ...		71 172 ...		71 300 ...		71 168 ...		71 305 ...		71 169 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
060202FN	0.2	A (1)	3.40					117.65	102						
060204FN	0.4	A (1)	3.10									135.12	104		
060204FN	0.4	A (1)	3.20					117.65	104	96.70	10001				
060204FRR	0.4	A (1)	6.45			127.54	10101								
060204FLL	0.4	A (1)	6.45	127.54	10001										
060208FN	0.8	A (1)	3.00					117.65	10600						
09T302FN	0.2	A (1)	4.40											113.16	10001
09T302FN	0.2	A (1)	4.50					115.67	112						
09T304FN	0.4	A (1)	4.20									136.81	114	113.16	10101
09T304FN	0.4	A (1)	4.30					115.67	114						
09T308FN	0.8	A (1)	4.10					115.67	118						
09T308FRR	0.8	A (1)	9.70			135.77	10301								
09T308FLL	0.8	A (1)	9.70	135.77	10201										
09T312FLL	1.2	A (1)	9.70	135.77	10401										
120404FN	0.4	A (1)	4.20									140.15	124	115.18	10201
120404FN	0.4	A (1)	4.30					127.62	124						
120408FN	0.8	A (1)	4.10					127.62	128						
120412FRR	1.2	A (1)	12.90			150.19	10601								
120412FLL	1.2	A (1)	12.90	150.19	10501										
P															
M															
K															
N				●		●		●		●		●		●	
S															
H															
O				●		●		●		●		●		●	

9

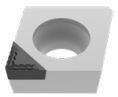
CCGT / CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPS30	-Q CTDPS30	-Q CTDPS30	CTDPS30	CTDPS30	-CB2 CTDPS30
									
				F	F	F	F	F	M
				DIAMOND CCGT	DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT
				71 166 ...	71 125 ...	71 126 ...	71 170 ...	71 170 ...	71 301 ...
ISO	RE mm	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0
060201FN	0.1	A (1)	3.50	88.47 20001					
060202FN	0.2	A (1)	3.30		131.40 152	131.40 152			
060202FN	0.2	A (1)	3.40	88.47 20101					117.65 202
060204FN	0.4	A (1)	3.20						117.65 204
060204FRR	0.4	A (1)	6.45					127.54 20101	
060204FLL	0.4	A (1)	6.45				127.54 20001		
060208FN	0.8	A (1)	3.00						117.65 208
060208FRR	0.8	A (1)	6.45					127.54 20301	
060208FLL	0.8	A (1)	6.45				127.54 20201		
09T301FN	0.1	A (1)	4.50		131.37 16300				
09T302FN	0.2	A (1)	4.40		131.37 162	131.37 162			
09T302FN	0.2	A (1)	4.50	90.51 20201					132.13 212
09T304FN	0.4	A (1)	4.30						132.13 214
09T308FN	0.8	A (1)	4.10						132.13 218
09T308FRR	0.8	A (1)	9.70					135.77 20501	
09T308FLL	0.8	A (1)	9.70				135.77 20401		
120402FN	0.2	A (1)	4.40			136.22 172			
120404FN	0.4	A (1)	4.20			136.22 174			
120404FN	0.4	A (1)	4.30	90.51 20301					127.62 224
120408FN	0.8	A (1)	4.10						127.62 228
120412FRR	1.2	A (1)	12.90					150.19 20701	
120412FLL	1.2	A (1)	12.90				150.19 20601		
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

CCGT / CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				-Q-CB2 CTDPS30		CTDPU20		-CB3 CTDPU20		CTDPS30	
											
				M		F		R		F	
				DIAMOND CCGT		DIAMOND CCGW		DIAMOND CCGT		DIAMOND CCGW	
				71 306 ...		71 171 ...		71 302 ...		71 171 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0	
060201FN	0.1	A (1)	3.5							86.37	20001
060202FN	0.2	A (1)	3.3	135.12	202						
060202FN	0.2	A (1)	3.4							86.37	20101
060204FN	0.4	A (1)	3.1	135.12	204						
060204FN	0.4	A (1)	3.2					93.62	204	86.37	20201
09T302FN	0.2	A (1)	4.4	136.81	212						
09T302FN	0.2	A (1)	4.5							90.51	20301
09T304FN	0.4	A (1)	4.2	136.81	214						
09T304FN	0.4	A (1)	4.3			92.58	30001	102.27	214	90.51	20401
09T308FN	0.8	A (1)	4.1			92.58	30101	102.27	218		
120402FN	0.2	A (1)	4.4	140.15	222						
120404FN	0.4	A (1)	4.2	140.15	224						
120404FN	0.4	A (1)	4.3							92.58	20501
P											
M											
K											
N					●		●		●		●
S											
H											
O					●		●		●		●

9

CCGW / CCGT

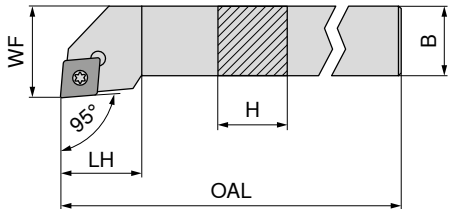
▲ TCE(NOI) = Design and number of equipped cutting edge corners

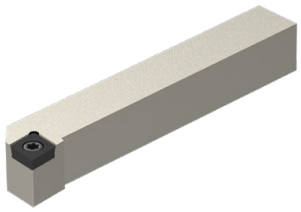
				CTDCD10		-CB1 CTDCD10		-Q-CB1 CTDCD10		-CB2 CTDCD10		-Q-CB2 CTDCD10	
													
				F		F		F		M		M	
				DIAMOND CCGW		DIAMOND CCGT		DIAMOND CCGT		DIAMOND CCGT		DIAMOND CCGT	
				71 171 ...		71 300 ...		71 167 ...		71 301 ...		71 306 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
060202FN	0.2	A (1)	2.3					135.77	40001				
060202FN	0.2	A (1)	2.4	100.80	40001	149.27	302			149.27	30200		
060204FN	0.4	A (1)	2.1					135.77	40101			158.94	304
060204FN	0.4	A (1)	2.2	100.80	40101	149.27	304			149.27	304		
060208FN	0.8	A (1)	2.0			149.27	30600						
09T302FN	0.2	A (1)	2.3									166.76	31200
09T302FN	0.2	A (1)	2.4	109.03	40201					149.27	31200		
09T304FN	0.4	A (1)	2.1					137.84	40201			166.76	314
09T304FN	0.4	A (1)	2.2	109.03	40301	154.15	314			154.15	314		
09T308FN	0.8	A (1)	2.0	109.03	40401					154.15	31600		
120404FN	0.4	A (1)	2.1					139.86	40301			163.80	324
120404FN	0.4	A (1)	2.2							173.48	32600		
120408FN	0.8	A (1)	2.0	117.27	40501								
120408FN	0.8	A (1)	2.1							173.48	328		
P													
M													
K													
N				●		●		●		●		●	
S													
H													
O				●		●		●		●		●	

MaxiLock-S – SCLC 95° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 636 ... £ 2A/24		NEW Right-hand 70 636 ... £ 2A/24	
SCLC R/L 0808 D06	8	8	60	9	10	1,2	CC.. 0602	74.49	**00800**	74.49	**00801**
SCLC R/L 1010 E06	10	10	70	9	12	1,2	CC.. 0602	79.44	**01000**	79.44	**01001**
SCLC R/L 1212 F09	12	12	80	15	16	3,2	CC.. 09T3	79.44	**01200**	79.44	**01201**
SCLC R/L 1616 H09	16	16	100	17	20	3,2	CC.. 09T3	99.31	**01600**	99.31	**01601**
SCLC R/L 2020 K09	20	20	125	17	25	3,2	CC.. 09T3	105.27	**02000**	105.27	**02001**
SCLC R/L 1616 H12	16	16	100	20	20	5	CC.. 1204	99.31	**11600**	99.31	**11601**
SCLC R/L 2020 K12	20	20	125	20	25	5	CC.. 1204	105.27	**12000**	105.27	**12001**
SCLC R/L 2525 M12	25	25	150	20	32	5	CC.. 1204	109.25	**12500**	109.25	**12501**
SCLC R/L 3225 P12	32	25	170	20	32	5	CC.. 1204	114.20	**13200**	114.20	**13201**

Spare parts for Article no.	Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28		Carbide type C 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 636 00800 / 70 636 00801	11.62	**039**	4.96	**857**				
70 636 01000 / 70 636 01001	11.62	**039**	4.96	**857**				
70 636 01200 / 70 636 01201	16.05	**120**	4.72	**87900**				
70 636 01600 / 70 636 01601	16.05	**120**	4.72	**87900**				
70 636 02000 / 70 636 02001	16.05	**120**	4.72	**87900**				
70 636 11600 / 70 636 11601	16.05	**120**	3.62	**820**	14.98	**166**	5.62	**170**
70 636 12000 / 70 636 12001	16.05	**120**	3.62	**820**	14.98	**166**	5.62	**170**
70 636 12500 / 70 636 12501	16.05	**120**	3.62	**820**	14.98	**166**	5.62	**170**
70 636 13200 / 70 636 13201	16.05	**120**	3.62	**820**	14.98	**166**	5.62	**170**

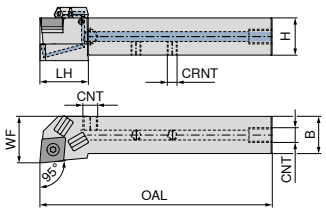
MaxiLock-S – SCLC 95° DC – Tool holder with screw clamping

Scope of supply:

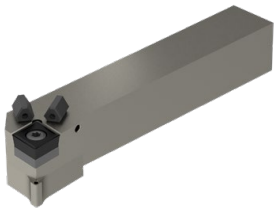
Tool holder with blind plug and Torx key







Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 770 ... £ 2A/24		NEW Right-hand 70 770 ... £ 2A/24	
SCLC R/L 1010 E06 DC	10	10	70	14	12	M6	M6	1,2	CC.. 0602	168.10	**01001**	168.10	**01000**
SCLC R/L 1212 F09 DC	12	12	80	19	16	M6	M6	3,2	CC.. 09T3	168.10	**01201**	168.10	**01200**
SCLC R/L 1616 H09 DC	16	16	100	26	20	M6	G1/8"	3,2	CC.. 09T3	186.88	**11601**	186.88	**01600**
SCLC R/L 2020 K09 DC	20	20	125	28	25	M6	G1/8"	3,2	CC.. 09T3	198.04	**12001**	198.04	**02000**
SCLC R/L 1616 H12 DC	16	16	100	28	20	M6	G1/8"	5	CC.. 1204	186.88	**01601**	186.88	**11600**
SCLC R/L 2020 K12 DC	20	20	125	26	25	M6	G1/8"	5	CC.. 1204	198.04	**02001**	198.04	**12000**
SCLC R/L 2525 M12 DC	25	25	150	28	30	M6	G1/8"	5	CC.. 1204	205.52	**02501**	205.52	**02500**
SCLC R/L 3225 P12 DC	32	25	170	26	32	G1/8"	G1/8"	5	CC.. 1204	215.80	**03201**	215.80	**03200**


Clamping screw


Carbide type C


Grubscrew


Grubscrew


Threaded sleeve

Spare parts for Article no.	70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 770 01000 / 70 770 01001	4.96	**857**					3.51	**86700**		
70 770 01200 / 70 770 01201	3.79	**859**					3.51	**86700**		
70 770 01600 / 70 770 11601	4.72	**87900**	11.71	**165**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 770 02000 / 70 770 12001	4.72	**87900**	11.71	**165**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 770 11600 / 70 770 01601	3.62	**820**	14.98	**166**	2.16	**88000**	3.51	**86700**	5.62	**170**
70 770 12000 / 70 770 02001	3.62	**820**	14.98	**166**	2.16	**88000**	3.51	**86700**	5.62	**170**
70 770 02500 / 70 770 02501	3.62	**820**	14.98	**166**	2.16	**88000**	3.51	**86700**	5.62	**170**
70 770 03200 / 70 770 03201	3.62	**820**	14.98	**166**	2.16	**88000**			5.62	**170**


Sealing plugs DC


Key D


O-Ring


Coolant nozzle DC

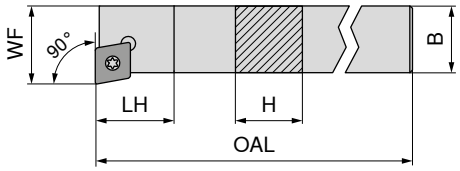

Coolant screw plug

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 770 01000 / 70 770 01001			11.62	**039**						
70 770 01200 / 70 770 01201			16.05	**120**						
70 770 01600 / 70 770 11601	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 770 02000 / 70 770 12001	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 770 11600 / 70 770 01601	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 770 12000 / 70 770 02001	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 770 02500 / 70 770 02501	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 770 03200 / 70 770 03201	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**

MaxiLock-S – SCFC 90° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 761 ... £ 2A/24		Right-hand 70 760 ... £ 2A/24	
SCFC R 0808 D06	8	8	60	10	10	1,2	CC.. 0602			73.78	**008**
SCFC R 1010 E06	10	10	70	10	12	1,2	CC.. 0602			78.22	**010**
SCFC R 1212 F09	12	12	80	13	16	3,2	CC.. 09T3			78.22	**012**
SCFC R 1616 H09	16	16	100	13	20	3,2	CC.. 09T3			96.89	**016**
SCFC R/L 2020 K12	20	20	125	17	25	5	CC.. 1204	102.99	**02000**[1)]	102.99	**020**

1) nickel-plated


Key D


Combination Key


Clamping screw


Carbide type C


Threaded sleeve

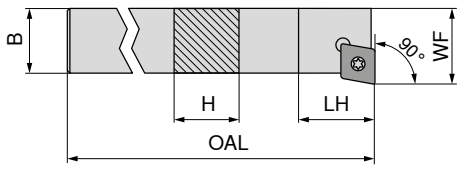
Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 760 008	13.73	**110**			2.86	**13800**				
70 760 010	13.73	**110**			2.86	**13800**				
70 760 012	16.32	**113**			3.79	**113**				
70 760 016			10.04	**398**	3.79	**113**	11.71	**165**	5.62	**171**
70 760 020 / 70 761 02000			10.04	**398**	3.13	**114**	14.98	**166**	5.62	**170**

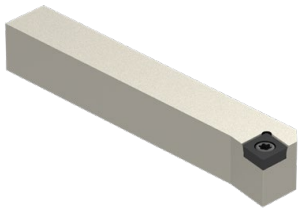
9

MaxiLock-S – SCFC 90° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







NEW
Left-hand

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	70 635 ... £ 2A/24	
SCFC L 0808 D06	8	8	60	10	10	1,2	CC.. 0602	74.49	**00800**
SCFC L 1010 E06	10	10	70	10	12	1,2	CC.. 0602	79.44	**01000**
SCFC L 1212 F09	12	12	80	13	16	3,2	CC.. 09T3	79.44	**01200**
SCFC L 1616 H09	16	16	100	13	20	3,2	CC.. 09T3	99.31	**01600**


Key D

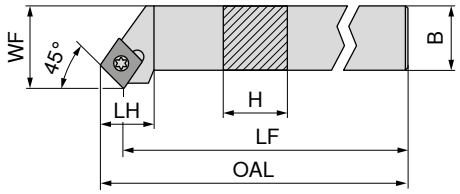

Clamping screw

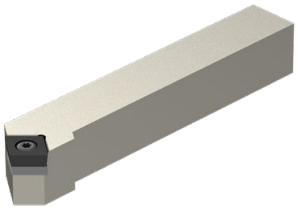
for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28	
70 635 00800	11.62	**039**	4.96	**857**
70 635 01000	11.62	**039**	4.96	**857**
70 635 01200	16.05	**120**	4.72	**87900**
70 635 01600	16.05	**120**	4.72	**87900**

MaxiLock-S – SCSC 45° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	NEW Left-hand 70 638 ... £ 2A/24		NEW Right-hand 70 638 ... £ 2A/24	
	mm	mm	mm	mm	mm	Nm					
SCSC R 1616 H12	16	16	100	20	20	5	CC.. 1204			99.31	**01601**
SCSC R/L 2020 K12	20	20	125	20	25	5	CC.. 1204	105.27	**02000**	105.27	**02001**
SCSC R/L 2525 M12	25	25	150	20	32	5	CC.. 1204	109.25	**02500**	109.25	**02501**


Key D


Clamping screw


Carbide type C


Threaded sleeve

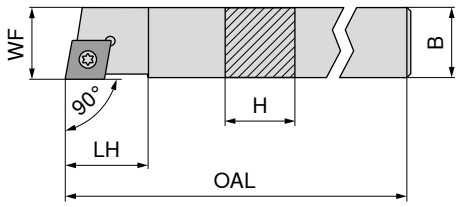
Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
70 638 01601	T15 - IP	16.05	**120**	M4,5x12 - IP	3.62	**820**	14.98	**166**	M4,5	5.62	**170**
70 638 02001 / 70 638 02000	T15 - IP	16.05	**120**	M4,5x12 - IP	3.62	**820**	14.98	**166**	M4,5	5.62	**170**
70 638 02501 / 70 638 02500	T15 - IP	16.05	**120**	M4,5x12 - IP	3.62	**820**	14.98	**166**	M4,5	5.62	**170**

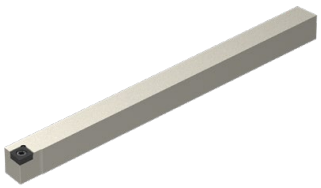
MaxiLock-S – SCAC 90° – Toolholder with screw clamping

▲ for sliding head lathes

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	NEW Left-hand 70 633 ... £ 2A/24		NEW Right-hand 70 633 ... £ 2A/24	
	mm	mm	mm	mm	mm	Nm					
SCAC R/L 0808 K06	8	8	125	9	8	1,2	CC.. 0602	79.44	**10800**	79.44	**10801**
SCAC R/L 0808 D06	8	8	60	9	8	1,2	CC.. 0602	74.49	**00800**	74.49	**00801**
SCAC R/L 1010 E06	10	10	70	9	10	1,2	CC.. 0602	79.44	**01000**	79.44	**01001**
SCAC R/L 1010 M06	10	10	150	9	10	1,2	CC.. 0602	79.44	**11000**	79.44	**11001**
SCAC R/L 1212 F09	12	12	80	13	12	3,2	CC.. 09T3	79.44	**01200**	79.44	**01201**
SCAC R/L 1212 M09	12	12	150	13	12	3,2	CC.. 09T3	89.36	**11200**	89.36	**11201**
SCAC R/L 1616 H09	16	16	100	13	16	3,2	CC.. 09T3	99.31	**11600**	99.31	**11601**
SCAC R/L 2020 K12	20	20	125	17	20	5	CC.. 1204	105.27	**12000**	105.27	**12001**


Key D


Clamping screw


Carbide type C


Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 633 10801 / 70 633 10800	11.62	**039**	4.96	**857**				
70 633 00801 / 70 633 00800	11.62	**039**	4.96	**857**				
70 633 01001 / 70 633 01000	11.62	**039**	4.96	**857**				
70 633 11001 / 70 633 11000	11.62	**039**	4.96	**857**				
70 633 01201 / 70 633 01200	16.05	**120**	4.72	**87900**				
70 633 11201 / 70 633 11200	16.05	**120**	4.72	**87900**				
70 633 11601 / 70 633 11600	16.05	**120**	4.72	**87900**				
70 633 12001 / 70 633 12000	16.05	**120**	3.62	**820**	14.98	**166**	5.62	**170**

MaxiLock-S – SCAC 90° DC – Tool holder with screw clamping

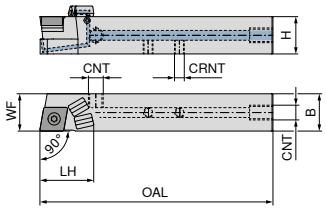
▲ for sliding head lathes

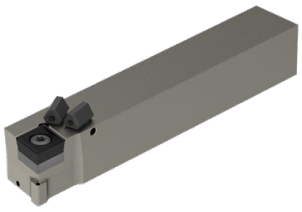
Scope of supply:

Tool holder with blind plug and Torx key









Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert	NEW Left-hand 70 766 ... £ 2A/24		NEW Right-hand 70 766 ... £ 2A/24	
	mm	mm	mm	mm	mm			Nm					
SCAC R/L 1212 M09 DC	12	12	150	21	12	M6	M6	3,2	CC.. 09T3	179.65	**11201**	179.65	**11200**
SCAC R/L 1212 F09 DC	12	12	80	22	12	M6	M6	3,2	CC.. 09T3	168.10	**01201**	168.10	**01200**
SCAC R/L 1616 H09 DC	16	16	100	30	16	M6	G1/8"	3,2	CC.. 09T3	186.88	**01601**	186.88	**01600**
SCAC R/L 2020 K12 DC	20	20	125	30	20	M6	G1/8"	5	CC.. 1204	198.04	**02001**	198.04	**02000**


Clamping screw


Carbide type C


Grubscrew


Grubscrew


Threaded sleeve

Spare parts for Article no.	70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 766 11200 / 70 766 11201	3.79	**859**					3.51	**86700**		
70 766 01200 / 70 766 01201	3.79	**859**					3.51	**86700**		
70 766 01600 / 70 766 01601	4.72	**87900**	11.71	**165**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 766 02000 / 70 766 02001	3.62	**820**	14.98	**166**	2.16	**88000**	3.51	**86700**	5.62	**170**


Sealing plugs DC


Key D


O-Ring


Coolant nozzle DC


Coolant screw plug

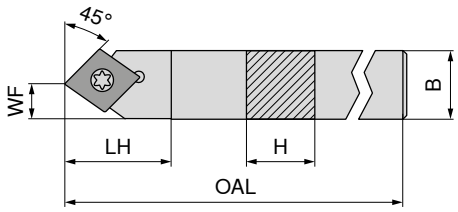
Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 766 11200 / 70 766 11201			16.05	**120**						
70 766 01200 / 70 766 01201			16.05	**120**						
70 766 01600 / 70 766 01601	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 766 02000 / 70 766 02001	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**

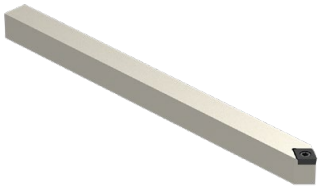
9

MaxiLock-S – SCDC 45° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







NEW
Left-hand

70 634 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	£ 2A/24	
SCDC L 0808 K06	8	8	125	13	4	1,2	CC.. 0602	74.49	**00800**
SCDC L 1010 M06	10	10	150	13	5	1,2	CC.. 0602	79.44	**01000**
SCDC L 1212 M09	12	12	150	18	6	3,2	CC.. 09T3	89.36	**01200**
SCDC L 1414 M09	14	14	150	18	7	3,2	CC.. 09T3	89.36	**01400**


Key D


Clamping screw

Spare parts for Article no.		**80 950 ...** £ Y7			**70 950 ...** £ 2A/28	
70 634 00800	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**
70 634 01000	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**
70 634 01200	T15 - IP	16.05	**120**	M3,5x11	4.72	**87900**
70 634 01400	T15 - IP	16.05	**120**	M3,5x11	4.72	**87900**

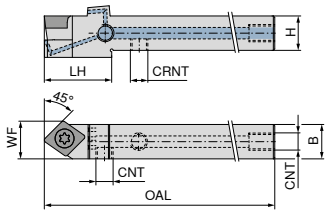
MaxiLock-S – SCDC 45° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key









NEW

Left-hand

70 767 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	£ 2A/24	
SCDC L 0808 K06 DC	8	8	125	17	8.5	M5	M5	1,2	CC.. 0602	168.10	**00801**
SCDC L 1010 M06 DC	10	10	150	17	10.0	M6	M6	1,2	CC.. 0602	168.10	**01001**
SCDC L 1212 M09 DC	12	12	150	23	13.0	M6	M6	3,2	CC.. 09T3	179.65	**01201**
SCDC L 1414 M09 DC	14	14	150	25	14.0	M6	G1/8"	3,2	CC.. 09T3	179.65	**01401**



Coolant screw plug



Clamping screw



Grubscrew

	70 950 ...		**70 950 ...**		**70 950 ...**	
Spare parts for Article no.		£ 2A/28		£ 2A/28		£ 2A/28
70 767 00801			M2,5x6 - T08	2.86 **13800**		
70 767 01001			M2,5x6 - T08	2.86 **13800**	M6x6	3.51 **86700**
70 767 01201			M3,5x11	3.79 **113**	M6x6	3.51 **86700**
70 767 01401	G 1/8"	4.31 **294**	M3,5x11	3.79 **113**	M6x6	3.51 **86700**



Cylindrical screw



Key D

	83 950 ...		**80 950 ...**	
Spare parts for Article no.		£ Y7		£ Y7
70 767 00801	M5x5 - SW2,5	3.85 **157**	T08 - IP	11.62 **039**
70 767 01001			T08 - IP	11.62 **039**
70 767 01201			T15 - IP	16.05 **120**
70 767 01401			T15 - IP	16.05 **120**

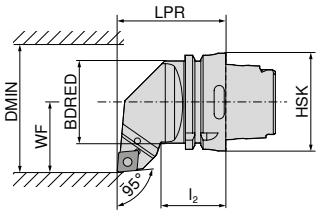
9

MaxiLock-S – SCLC 95° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



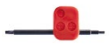




Illustrations show right-hand versions



									Left-hand		Right-hand	
									74 541 ...		**74 540 ...**	
ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	£ 2D/80		£ 2D/80	
HSK T63 SCLC R/L 12	HSK-T 63	70	42	53	45	100	5	CC.. 1204	411.94	**512**	411.94	**512**



Combination Key



Clamping screw



Carbide type C



Threaded sleeve

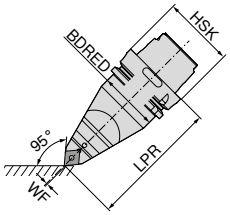
									70 950 ...		**70 950 ...**	**70 950 ...**		**70 950 ...**
Spare parts for Article no.									£ 2A/28		£ 2A/28	£ 2A/28		£ 2A/28
74 540 512 / 74 541 512		T15/SW							10.04	**398**	M4,5x12 3.13	**114** 14.98	**166**	M4,5 5.62 **170**

MaxiLock-S – SCMC 50° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key

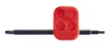








								Neutral		
								74 542 ...		
ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert		£ 2D/80		
HSK T63 SCMC N 12	HSK-T 63	115	53	0	5	CC.. 1204		562.57	**512**	



Combination Key



Clamping screw



Carbide type C



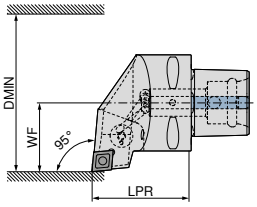
Threaded sleeve

									70 950 ...		**70 950 ...**	**70 950 ...**		**70 950 ...**
Spare parts for Article no.									£ 2A/28		£ 2A/28	£ 2A/28		£ 2A/28
74 542 512		T15/SW							10.04	**398**	M4,5x12 3.13	**114** 14.98	**166**	M4,5 5.62 **170**

MaxiLock-S – SCLC 95° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 655 ... £ Y8		Right-hand 84 654 ... £ Y8	
PSC40 SCLC R/L 50050-12	PSC 40	50	27	50	5	CC.. 1204	DC	569.11	**01295**	569.11	**01295**
PSC50 SCLC R/L 65060-12	PSC 50	60	35	65	5	CC.. 1204	DC	652.06	**01294**	652.06	**01294**
PSC63 SCLC R/L 80065-12	PSC 63	65	45	80	5	CC.. 1204	DC	725.33	**01293**	725.33	**01293**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**


Clamping screw

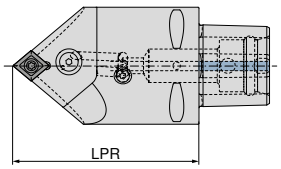
Spare parts for Article no.	84 950 ... £ Y8	
84 654 01295 / 84 655 01295	13.36	**27500**
84 654 01294 / 84 655 01294	13.36	**27500**
84 654 01293 / 84 655 01293	13.36	**27500**

9

MaxiLock-S – SCMC 50° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





Neutral

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	84 674 ... £ Y8	
PSC63 SCMC N 0100-12	PSC 63	100	5	CC.. 1204	DC	725.33	**01293**
PSC63 SCMC N 0130-12	PSC 63	130	5	CC.. 1204	DC	725.33	**11293**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

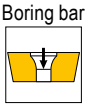

Clamping screw

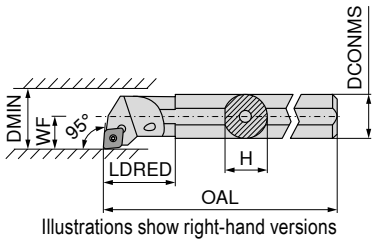
Spare parts for Article no.	84 950 ... £ Y8	
84 674 01293	13.36	**27500**
84 674 11293	13.36	**27500**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions



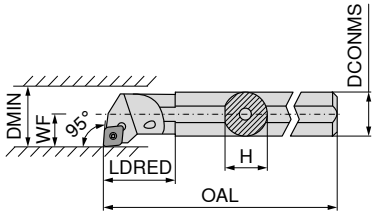
									Left-hand		Right-hand	
									70 717 ...		**70 716 ...**	
ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	£		£	
	mm	mm	mm	mm	mm	mm	Nm		2A/24		2A/24	
S08H SCLC R/L 06	8	7.2	100	11.0	5	11	1,2	CC.. 0602	116.94	**008**	116.94	**008**
A08F SCLC R/L 06	8	7.6	80	17.0	5	11	1,2	CC.. 0602	116.94	**208**	116.94	**208**
S10K SCLC R/L 06	10	9.0	125	15.0	7	13	1,2	CC.. 0602	116.94	**010**	116.94	**010**
A10H SCLC R/L 06	10	9.5	100	19.0	7	13	1,2	CC.. 0602	116.94	**210**	116.94	**210**
S12Q SCLC R/L 06	12	11.0	180	18.8	9	16	1,2	CC.. 0602	116.94	**012**	116.94	**012**
A12K SCLC R/L 06	12	11.5	125	22.0	9	16	1,2	CC.. 0602	116.94	**212**	116.94	**212**
A16M SCLC R/L 06	16	14.0	150	50.0	9	18	1,2	CC.. 0602	119.50	**116**	119.50	**116**
S16R SCLC R/L 09	16	14.5	200	25.0	11	20	3,2	CC.. 09T3	119.50	**016**	119.50	**016**
A16M SCLC R/L 09	16	15.0	150	29.0	11	20	3,2	CC.. 09T3	119.50	**216**	119.50	**216**
S20S SCLC R/L 09	20	18.0	250	25.0	13	25	3,2	CC.. 09T3	148.95	**020**	148.95	**020**
A20Q SCLC R/L 09	20	18.5	180	32.0	13	25	3,2	CC.. 09T3	148.95	**220**	148.95	**220**
S25T SCLC R/L 09	25	23.0	300	20.0	17	32	3,2	CC.. 09T3	171.24	**025**	171.24	**025**
A25R SCLC R/L 09	25	23.0	200	36.0	17	32	3,2	CC.. 09T3	171.24	**225**	171.24	**225**
A32S SCLC R/L 12	32	30.0	250	50.0	22	40	5	CC.. 1204	235.43	**232**	235.43	**232**
A40T SCLC R/L 12	40	38.0	300	60.0	27	50	5	CC.. 1204	282.64	**240**	282.64	**240**

	 Key D		 Combination Key		 Clamping screw		 Carbide type C		 Threaded sleeve							
	80 950 ...		**70 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**							
Spare parts for Article no.	£ Y7		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28							
70 716 008 / 70 717 008	13.73	**110**			3.13	**116**										
70 716 208 / 70 717 208	13.73	**110**			3.13	**116**										
70 716 010 / 70 717 010	13.73	**110**			3.13	**116**										
70 716 210 / 70 717 210	13.73	**110**			3.13	**116**										
70 716 012 / 70 717 012	13.73	**110**			3.13	**116**										
70 716 212 / 70 717 212	13.73	**110**			3.13	**116**										
70 716 116 / 70 717 116	13.73	**110**			3.13	**116**										
70 716 016 / 70 717 016	16.32	**113**			3.79	**110**										
70 716 216 / 70 717 216	16.32	**113**			3.79	**110**										
70 716 020 / 70 717 020	16.32	**113**			3.79	**110**										
70 716 220 / 70 717 220	16.32	**113**			3.79	**304**										
70 716 025 / 70 717 025	16.32	**113**			3.79	**113**										
70 716 225 / 70 717 225	16.32	**113**			3.79	**304**										
70 716 232 / 70 717 232			10.04	**398**	3.13	**114**	14.98	**166**	5.62	**170**						
70 716 240 / 70 717 240			10.04	**398**	3.13	**114**	14.98	**166**	5.62	**170**						

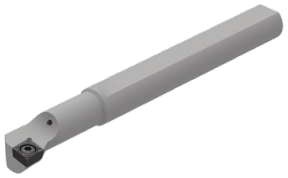
MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ... £ 2A		Right-hand 70 718 ... £ 2A	
E-A08F SCLC R/L 06	8	7.5	80	20.60	6	12	1,2	CC.. 0602	214.58	**208**	214.58	**208**
E-A10H SCLC R/L 06	10	9.0	100	31.75	7	14	1,2	CC.. 0602	214.58	**210**	214.58	**210**
E-A12K SCLC R/L 06	12	11.0	125	20.00	9	18	1,2	CC.. 0602	231.19	**212**	231.19	**212**
E-A16M SCLC R/L 09	16	15.0	150	45.30	11	22	3,2	CC.. 09T3	392.36	**216**	392.36	**216**
E-A20Q SCLC R/L 09	20	18.0	180	38.00	13	26	3,2	CC.. 09T3	485.12	**220**	485.12	**220**
E-A25R SCLC R/L 09	25	23.0	200	40.25	17	34	3,2	CC.. 09T3	615.77	**225**	615.77	**225**
E-A32S SCLC R/L 12	32	30.0	250	50.25	22	39	5	CC.. 1204	968.91	**232**	968.91	**232**



Key D



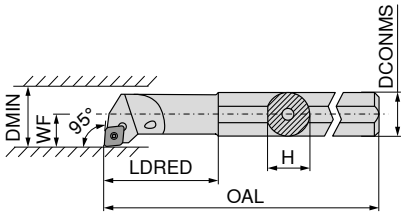
Clamping screw

Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 718 208 / 70 719 208	T08	13.73	**110**	M2,5x5	3.13	**116**
70 718 210 / 70 719 210	T08	13.73	**110**	M2,5x5	3.13	**116**
70 718 212 / 70 719 212	T08	13.73	**110**	M2,5x5	3.13	**116**
70 718 216 / 70 719 216	T15	16.32	**113**	M4x9,5	3.79	**449**
70 718 220 / 70 719 220	T15	16.32	**113**	M4x9,5	3.79	**449**
70 718 225 / 70 719 225	T15	16.32	**113**	M4x9,5	3.79	**449**
70 718 232 / 70 719 232	T15	16.32	**113**	M4x11	4.11	**174**

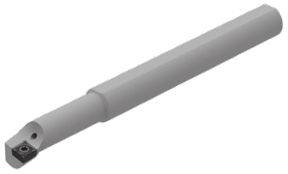
MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ... £ 2A		Right-hand 70 718 ... £ 2A	
E-A0608F SCLC R/L 06	8	7.5	100	25	4	8	1,2	CC.. 0602	231.19	**308**	231.19	**308**
E-A0810H SCLC R/L 06	10	9.0	110	32	6	12	1,2	CC.. 0602	231.19	**310**	231.19	**310**
E-A1012K SCLC R/L 06	12	11.0	125	38	7	14	1,2	CC.. 0602	231.19	**312**	231.19	**312**
E-A1216M SCLC R/L 06	16	15.0	150	50	9	18	1,2	CC.. 0602	231.19	**316**	231.19	**316**

Key D



Clamping screw

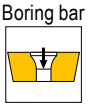
Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 718 308 / 70 719 308	T08	13.73	**110**	M2,5x5	3.13	**116**
70 718 310 / 70 719 310	T08	13.73	**110**	M2,5x5	3.13	**116**
70 718 312 / 70 719 312	T08	13.73	**110**	M2,5x5	3.13	**116**
70 718 316 / 70 719 316	T08	13.73	**110**	M2,5x5	3.13	**116**

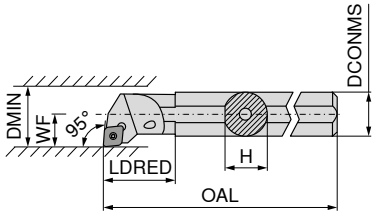
MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ Type: Solid carbide

Scope of supply:

Boring bar with Torx key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ... £ 2A/24		Right-hand 70 718 ... £ 2A/24	
E08H SCLC R/L 06	8	7.6	100	20	6	11	1,2	CC.. 0602	265.93	**008**	265.93	**008**
E10K SCLC R/L 06	10	9.0	125	22	7	13	1,2	CC.. 0602	307.23	**010**	307.23	**010**
E12Q SCLC R/L 06	12	11.5	180	26	9	16	1,2	CC.. 0602	403.50	**012**	403.50	**012**
E16R SCLC R/L 09	16	15.0	200	34	11	20	3,2	CC.. 09T3	527.26	**016**	527.26	**016**
E20S SCLC R/L 09	20	18.5	250	38	13	25	3,2	CC.. 09T3	658.65	**020**	658.65	**020**
E25T SCLC R/L 09	25	23.0	300	43	17	32	3,2	CC.. 09T3	1,161.46	**025**	1,161.46	**025**

Key D

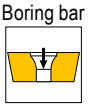


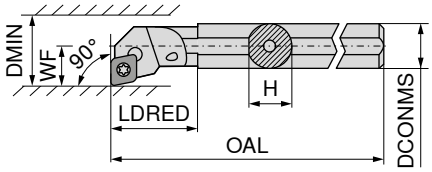
Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 719 008 / 70 718 008	T08	13.73	**110**	M2,5x5	3.13	**116**
70 719 010 / 70 718 010	T08	13.73	**110**	M2,5x5	3.13	**116**
70 719 012 / 70 718 012	T08	13.73	**110**	M2,5x5	3.13	**116**
70 719 016 / 70 718 016	T15	16.32	**113**	M3,5x7,2	3.79	**110**
70 719 020 / 70 718 020	T15	16.32	**113**	M3,5x8,6	3.79	**304**
70 719 025 / 70 718 025	T15	16.32	**113**	M3,5x11	3.79	**113**

MaxiLock-S – SCFC 90° – Boring bar with screw clamping

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 793 ... £ 2A/24		Right-hand 70 792 ... £ 2A/24	
A08F SCFC R/L 06	8	7.6	80	17	5	11	1,2	CC.. 0602	116.94	**208**	116.94	**208**
A10H SCFC R/L 06	10	9.5	100	19	7	13	1,2	CC.. 0602	116.94	**210**	116.94	**210**
A12K SCFC R/L 06	12	11.5	125	22	9	16	1,2	CC.. 0602	116.94	**212**	116.94	**212**


Key D

80 950 ...

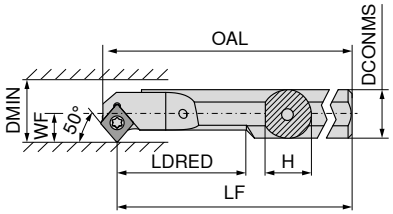

Clamping screw

70 950 ...

Spare parts for Article no.		£ Y7			£ 2A/28	
70 792 208 / 70 793 208	T08	13.73	**110**	M2,5x5	3.13	**116**
70 792 210 / 70 793 210	T08	13.73	**110**	M2,5x5	3.13	**116**
70 792 212 / 70 793 212	T08	13.73	**110**	M2,5x5	3.13	**116**

MaxiLock-S – SCMC 50° – Boring bar with screw clamping





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LF mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 723 ... £ 2A		Right-hand 70 722 ... £ 2A	
A08H SCMC R/L 06	8	7	104.15	100	20	5.5	10.5	1,2	CC.. 0602	116.94	**208**	116.94	**208**
A10H SCMC R/L 06	10	9	114.15	110	26	6.0	11.0	1,2	CC.. 0602	116.94	**210**	116.94	**210**
A12K SCMC R/L 06	12	11	129.15	125	32	7.0	13.0	1,2	CC.. 0602	116.94	**212**	116.94	**212**
A16M SCMC R/L 06	16	15	154.15	150	40	9.0	16.0	1,2	CC.. 0602	119.50	**216**	119.50	**216**

Key D

80 950 ...

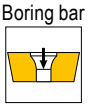

Clamping screw

70 950 ...

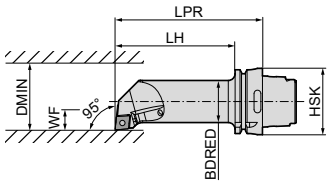
Spare parts for Article no.		£ Y7			£ 2A/28	
70 723 208 / 70 722 208	T08	13.73	**110**	M2,5x5	3.13	**116**
70 723 210 / 70 722 210	T08	13.73	**110**	M2,5x5	3.13	**116**
70 723 212 / 70 722 212	T08	13.73	**110**	M2,5x5	3.13	**116**
70 723 216 / 70 722 216	T08	13.73	**110**	M2,5x5	3.13	**116**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

Scope of supply:
Boring bar with Torx key







Illustrations show right-hand versions



									Left-hand		Right-hand	
									74 564 ...		**74 563 ...**	
ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	£ 2D/80		£ 2D/80	
HSK T63 40L SCLC R/L 12	HSK-T 63	140	114	40	27	50	5	CC.. 1204	566.58	**512**	566.58	**512**



Combination Key



Clamping screw



Carbide type C

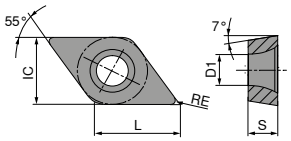


Threaded sleeve

					70 950 ...			**70 950 ...**			**70 950 ...**		**70 950 ...**	
Spare parts for Article no.			£ 2A/28			£ 2A/28			£ 2A/28			£ 2A/28		
74 563 512 / 74 564 512		T15/SW	10.04	**398**	M4,5x12	3.13	**114**		14.98	**166**	M4,5	5.62	**170**	

DCGT / DCMT / DCET

Designation	L	S	D1	IC
	mm	mm	mm	mm
DC.T 0702..	7.75	2.38	2.8	6.35
DC.T 11T3..	11.60	3.97	4.4	9.52



DCGT / DCMT

		-CF05 CTEP110	-CF55 CTEP110	-SF TCM407	-SF TCM10	-SMF TCM10	NEW -SF CTCP125-P	NEW -SF CTCP115-P
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		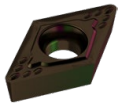	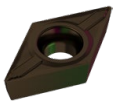	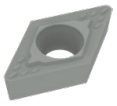	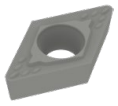	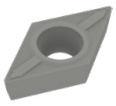	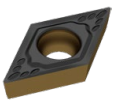	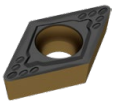
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	mm							
070201EN	0.1				16.26 898			
070202EN	0.2	16.78 002	9.54 002		16.26 900	8.82 898	16.78 50201	
070204EN	0.4	16.78 004	9.54 004	16.26 852	16.26 902	8.82 900		9.41 30401
11T302EN	0.2	22.22 014		20.73 854	20.73 904			
11T304EN	0.4	22.22 016	13.23 016	20.73 856	20.73 906	12.37 904		13.25 31601
11T308EN	0.8	22.22 018	13.23 018	20.73 858	20.73 908	12.37 906		13.25 31801
P		●	●	●	●	●	●	●
M		○	○	○	○	○		
K		○	○	○	○	○	○	○
N								
S								
H								
O								

9

DCMT / DCGT

		NEW	NEW	NEW	NEW	NEW	NEW	NEW
		-SF CTCP125-P	-SF CTCP135-P	-SMF CTCP115-P	-SMF CTCP125-P	-SMF CTCP135-P	-SM CTCP125-P	-SM CTCP135-P
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		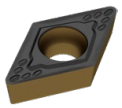	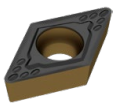	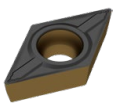	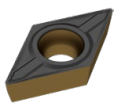	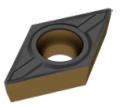	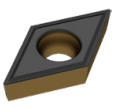	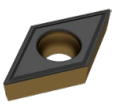
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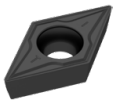
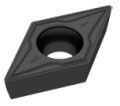
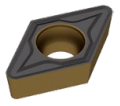
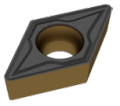
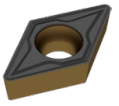
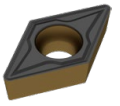
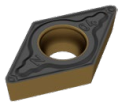
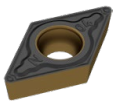
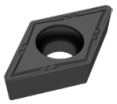
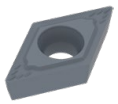
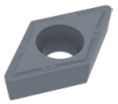
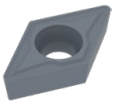
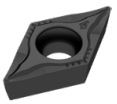
070202EN	0.2						16.78 **50201**	16.78 **70201**
070204EN	0.4	9.41 **50401**	9.41 **70401**		9.41 **50401**	9.41 **70401**		
070208EN	0.8					9.41 **70601**		
11T304EN	0.4	13.25 **51601**	13.25 **71601**	13.25 **31601**	13.25 **51601**	13.25 **71601**		
11T308EN	0.8	13.25 **51801**	13.25 **71801**	13.25 **31801**	13.25 **51801**	13.25 **71801**		
P		●	●	●	●	●	●	●
M			○			○		○
K		○		○	○		○	
N								
S								
H								
O								

DCMT

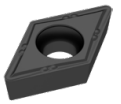
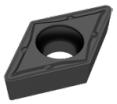
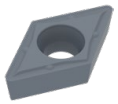
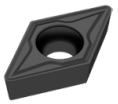
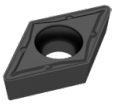
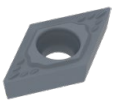
				NEW	NEW	NEW	NEW
		-SM CTCK110	-SM CTCK120	-SM CTCP115-P	-SM CTCP115-P	-SM CTCP125-P	-SM CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		M	M	M	M	M	M
		DCMT	DCMT	DCMT	DCMT	DCMT	DCMT
		70 258 ...	70 258 ...	76 183 ...	76 258 ...	76 258 ...	76 258 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
070204EN	0.4	9.41 **004**	9.41 **554**		9.41 **30401**	9.41 **50401**	9.41 **70401**
070208EN	0.8	9.41 **006**	9.41 **506**		9.41 **30601**	9.41 **50601**	9.41 **70601**
11T304EN	0.4	13.25 **016**	13.25 **516**		13.25 **31601**	13.25 **51601**	13.25 **71601**
11T308EN	0.8	13.25 **018**	13.25 **518**		13.25 **31801**	13.25 **51801**	13.25 **71801**
11T312EN	1.2			13.64 **32001**		13.25 **52001**	
P		○	○	●	●	●	●
M							○
K		●	●	○	○	○	
N							
S							
H							
O							

DCMT

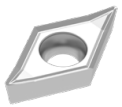
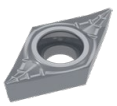
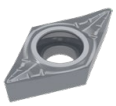
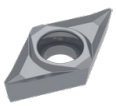
		NEW	NEW		NEW		NEW	NEW
		-SMQ CTCP115-P	-SMQ CTCP125-P	-M25 CTCM120	-SF CTPM125	-M25 CTPM125	-SM CTPM125	-F43 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	F	F	F	M	F
		DCMT	DCMT	DCMT	DCMT	DCMT	DCMT	DCMT
		76 195 ...	76 195 ...	75 213 ...	75 044 ...	75 213 ...	75 048 ...	75 032 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
070202EN	0.2			9.41 10200		9.41 202		9.70 30200
070204EN	0.4	10.73 30401	10.73 50401	9.41 10400	9.70 20400	9.41 204		9.70 30400
11T302EN	0.2			13.25 11400		13.25 214		13.64 31400
11T304EL	0.4	15.21 31601	14.76 51601					
11T304EN	0.4	15.21 31501	14.76 51501	13.25 11600	13.64 21600	13.25 216		13.64 31600
11T304ER	0.4	15.21 31701	14.76 51701					
11T308EN	0.8	15.21 31801	14.76 51801	13.25 11800	13.64 21800	13.25 218	13.64 21800	13.64 31800
P		●	●	○	○	○	○	○
M				●	●	●	●	●
K		○	○					
N								
S								○
H								
O								

9

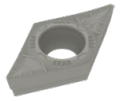
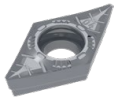
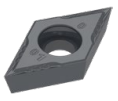
DCMT / DCGT

				NEW		NEW
		-M25 CTCM130	-M55 CTCM120	-M55 CTPM125	-SM CTCM130	-M55 CTCM130	-SF CTPM125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	M	M	M	M	F
		DCMT	DCMT	DCMT	DCMT	DCMT	DCGT
		75 213 ...	75 214 ...	75 214 ...	75 048 ...	75 214 ...	75 043 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
070202EN	0.2	9.41 30200					17.29 20200
070204EN	0.4	9.41 30400	9.41 10400	9.41 204	9.70 30400	9.41 30400	
070208EN	0.8		9.41 10600	9.41 206	9.70 30600	9.41 30600	
11T302EN	0.2	13.25 31400					
11T304EN	0.4	13.25 31600	13.25 11600	13.25 216	13.64 31600	13.25 31600	
11T308EN	0.8	13.25 31800	13.25 11800	13.25 218	13.64 31800	13.25 31800	
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S		○			○	○	
H							
O							

DCGT

	-23P H216T	-25P H210T	-25P CTPX710 DRAGONSKIN	-25Q H210T	-25Q CTPX710 DRAGONSKIN	-27 H10T	-27 CTPX715 DRAGONSKIN
							
	F DCGT	F DCGT	M DCGT	M DCGT	M DCGT	M DCGT	M DCGT
	70 261 ...	70 263 ...	70 263 ...	70 263 ...	70 263 ...	70 260 ...	70 260 ...
ISO	RE mm	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90
070202FN	0.2		11.91 632	14.25 70200				11.26 600	13.66 80200
070204FN	0.4	11.91 654	11.91 634	14.25 70400				11.26 602	13.66 80400
11T302FN	0.2		14.76 635	17.20 71400				14.09 604	16.53 81400
11T304FN	0.4	14.76 664	14.76 636	17.20 71600	16.12 660	20.55 75600	14.09 606	16.53 81600
11T304FL	0.4				16.12 670	20.55 75700		
11T304FR	0.4				16.12 680	20.55 75800		
11T308FN	0.8	14.76 666	14.76 638	17.20 71800	16.12 662	20.55 76000	14.09 608	16.53 81800
11T308FL	0.8				16.12 672			
11T308FR	0.8				16.12 682			
P				●		●		●
M				●		●		●
K		○	○		○		○	○
N		●	●	●	●	●	●	●
S			○	●	○	●		●
H								
O		○	○		○		○	○

DCMT / DCET

				NEW			
		-29 H216T		-29 CTPX715		-F05 CTPX710	
				DRAGONSKIN		DRAGONSKIN	
							
		M		M		F	
		DCMT		DCMT		DCET	
		70 246 ...		70 246 ...		76 254 ...	
ISO	RE mm	£ 1A/90		£ 1A/90		£ 1A/08	
0702005FN	0.05					20.30	10200
070201FN	0.10					20.30	10400
0702015FN	0.15					20.30	10600
070202FN	0.20					20.30	10800
070204EN	0.40	8.61	60400	11.09	70400		
11T3005FN	0.05					26.91	11400
11T301FN	0.10					26.91	11600
11T3015FN	0.15					26.91	11800
11T302FN	0.20					26.91	12000
11T304EN	0.40	11.63	61600	13.87	71600		
11T304FN	0.40					26.91	12200
11T308EN	0.80	11.63	61800	13.87	71800		

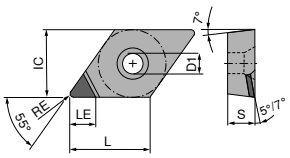
P			●	●
M			●	●
K		○	○	
N		●	●	●
S			●	●
H				
O		○	○	

9

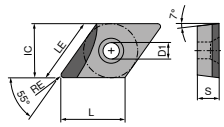
→ v_c Page 196–209

DCGW / DCGT

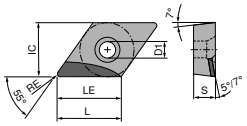
Designation	L	S	D1	IC
	mm	mm	mm	mm
DCG. 0702..	7.75	2.38	2.8	6.35
DCG. 11T3..	11.60	3.97	4.4	9.52



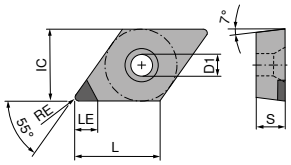
DCGT A



DCGT A L



DCGT A R



DCGW A

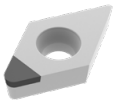
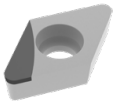
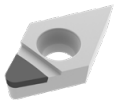
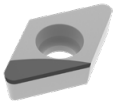
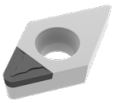
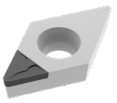
DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDMD05		CTDMD05		-Q CTDMD05		-Q CTDMD05		CTDPD20		CTDPD20	
				F		F		F		F		F		F	
				DIAMOND DCGW		DIAMOND DCGT		DIAMOND DCGW		DIAMOND DCGT		DIAMOND DCGW		DIAMOND DCGT	
				71 130 ...		71 134 ...		71 178 ...		71 176 ...		71 130 ...		71 134 ...	
ISO	RE	TCE (NOI)	LE	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
	mm		mm												
070202FN	0.2	A (1)	2.5	501.94	00200	541.65	050								
070202FN	0.2	A (1)	3.7									103.70	100	103.70	100
070204FN	0.4	A (1)	2.5	501.94	00400	541.65	052								
070204FR	0.4	A (1)	2.5							697.75	50001				
070204FN	0.4	A (1)	3.4									103.70	102	103.70	102
070208FN	0.8	A (1)	2.5	501.94	00600	541.65	054								
070208FN	0.8	A (1)	3.0									103.70	104	103.70	104
11T302FN	0.2	A (1)	2.5			541.65	056								
11T302FN	0.2	A (1)	3.0	501.94	056										
11T302FN	0.2	A (1)	4.7									106.11	106	106.11	106
11T304FN	0.4	A (1)	2.5			541.65	058								
11T304FL	0.4	A (1)	3.0					661.47	50001						
11T304FN	0.4	A (1)	3.0	501.94	058										
11T304FN	0.4	A (1)	4.3									106.11	108	106.11	108
11T308FN	0.8	A (1)	2.5			541.65	060								
11T308FN	0.8	A (1)	4.0									106.11	110	106.11	110
11T312FN	1.2	A (1)	3.5											106.11	11200
11T312FN	1.2	A (1)	3.6									106.11	11200		
P															
M															
K															
N				●		●		●		●		●		●	
S															
H															
O				●		●		●		●		●		●	

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPS30	CTDPS30	CTDPS30	CTDPS30	-CB1 CTDPU20	-CB2 CTDPU20
									
				F	F	F	F	F	M
				DIAMOND DCGW	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT	DIAMOND DCGT
				71 177 ...	71 173 ...	71 173 ...	71 173 ...	71 174 ...	71 175 ...
ISO	RE mm	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0
070201FN	0.1	A (1)	3.8	88.47 20001		90.51 20001			
070202FN	0.2	A (1)	3.7	88.47 20101		90.51 20101		96.70 30001	
070204FN	0.4	A (1)	3.4	88.47 20201				96.70 30101	96.70 30001
070204FL	0.4	A (1)	5.5		127.54 20201				
070208FN	0.8	A (1)	3.0	88.47 20301					
11T301FN	0.1	A (1)	4.8	92.58 20401		94.62 20301			
11T302FN	0.2	A (1)	4.7	92.58 20501		94.62 20401			
11T304FN	0.4	A (1)	4.3	92.58 20601				100.80 30201	100.80 30101
11T304FL	0.4	A (1)	7.5		139.86 20501				
11T308FN	0.8	A (1)	4.0	92.58 20701				100.80 30301	
11T308FL	0.8	A (1)	7.0		139.86 20601				
11T308FR	0.8	A (1)	7.0				139.86 20701		
11T312FN	1.2	A (1)	3.6	92.58 20801					
11T312FL	1.2	A (1)	6.5		139.86 20801				
11T312FR	1.2	A (1)	6.5				139.86 20901		
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

9

DCGT / DCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

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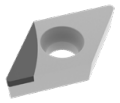
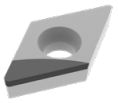
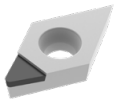
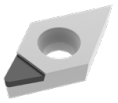
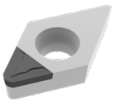
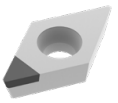
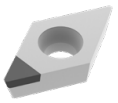
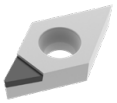
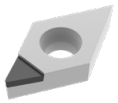
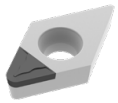
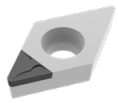
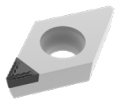
															
				F		F		F		F		F		F	
				DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGW	
				71 136 ...		71 135 ...		71 144 ...		71 145 ...		71 310 ...		71 138 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
070201FN	0.1	A (1)	3.8									122.70	10100		
070202FN	0.2	A (1)	3.7									122.70	102		
070204FL	0.4	A (1)	3.0							129.10	104				
070204FR	0.4	A (1)	3.0					129.10	104						
070204FN	0.4	A (1)	3.4									122.70	104		
070204FRR	0.4	A (1)	5.5			143.98	102								
070204FLL	0.4	A (1)	5.5	143.98	102										
070208FN	0.8	A (1)	3.0									122.70	108		
070208FRR	0.8	A (1)	5.0			143.98	104								
070208FLL	0.8	A (1)	5.0	143.98	104										
11T301FN	0.1	A (1)	4.8									125.31	11100		
11T302FR	0.2	A (1)	4.0											136.22	162
11T302FN	0.2	A (1)	4.7									125.31	112		
11T304FL	0.4	A (1)	4.0							136.22	114				
11T304FR	0.4	A (1)	4.0					136.22	114					136.22	164
11T304FN	0.4	A (1)	4.3									125.31	114		
11T304FRR	0.4	A (1)	7.5			155.39	108								
11T304FLL	0.4	A (1)	7.5	155.39	108										
11T308FN	0.8	A (1)	4.0									125.31	118		
11T308FRR	0.8	A (1)	7.0			155.39	110								
11T308FLL	0.8	A (1)	7.0	155.39	110										
P															
M															
K															
N				●		●		●		●		●		●	
S															
H															
O				●		●		●		●		●		●	

DCGW / DCGT

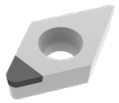
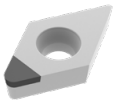
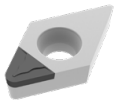
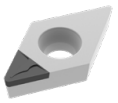
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				-Q CTDPS30		-Q CTDPS30		-Q CTDPS30		-CB1 CTDPS30		-CB2 CTDPS30		-CB3 CTDPU20	
															
				F		F		F		F		M		R	
				DIAMOND DCGW		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT	
				71 139 ...		71 144 ...		71 145 ...		71 310 ...		71 311 ...		71 312 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
070201FL	0.1	A (1)	3.0					129.10	151						
070201FR	0.1	A (1)	3.0			129.10	15000								
070201FN	0.1	A (1)	3.8							122.70	20100				
070202FL	0.2	A (1)	3.0					129.10	152						
070202FR	0.2	A (1)	3.0			129.10	152								
070202FN	0.2	A (1)	3.7							122.70	202	122.70	202		
070204FN	0.4	A (1)	3.4							122.70	204	122.70	204	97.95	204
070208FN	0.8	A (1)	3.0									135.12	208		
11T301FR	0.1	A (1)	4.0			136.22	161								
11T301FL	0.1	A (1)	4.0					136.22	161						
11T301FN	0.1	A (1)	4.8							125.31	21100	132.13	21100		
11T302FL	0.2	A (1)	4.0					136.22	162						
11T302FR	0.2	A (1)	4.0			136.22	162								
11T302FN	0.2	A (1)	4.7							125.31	212	132.13	212		
11T304FL	0.4	A (1)	4.0	136.22	164										
11T304FN	0.4	A (1)	4.3							125.31	214	132.13	214	103.70	214
11T308FN	0.8	A (1)	4.0							145.18	218	145.18	218	116.67	218
P															
M															
K															
N				●		●		●		●		●		●	
S															
H															
O				●		●		●		●		●		●	

9

DCGW / DCGT

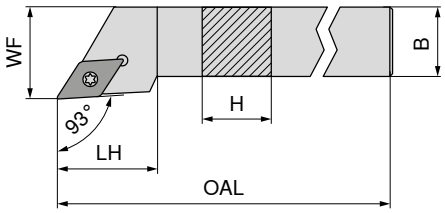
▲ TCE(NOI) = Design and number of equipped cutting edge corners

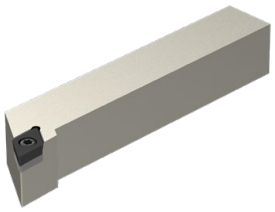
				CTDPU20		CTDCD10		-CB1 CTDCD10		-CB2 CTDCD10	
											
				F		F		F		M	
				DIAMOND DCGW		DIAMOND DCGW		DIAMOND DCGT		DIAMOND DCGT	
				71 177 ...		71 177 ...		71 310 ...		71 311 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0	
070202FN	0.2	A (1)	2.6			92.58	40001	151.83	302	151.83	30200
070204FN	0.4	A (1)	2.3			94.62	40101	151.83	304	151.83	304
070204FN	0.4	A (1)	3.4	88.47	30001						
070208FN	0.8	A (1)	2.0			100.80	40201			163.80	308
070208FN	0.8	A (1)	3.0	88.47	30101						
11T302FN	0.2	A (1)	2.6			96.70	40301	154.15	31200	154.15	31200
11T304FN	0.4	A (1)	2.3			98.72	40401	154.15	314	154.15	314
11T304FN	0.4	A (1)	4.3	90.51	30201						
11T308FN	0.8	A (1)	2.0			104.94	40501	172.75	318	172.75	318
11T308FN	0.8	A (1)	4.0	90.51	30301						
P											
M											
K											
N				●		●		●		●	
S											
H											
O				●		●		●		●	

MaxiLock-S – SDJC 93° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 643 ... £ 2A/24		NEW Right-hand 70 643 ... £ 2A/24	
SDJC R/L 0808 D07	8	8	60	13.0	10	1,2	DC.. 0702	74.49	**00800**	74.49	**00801**
SDJC R/L 1010 E07	10	10	70	13.0	12	1,2	DC.. 0702	79.44	**01000**	79.44	**01001**
SDJC R/L 1212 F07	12	12	80	14.3	16	1,2	DC.. 0702	79.44	**01200**	79.44	**01201**
SDJC R/L 1616 H11	16	16	100	19.3	20	3,2	DC.. 11T3	99.31	**01600**	99.31	**01601**
SDJC R/L 2020 K11	20	20	125	19.9	25	3,2	DC.. 11T3	105.27	**02000**	105.27	**02001**
SDJC R/L 2525 M11	25	25	150	21.2	32	3,2	DC.. 11T3	109.25	**02500**	109.25	**02501**
SDJC R/L 3225 P11	32	25	170	21.2	32	3,2	DC.. 11T3	114.20	**03200**	114.20	**03201**


Key D


Clamping screw


Solid Carbide Seat D


Threaded sleeve

Spare parts for Article no.		80 950 ... Key D £ Y7		70 950 ... Clamping screw £ 2A/28		70 950 ... Solid Carbide Seat D £ 2A/28		70 950 ... Threaded sleeve £ 2A/28	
70 643 00800 / 70 643 00801	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**					
70 643 01000 / 70 643 01001	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**					
70 643 01200 / 70 643 01201	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**					
70 643 01600 / 70 643 01601	T15 - IP	16.05	**120**	M3,5x11	4.72	**87900**	9.07	**106**	M3,5	5.62	**171**
70 643 02000 / 70 643 02001	T15 - IP	16.05	**120**	M3,5x11	4.72	**87900**	9.07	**106**	M3,5	5.62	**171**
70 643 02500 / 70 643 02501	T15 - IP	16.05	**120**	M3,5x11	4.72	**87900**	9.07	**106**	M3,5	5.62	**171**
70 643 03200 / 70 643 03201	T15 - IP	16.05	**120**	M3,5x11	4.72	**87900**	9.07	**106**	M3,5	5.62	**171**

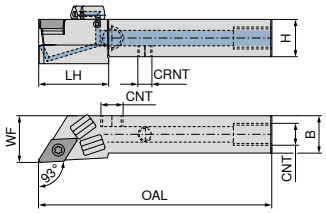
MaxiLock-S – SDJC 93° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key







Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 773 ... £ 2A/24		NEW Right-hand 70 773 ... £ 2A/24	
SDJC R/L 1010 E07 DC	10	10	70	20	12	M6	M6	1,2	DC.. 0702	168.10	**01001**	168.10	**01000**
SDJC R/L 1212 F07 DC	12	12	80	21	16	M6	M6	1,2	DC.. 0702	168.10	**01201**	168.10	**01200**
SDJC R/L 1616 H11 DC	16	16	100	30	20	M6	G1/8"	3,2	DC.. 11T3	186.88	**01601**	186.88	**01600**
SDJC R/L 2020 K11 DC	20	20	125	30	25	M6	G1/8"	3,2	DC.. 11T3	198.04	**02001**	198.04	**02000**
SDJC R/L 2525 M11 DC	25	25	150	35	32	M6	G1/8"	3,2	DC.. 11T3	205.52	**02501**	205.52	**02500**



Clamping screw



Solid Carbide Seat D



Grubscrew



Grubscrew



Threaded sleeve

Spare parts for Article no.	70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 773 01000 / 70 773 01001	4.96	**857**					3.51	**86700**		
70 773 01200 / 70 773 01201	4.96	**857**					3.51	**86700**		
70 773 01600 / 70 773 01601	4.72	**87900**	9.07	**106**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 773 02000 / 70 773 02001	4.72	**87900**	9.07	**106**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 773 02500 / 70 773 02501	4.72	**87900**	9.07	**106**	2.16	**88000**	3.51	**86700**	5.62	**171**



Sealing plugs DC



Key D



O-Ring



Coolant nozzle DC



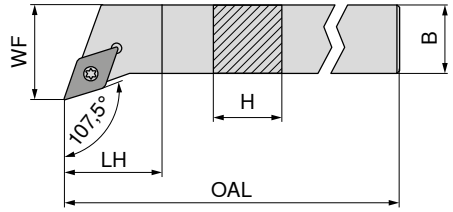
Coolant screw plug

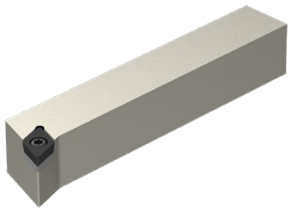
Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 773 01000 / 70 773 01001			11.62	**039**						
70 773 01200 / 70 773 01201			11.62	**039**						
70 773 01600 / 70 773 01601	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 773 02000 / 70 773 02001	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 773 02500 / 70 773 02501	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**

MaxiLock-S – SDHC 107.5° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 642 ... £ 2A/24		NEW Right-hand 70 642 ... £ 2A/24	
SDHC R/L 1010 E07	10	10	70	7.6	12	1,2	DC.. 0702	79.44	**01000**	79.44	**01001**
SDHC R/L 1212 F07	12	12	80	12.2	16	1,2	DC.. 0702	79.44	**01200**	79.44	**01201**
SDHC R/L 1616 H11	16	16	100	11.6	20	3,2	DC.. 11T3	99.31	**01600**	99.31	**01601**
SDHC R/L 2020 K11	20	20	125	14.1	25	3,2	DC.. 11T3	105.27	**02000**	105.27	**02001**
SDHC R/L 2525 M11	25	25	150	20.5	32	3,2	DC.. 11T3	109.25	**02500**	109.25	**02501**


Key D


Clamping screw


Solid Carbide Seat D


Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 642 01000 / 70 642 01001	11.62	**039**	4.96	**857**				
70 642 01200 / 70 642 01201	11.62	**039**	4.96	**857**				
70 642 01600 / 70 642 01601	16.05	**120**	4.72	**87900**	9.07	**106**	5.62	**171**
70 642 02000 / 70 642 02001	16.05	**120**	4.72	**87900**	9.07	**106**	5.62	**171**
70 642 02500 / 70 642 02501	16.05	**120**	4.72	**87900**	9.07	**106**	5.62	**171**

9

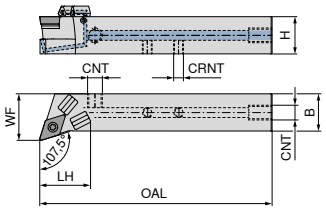
MaxiLock-S – SDHC 107.5° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key







Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 772 ... £ 2A/24		NEW Right-hand 70 772 ... £ 2A/24	
SDHC R/L 1212 F07 DC	12	12	80	20	16	M6	M6	1,2	DC.. 0702	168.10	**01201**	168.10	**01200**
SDHC R/L 1616 H11 DC	16	16	100	25	20	M6	G1/8"	3,2	DC.. 11T3	186.88	**01601**	186.88	**01600**
SDHC R/L 2020 K11 DC	20	20	125	28	25	M6	G1/8"	3,2	DC.. 11T3	198.04	**02001**	198.04	**02000**
SDHC R/L 2525 M11 DC	25	25	150	27	32	M6	G1/8"	3,2	DC.. 11T3	205.52	**02501**	205.52	**02500**

Spare parts for Article no.	Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat D 70 950 ... £ 2A/28		Grubscrew 70 950 ... £ 2A/28		Grubscrew 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 772 01201 / 70 772 01200	4.96	**857**					3.51	**86700**		
70 772 01601 / 70 772 01600	4.72	**87900**	9.07	**106**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 772 02001 / 70 772 02000	4.72	**87900**	9.07	**106**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 772 02501 / 70 772 02500	4.72	**87900**	9.07	**106**	2.16	**88000**	3.51	**86700**	5.62	**171**

Spare parts for Article no.	Sealing plugs DC 70 950 ... £ 2A/28		Key D 80 950 ... £ Y7		O-Ring 70 950 ... £ 2A/28		Coolant nozzle DC 70 950 ... £ 2A/28		Coolant screw plug 70 950 ... £ 2A/28	
70 772 01201 / 70 772 01200			11.62	**039**						
70 772 01601 / 70 772 01600	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 772 02001 / 70 772 02000	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 772 02501 / 70 772 02500	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**

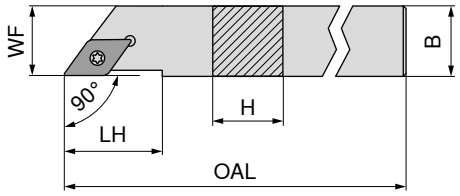
MaxiLock-S – SDAC 90° – Toolholder with screw clamping

▲ for sliding head lathes

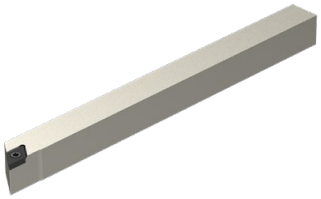
Scope of supply:

Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 639 ... £ 2A/24		NEW Right-hand 70 639 ... £ 2A/24	
SDAC R/L 0808 K07	8	8	125	14	8	1,2	DC.. 0702	79.44	**00800**	79.44	**00801**
SDAC R/L 1010 M07	10	10	150	14	10	1,2	DC.. 0702	79.44	**01000**	79.44	**01001**
SDAC R/L 1212 M07	12	12	150	14	12	1,2	DC.. 0702	89.36	**01200**	89.36	**01201**
SDAC R/L 1212 M11	12	12	150	21	12	3,2	DC.. 11T3	89.36	**11200**	89.36	**11201**
SDAC R/L 1414 M11	14	14	150	21	14	3,2	DC.. 11T3	89.36	**01400**	89.36	**01401**



Key D



Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 639 00800 / 70 639 00801	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96 **857**
70 639 01000 / 70 639 01001	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96 **857**
70 639 01200 / 70 639 01201	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96 **857**
70 639 11200 / 70 639 11201	T15 - IP	16.05	**120**	M3,5x11	4.72 **87900**
70 639 01400 / 70 639 01401	T15 - IP	16.05	**120**	M3,5x11	4.72 **87900**

9

MaxiLock-S – SDAC 90° DC – Tool holder with screw clamping

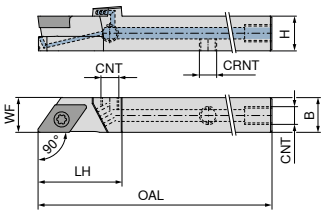
▲ for sliding head lathes

Scope of supply:

Tool holder with blind plug and Torx key



Direct Cooling



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 771 ... £ 2A/24		NEW Right-hand 70 771 ... £ 2A/24	
SDAC R/L 0808 K07 DC	8	8	125	21	8	M5	M5	1,2	DC.. 0702	168.10	**00801**	168.10	**00800**
SDAC R/L 1010 M07 DC	10	10	150	21	10	M6	M6	1,2	DC.. 0702	168.10	**01001**	168.10	**01000**
SDAC R/L 1212 M07 DC	12	12	150	21	12	M6	M6	1,2	DC.. 0702	179.65	**01201**	179.65	**01200**
SDAC R/L 1212 M11 DC	12	12	150	29	12	M6	M6	3,2	DC.. 11T3	179.65	**11201**	179.65	**11200**



Cylindrical screw



Key D



Clamping screw



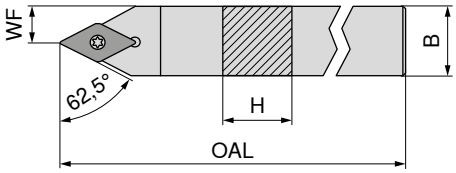
Grubscrew

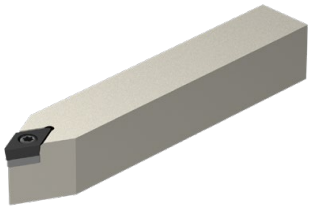
Spare parts for Article no.		83 950 ... £ Y7		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 771 00800 / 70 771 00801		3.85	**157**	11.62	**039**	2.86	**13800**		
70 771 01000 / 70 771 01001				11.62	**039**	2.86	**13800**	3.51	**86700**
70 771 01200 / 70 771 01201				11.62	**039**	2.86	**13800**	3.51	**86700**
70 771 11200 / 70 771 11201				16.05	**120**	3.79	**113**	3.51	**86700**

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







NEW
Neutral

ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	£ 2A/24	70 645 ...
SDNC N 0808 K07	8	8	125	4.0	1,2	DC.. 0702	74.49	**00800**
SDNC N 1010 M07	10	10	150	5.0	1,2	DC.. 0702	79.44	**11000**
SDNC N 1010 E07	10	10	70	5.0	1,2	DC.. 0702	79.44	**01000**
SDNC N 1212 F07	12	12	80	6.0	1,2	DC.. 0702	79.44	**01200**
SDNC N 1212 M07	12	12	150	6.0	1,2	DC.. 0702	89.36	**11200**
SDNC N 1212 M11	12	12	150	6.0	3,2	DC.. 11T3	89.36	**21200**
SDNC N 1616 H11	16	16	100	8.0	3,2	DC.. 11T3	99.31	**01600**
SDNC N 2020 K11	20	20	125	10.0	3,2	DC.. 11T3	105.27	**02000**
SDNC N 2525 M11	25	25	150	12.5	3,2	DC.. 11T3	109.25	**02500**

Key D



Clamping screw



Solid Carbide Seat D



Threaded sleeve

Spare parts for Article no.		£ Y7	80 950 ...		£ 2A/28	70 950 ...	£ 2A/28	70 950 ...		£ 2A/28	70 950 ...
70 645 00800	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**					
70 645 11000	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**					
70 645 01000	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**					
70 645 01200	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**					
70 645 11200	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**					
70 645 21200	T15 - IP	16.05	**120**	M3,5x11	4.72	**87900**					
70 645 01600	T15 - IP	16.05	**120**	M3,5x11	4.72	**87900**	9.07	**106**	M3,5	5.62	**171**
70 645 02000	T15 - IP	16.05	**120**	M3,5x11	4.72	**87900**	9.07	**106**	M3,5	5.62	**171**
70 645 02500	T15 - IP	16.05	**120**	M3,5x11	4.72	**87900**	9.07	**106**	M3,5	5.62	**171**

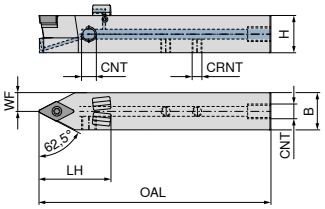
MaxiLock-S – SDNC 62.5° DC – Tool holder with screw clamping

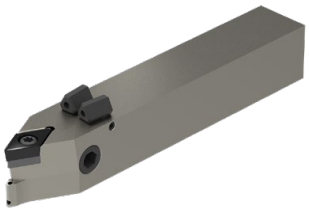
Scope of supply:

Tool holder with blind plug and Torx key









NEW

Neutral

70 774 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	£ 2A/24	
SDNC N 1212 M07 DC	12	12	150	24	6.0	M6	M6	1,2	DC.. 0702	179.65	**11200**
SDNC N 1212 F07 DC	12	12	80	24	6.0	M6	M6	1,2	DC.. 0702	168.10	**01200**
SDNC N 1212 M11 DC	12	12	150	31	6.0	M6	M6	3,2	DC.. 11T3	179.65	**21200**
SDNC N 1616 H11 DC	16	16	100	30	8.0	M6	G1/8"	3,2	DC.. 11T3	186.88	**01600**
SDNC N 2020 K11 DC	20	20	125	39	10.0	M6	G1/8"	3,2	DC.. 11T3	198.04	**02000**
SDNC N 2525 M11 DC	25	25	150	30	12.5	M6	G1/8"	3,2	DC.. 11T3	205.52	**02500**

	 Clamping screw	 Solid Carbide Seat D	 Grubscrew	 Grubscrew	 Threaded sleeve
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28
70 774 11200	4.96 **857**			3.51 **86700**	
70 774 01200	4.96 **857**			3.51 **86700**	
70 774 21200	3.79 **859**			3.51 **86700**	
70 774 01600	4.72 **87900**	9.07 **106**	2.16 **88000**	3.51 **86700**	5.62 **171**
70 774 02000	4.72 **87900**	9.07 **106**	2.16 **88000**	3.51 **86700**	5.62 **171**
70 774 02500	4.72 **87900**	9.07 **106**	2.16 **88000**	3.51 **86700**	5.62 **171**

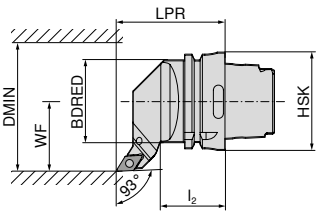
	 Sealing plugs DC	Key D	 O-Ring	 Coolant nozzle DC	 Coolant screw plug
	70 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.	£ 2A/28	£ Y7	£ 2A/28	£ 2A/28	£ 2A/28
70 774 11200		11.62 **039**			
70 774 01200		11.62 **039**			
70 774 21200		16.05 **120**			
70 774 01600	1.52 **87600**	16.05 **120**	1.32 **88100**	29.58 **87700**	4.31 **294**
70 774 02000	1.52 **87600**	16.05 **120**	1.32 **88100**	29.58 **87700**	4.31 **294**
70 774 02500	1.52 **87600**	16.05 **120**	1.32 **88100**	29.58 **87700**	4.31 **294**

MaxiLock-S – SDJC 93° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 544 ... £ 2D/80		Right-hand 74 543 ... £ 2D/80	
HSK T63 SDJC R/L 11	HSK-T 63	70	42	53	45	100	3.2	DC.. 11T3	411.94	**511**	411.94	**511**



Combination Key



Clamping screw



Solid Carbide Seat D



Threaded sleeve

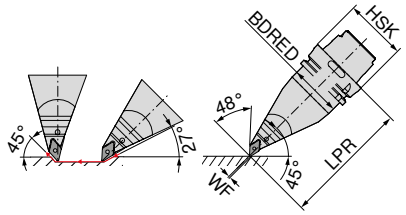
Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 543 511 / 74 544 511	T15/SW	10.04	**398**	M3,5x11	3.79	**113**	9.07	**106**	M3,5	5.62	**171**

MaxiLock-S – SDMC 48° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key









ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 546 ... £ 2D/80	
HSK T63 SDMC L 11	HSK-T 63	130	53	0	3.2	DC.. 11T3	562.57	**511**



Combination Key



Clamping screw



Solid Carbide Seat D



Threaded sleeve

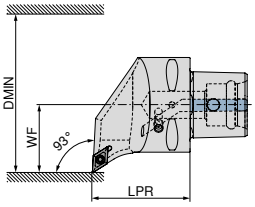
Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 546 511	T15/SW	10.04	**398**	M3,5x11	3.79	**113**	9.07	**106**	M3,5	5.62	**171**

MaxiLock-S – SDUC 93° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 84 659 ... £ Y8		Right-hand 84 658 ... £ Y8	
PSC40 SDUC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	569.11	**01195**	569.11	**01195**
PSC50 SDUC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	652.06	**01194**	652.06	**01194**
PSC63 SDUC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	725.33	**01193**	725.33	**01193**



Clamping screw

Spare parts for Article no.	84 950 ... £ Y8	
84 658 01195 / 84 659 01195	8.84	**27600**
84 658 01194 / 84 659 01194	8.84	**27600**
84 658 01193 / 84 659 01193	8.84	**27600**

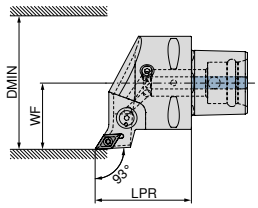
9

MaxiLock-S – SDJC 93° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set







Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 663 ... £ Y8		Right-hand 84 662 ... £ Y8	
PSC40 SDJC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	DC	569.11	**01195**	569.11	**01195**
PSC50 SDJC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	DC	652.06	**01194**	652.06	**01194**
PSC63 SDJC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	DC	725.33	**01193**	725.33	**01193**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**



Clamping screw

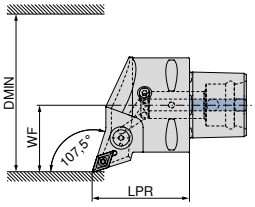
Spare parts for Article no.	84 950 ... £ Y8	
84 662 01195 / 84 663 01195	8.84	**27600**
84 662 01194 / 84 663 01194	8.84	**27600**
84 662 01193 / 84 663 01193	8.84	**27600**

MaxiLock-S – SDHC 107.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set







Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 667 ... £ Y8		Right-hand 84 666 ... £ Y8	
PSC40 SDHC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	DC	569.11	**01195**	569.11	**01195**
PSC50 SDHC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	DC	652.06	**01194**	652.06	**01194**
PSC63 SDHC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	DC	725.33	**01193**	725.33	**01193**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**



Clamping screw

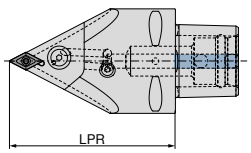
Spare parts for Article no.	84 950 ... £ Y8	
84 666 01195 / 84 667 01195	8.84	**27600**
84 666 01194 / 84 667 01194	8.84	**27600**
84 666 01193 / 84 667 01193	8.84	**27600**

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set









Neutral

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	84 677 ... £ Y8	
PSC63 SDNC N 0100-11	PSC 63	100	3	DC.. 11T3	DC	725.33	**01193**
PSC63 SDNC N 0130-11	PSC 63	130	3	DC.. 11T3	DC	725.33	**11193**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**



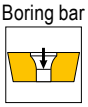
Clamping screw

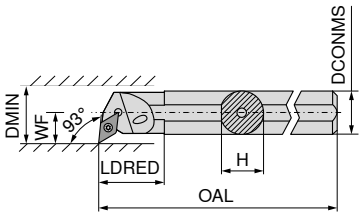
Spare parts for Article no.	84 950 ... £ Y8	
84 677 01193	8.84	**27600**
84 677 11193	8.84	**27600**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions



									Left-hand		Right-hand	
									70 737 ...		**70 736 ...**	
ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	£		£	
	mm	mm	mm	mm	mm	mm	Nm		2A/24		2A/24	
S12Q SDUC R/L 07	12	11.0	180	12.5	9	17	1,2	DC.. 0702	116.94	**012**	116.94	**012**
A12K SDUC R/L 07	12	11.5	125	22.0	9	16	1,2	DC.. 0702	116.94	**212**	116.94	**212**
S16R SDUC R/L 07	16	15.0	200	13.0	11	21	1,2	DC.. 0702	119.50	**016**	119.50	**016**
A16M SDUC R/L 07	16	15.0	150	29.0	11	20	1,2	DC.. 0702	119.50	**216**	119.50	**216**
S20S SDUC R 07	20	18.0	250	20.0	13	25	1,2	DC.. 0702			148.95	**020**
A20Q SDUC R/L 07	20	18.5	180	32.0	13	25	1,2	DC.. 0702	148.95	**220**	148.95	**220**
S20S SDUC R 11	20	18.0	250	20.0	13	25	3,2	DC.. 11T3			148.95	**120**
A20Q SDUC R/L 11	20	19.0	180	32.0	13	25	3,2	DC.. 11T3	148.95	**320**	148.95	**320**
S25T SDUC R/L 11	25	23.0	300		17	32	3,2	DC.. 11T3	171.24	**125**	171.24	**125**
A25R SDUC R/L 11	25	24.0	200	36.0	17	32	3,2	DC.. 11T3	171.24	**325**	171.24	**325**
S32U SDUC R 11	32	30.0	350		22	40	3,2	DC.. 11T3			235.43	**132**
A32S SDUC R/L 11	32	31.0	250	50.0	22	40	3,2	DC.. 11T3	235.43	**332**	235.43	**332**
A40T SDUC R/L 11	40	39.0	300	60.0	27	50	3,2	DC.. 11T3	282.64	**340**	282.64	**340**


Key D


Combination Key


Clamping screw


Solid Carbide Seat D


Threaded sleeve

									80 950 ...		**70 950 ...**		**70 950 ...**	
Spare parts for Article no.									£		£		£	
									Y7		2A/28		2A/28	
70 736 012 / 70 737 012									13.73	**110**			2.86	**13800**
70 736 212 / 70 737 212									13.73	**110**			2.86	**13800**
70 736 016 / 70 737 016									13.73	**110**			2.86	**13800**
70 736 216 / 70 737 216									13.73	**110**			2.86	**13800**
70 736 020									13.73	**110**			2.86	**13800**
70 736 220 / 70 737 220									13.73	**110**			2.86	**13800**
70 736 120									16.32	**113**			3.79	**110**
70 736 320 / 70 737 320									16.32	**113**			3.79	**110**
70 736 125 / 70 737 125											10.04	**398**	3.79	**113**
70 736 325 / 70 737 325									16.32	**113**			3.79	**113**
70 736 132											10.04	**398**	3.79	**113**
70 736 332 / 70 737 332											10.04	**398**	3.79	**113**
70 736 340 / 70 737 340											10.04	**398**	3.79	**113**

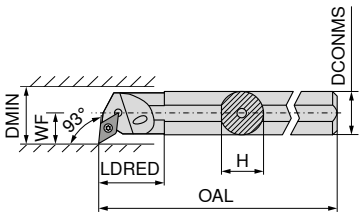
									70 950 ...		**70 950 ...**		**70 950 ...**	
Spare parts for Article no.									£		£		£	
									2A/28		2A/28		2A/28	
70 736 012 / 70 737 012														
70 736 212 / 70 737 212														
70 736 016 / 70 737 016														
70 736 216 / 70 737 216														
70 736 020														
70 736 220 / 70 737 220														
70 736 120														
70 736 320 / 70 737 320														
70 736 125 / 70 737 125									9.07	**106**	5.62	**171**		
70 736 325 / 70 737 325														
70 736 132									9.07	**106**	5.62	**171**		
70 736 332 / 70 737 332									9.07	**106**	5.62	**171**		
70 736 340 / 70 737 340									9.07	**106**	5.62	**171**		

9

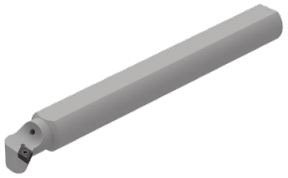
MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 739 ... £ 2A		Right-hand 70 738 ... £ 2A	
E-A10H SDUC R/L 07	10	9	100	28.0	8	13	1,2	DC.. 0702	217.24	**210**	217.24	**210**
E-A12K SDUC R/L 07	12	11	125	18.0	9	18	1,2	DC.. 0702	217.24	**212**	217.24	**212**
E-A16M SDUC R/L 07	16	15	150	30.0	11	22	1,2	DC.. 0702	345.37	**216**	345.37	**216**
E-A20Q SDUC R/L 07	20	18	180	38.0	13	26	1,2	DC.. 0702	433.05	**220**	433.05	**220**
E-A20Q SDUC R/L 11	20	18	180	38.0	13	26	3,2	DC.. 11T3	458.48	**320**	458.48	**320**
E-A25R SDUC R/L 11	25	23	200	40.0	17	34	3,2	DC.. 11T3	660.37	**225**	660.37	**225**
E-A32S SDUC R/L 11	32	30	250	39.5	22	39	3,2	DC.. 11T3	968.91	**232**	968.91	**232**



Key D



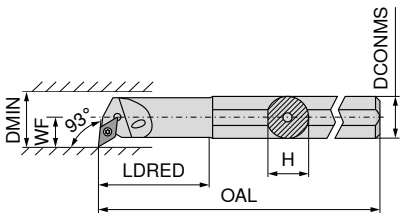
Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28	
70 738 210 / 70 739 210	13.73	**110**	2.86	**13800**
70 738 212 / 70 739 212	13.73	**110**	2.86	**13800**
70 738 216 / 70 739 216	13.73	**110**	2.86	**13800**
70 738 220 / 70 739 220	13.73	**110**	2.86	**13800**
70 738 320 / 70 739 320	16.32	**113**	3.79	**449**
70 738 225 / 70 739 225	16.32	**113**	3.79	**449**
70 738 232 / 70 739 232	16.32	**113**	3.79	**449**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 739 ... £ 2A		Right-hand 70 738 ... £ 2A	
E-A0810H SDUC R/L 07	10	9	100	22	7	12.5	1,2	DC.. 0702	270.53	**410**	270.53	**410**
E-A1012K SDUC R/L 07	12	11	125	28	9	15.5	1,2	DC.. 0702	270.53	**412**	270.53	**412**
E-A1216M SDUC R/L 07	16	15	150	36	11	19.5	1,2	DC.. 0702	270.53	**416**	270.53	**416**



Key D



Clamping screw

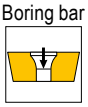
Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28	
70 738 410 / 70 739 410	13.73	**110**	2.86	**13800**
70 738 412 / 70 739 412	13.73	**110**	2.86	**13800**
70 738 416 / 70 739 416	13.73	**110**	2.86	**13800**

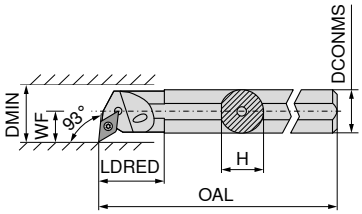
MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide

Scope of supply:

Boring bar with Torx key





Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	Left-hand 70 739 ... £ 2A/24		Right-hand 70 738 ... £ 2A/24	
	mm	mm	mm	mm	mm	mm	Nm					
E12Q SDUC R/L 07	12	11.5	180	26	9	16	1,2	DC.. 0702	403.50	**012**	403.50	**012**
E16R SDUC R/L 07	16	15.0	200	34	11	20	1,2	DC.. 0702	527.26	**016**	527.26	**016**
E20S SDUC R/L 11	20	18.5	250	38	13	25	3,2	DC.. 11T3	658.65	**120**	658.65	**120**
E25T SDUC R/L 11	25	23.0	300	43	17	32	3,2	DC.. 11T3	1,161.46	**125**	1,161.46	**125**



Key D



Clamping screw

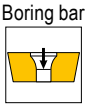
Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28	
70 739 012 / 70 738 012	13.73	**110**	2.86	**13800**
70 739 016 / 70 738 016	13.73	**110**	2.86	**13800**
70 739 120 / 70 738 120	16.32	**113**	3.79	**304**
70 739 125 / 70 738 125	16.32	**113**	3.79	**113**

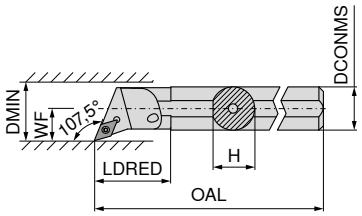
9

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

Scope of supply:

Boring bar with Torx key





Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	Left-hand 70 741 ... £ 2A		Right-hand 70 740 ... £ 2A	
	mm	mm	mm	mm	mm	mm	Nm					
A10H SDQC R/L 07	10	9.0	100	22	7	12.5	1,2	DC.. 0702	116.94	**210**	116.94	**210**
A12K SDQC R/L 07	12	11.5	125	22	9	16.0	1,2	DC.. 0702	116.94	**212**	116.94	**212**
A16M SDQC R/L 07	16	15.0	150	29	11	20.0	1,2	DC.. 0702	119.50	**216**	119.50	**216**
A20Q SDQC R/L 07	20	18.5	180	32	13	25.0	1,2	DC.. 0702	148.95	**220**	148.95	**220**
A25R SDQC R/L 11	25	23.0	200	36	17	32.0	3,2	DC.. 11T3	171.24	**225**	171.24	**225**
A32S SDQC R/L 11	32	30.0	250	50	22	40.0	3,2	DC.. 11T3	235.43	**232**	235.43	**232**
A40T SDQC R/L 11	40	38.0	300	60	27	50.0	3,2	DC.. 11T3	282.64	**240**	282.64	**240**



Key D



Combination Key



Clamping screw



Solid Carbide Seat D



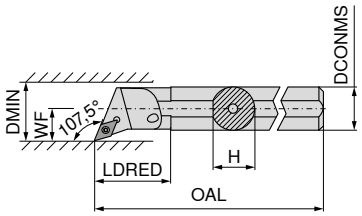
Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 740 210 / 70 741 210	13.73	**110**			2.86	**13800**				
70 740 212 / 70 741 212	13.73	**110**			2.86	**13800**				
70 740 216 / 70 741 216	13.73	**110**			2.86	**13800**				
70 740 220 / 70 741 220	13.73	**110**			2.86	**13800**				
70 740 225 / 70 741 225			10.04	**398**	3.79	**113**				
70 740 232 / 70 741 232			10.04	**398**	3.79	**113**	9.07	**106**	5.62	**171**
70 740 240 / 70 741 240			10.04	**398**	3.79	**113**	9.07	**106**	5.62	**171**

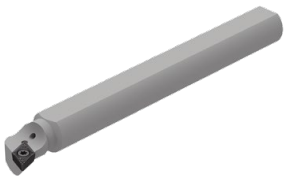
MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	Left-hand 70 751 ... £ 2A		Right-hand 70 750 ... £ 2A	
	mm	mm	mm	mm	mm	mm	Nm					
E-A12K SDQC R/L 07	12	11	125	24	9	18	1,2	DC.. 0702	217.24	**012**	217.24	**012**
E-A16M SDQC R/L 07	16	15	150	30	11	22	1,2	DC.. 0702	370.80	**016**	370.80	**016**
E-A20Q SDQC R/L 07	20	18	180	38	13	26	1,2	DC.. 0702	433.05	**020**	433.05	**020**
E-A20Q SDQC R/L 11	20	18	180	45	13	26	3,2	DC.. 11T3	458.48	**120**	458.48	**120**
E-A25R SDQC R/L 11	25	23	200	38	17	34	3,2	DC.. 11T3	732.77	**025**	732.77	**025**
E-A32S SDQC R/L 11	32	30	250	43	22	39	3,2	DC.. 11T3	968.91	**032**	968.91	**032**



Key D



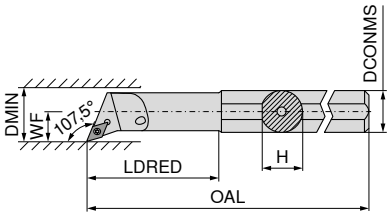
Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28	
70 750 012 / 70 751 012	13.73	**110**	2.86	**13800**
70 750 016 / 70 751 016	13.73	**110**	2.86	**13800**
70 750 020 / 70 751 020	13.73	**110**	2.86	**13800**
70 750 120 / 70 751 120	16.32	**113**	3.79	**449**
70 750 025 / 70 751 025	16.32	**113**	3.79	**449**
70 750 032 / 70 751 032	16.32	**113**	3.79	**449**

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	Left-hand 70 751 ... £ 2A		Right-hand 70 750 ... £ 2A	
	mm	mm	mm	mm	mm	mm	Nm					
E-A0810H SDQC R/L 07	10	9	100	22	7	12.5	1,2	DC.. 0702	270.53	**210**	270.53	**210**
E-A1012K SDQC R/L 07	12	11	125	28	9	15.5	1,2	DC.. 0702	270.53	**212**	270.53	**212**
E-A1216M SDQC R/L 07	16	15	150	36	11	19.5	1,2	DC.. 0702	270.53	**216**	270.53	**216**

Key D

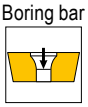


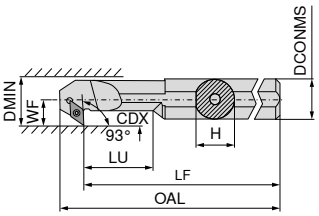
Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28	
70 750 210 / 70 751 210	13.73	**110**	2.86	**13800**
70 750 212 / 70 751 212	13.73	**110**	2.86	**13800**
70 750 216 / 70 751 216	13.73	**110**	2.86	**13800**

MaxiLock-S – SDXC 93° – Boring bar with screw clamping

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LU mm	WF mm	DMIN mm	CDX mm	torque moment Nm	Insert	Left-hand 70 733 ... £ 2A/24		Right-hand 70 732 ... £ 2A/24	
A12K SDXC R/L 07	12	11.5	125	137.0	24	9	16	4.5	1,2	DC.. 0702	116.94	**212**	116.94	**212**
A16M SDXC R/L 07	16	15.0	150	162.0	36	11	20	4.5	1,2	DC.. 0702	119.50	**216**	119.50	**216**
A20Q SDXC R/L 11	20	18.5	180	196.5	40	13	25	6.5	3,2	DC.. 11T3	148.95	**220**	148.95	**220**
A25R SDXC R/L 11	25	23.0	200	216.8	50	17	32	9.5	3,2	DC.. 11T3	171.24	**225**	171.24	**225**


Key D


Clamping screw

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28	
70 733 212 / 70 732 212	13.73	**110**	2.86	**13800**
70 733 216 / 70 732 216	13.73	**110**	2.86	**13800**
70 733 220 / 70 732 220	16.32	**113**	3.79	**304**
70 733 225 / 70 732 225	16.32	**113**	3.79	**304**

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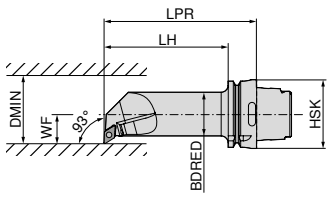
MaxiLock-S – SDUC 93° – Boring bar with screw clamping

Scope of supply:
Boring bar with Torx key







Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 566 ... £ 2D/80		Right-hand 74 565 ... £ 2D/80	
HSK T63 40L SDUC R/L 11	HSK-T 63	140	114	40	27	50	3.2	DC.. 11T3	566.58	**511**	566.58	**511**


Combination Key


Clamping screw

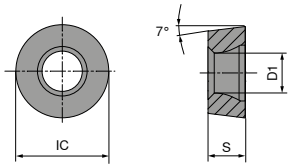

Solid Carbide Seat D


Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28			70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
74 565 511 / 74 566 511	T15/SW	10.04	**398**	M3,5x11	3.79	**113**	9.07	**106**	M3,5	5.62	**171**

RCMT / RCGT / RCMX

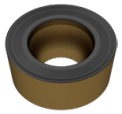
Designation	S mm	D1 mm	IC mm
RCGT 0602..	2.38	2.8	6
RCGT 0803..	3.18	3.4	8
RC.T 1003..	3.18	4.0	10
RCMT 10T3..	3.97	4.4	10
RCMT 1204..	4.76	4.9	12
RCMT 1606..	6.35	5.3	16
RCMT 2006..	6.35	6.5	20
RCMT 2507..	7.94	7.2	25
RCMX 2507..	7.94	10.5	25



RCMT / RCGT

			NEW	NEW	NEW	NEW	NEW	NEW
		-SMF CTCK110	-SM CTCP115-P	-SM CTCP115-P	-SM CTCP115-P	-SM CTCP125-P	-SM CTCP125-P	-SM CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	M	M	M	M	M	M
		RCMT	RCGT	RCMT	RCMT	RCGT	RCMT	RCGT
		70 188 ...	76 185 ...	76 186 ...	76 264 ...	76 262 ...	76 264 ...	76 262 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
0602M0EN	3.0					9.79 50201		9.79 70201
0803M0EN	4.0		11.21 30401			10.89 51201		10.89 71201
1003M0SN	5.0						9.41 51401	
1204M0SN	6.0				11.16 32801		11.16 52601	
1606M0EN	8.0	21.96 038						
1606M0SN	8.0				21.96 34001		21.96 53801	
2006M0SN	10.0			31.13 35001			30.21 55001	
2507M0SN	12.5				48.66 36201		48.66 56201	
P		○	●	●	●	●	●	●
M								○
K		●	○	○	○	○	○	
N								
S								
H								
O								

RCMT / RCMX

	NEW	NEW	NEW	NEW	NEW	NEW	NEW
	-SM CTCP135-P	-M23 CTCP115-P	-M23 CTCP115-P	-M23 CTCP115-P	-M23 CTCP125-P	-SM CTCM120	-SM CTPM125
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M	M	M	M	M	M	M
	RCMT	RCMT	RCMX	RCMT	RCMT	RCMT	RCMT
	76 264 ...	74 117 ...	74 117 ...	74 121 ...	74 121 ...	75 221 ...	75 221 ...
ISO / RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
1003M0SN 5.0	9.41 71401					9.71 11400	
10T3M0SN 5.0				9.71 21400			
1204M0SN 6.0	11.16 72601			11.50 22600	11.50 62600		
1606M0SN 8.0	21.96 73801			22.64 23800	22.64 63800		
2006M0SN 10.0	30.21 75001	31.12 25000			31.13 65000		31.13 25000
2507M0SN 12.5	48.66 76201		50.13 25400				
2507MOSN 12.5							50.13 26200
P	●	●	●	●	●	○	○
M	○					●	●
K		○	○	○	○		
N							
S							
H							
O							

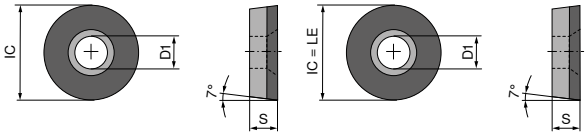
RCGT / RCMT

				NEW	
	-25P H210T	-27 H10T	-SM CTPX710	-27 CTPX715
			DRAGONSKIN	DRAGONSKIN
				
	F	M	M	M
	RCGT	RCGT	RCMT	RCGT
	70 241 ...	70 266 ...	75 221 ...	70 266 ...
ISO / RE mm	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90
0602M0FN 3		7.30 600		12.29 70200
0803M0FN 4	8.50 60200	8.15 602		9.54 80200
1003M0FN 5		8.15 604		9.54 80400
1003M0SN 5			9.71 61400	
1204M0FN 6				11.83 72800
P			●	●
M			●	●
K	○	○		○
N	●	●	○	●
S	○		●	●
H				
O	○	○		○

9

RCGW / RCGT

Designation	S mm	D1 mm	IC mm
RCG. 0602..	2.38	2.8	6
RCGW 0803..	3.18	3.4	8
RCGW 1003..	3.18	4.4	10
RCGT 10T3..	3.97	4.4	10
RCGW 1204..	4.76	4.4	12



RCGT F RCGW F

RCGW / RCGT

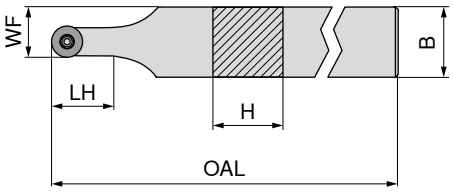
▲ TCE(NOI) = Design and number of equipped cutting edge corners

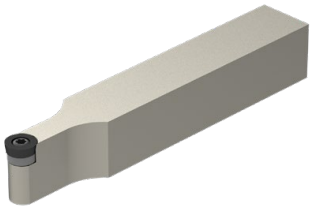
				CTDPD20		-CB1 CTDPD20		CTDPS30		-CB1 CTDPS30		-CB2 CTDPS30	
				F		F		F		F		M	
				DIAMOND RCGW		DIAMOND RCGT		DIAMOND RCGW		DIAMOND RCGT		DIAMOND RCGT	
				71 179 ...		71 315 ...		71 179 ...		71 315 ...		71 316 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
0602M0FN	3	F	6	167.51	10001	297.09	102	167.51	20001	297.09	202	297.09	202
0803M0FN	4	F	8	217.23	10101			217.23	20101				
1003M0FN	6	F	10	280.54	10201								
10T3M0FN	5	F	10			390.53	104			390.53	204	390.53	204
1204M0FN	6	F	12	355.18	10301								
P													
M													
K													
N				●		●		●		●		●	
S													
H													
O				●		●		●		●		●	

MaxiLock-S – SRDC 0° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







NEW
Neutral

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	70 646 ... £ 2A/24	
SRDC N 1212 F06	12	12	80	12.0	9.0	1,2	RC.. 0602	89.36	**01200**
SRDC N 1616 H06	16	16	100	12.0	11.0	1,2	RC.. 0602	94.36	**01600**
SRDC N 2020 K06	20	20	125	12.0	13.0	1,2	RC.. 0602	105.27	**02000**
SRDC N 2525 M06	25	25	150	12.4	15.5	1,2	RC.. 0602	109.25	**02500**
SRDC N 1616 H08	16	16	100	16.0	12.0	1,8	RC.. 0803	94.36	**11600**
SRDC N 2020 K08	20	20	125	16.5	14.0	1,8	RC.. 0803	105.27	**12000**
SRDC N 2525 M08	25	25	150	16.5	16.5	1,8	RC.. 0803	109.25	**12500**
SRDC N 1616 H10	16	16	100	20.9	13.0	3,2	RC.. 1003 / RC.. 10T3	94.36	**21600**
SRDC N 2020 K10	20	20	125	20.0	15.0	3,2	RC.. 1003 / RC.. 10T3	105.27	**22000**
SRDC N 2525 M10	25	25	150	20.9	17.5	3,2	RC.. 1003 / RC.. 10T3	109.25	**22500**

When using WSP RC .. 10T3 indexable inserts, use insert seat article no. 70 950 92100.

Key D


Clamping screw


Solid carbide support R


Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 646 01200	11.62	**039**	4.96	**857**				
70 646 01600	11.62	**039**	4.96	**857**				
70 646 02000	11.62	**039**	4.96	**857**				
70 646 02500	11.62	**039**	4.96	**857**				
70 646 11600	15.06	**118**	3.79	**819**				
70 646 12000	15.06	**118**	3.79	**819**				
70 646 12500	15.06	**118**	3.79	**819**				
70 646 21600	16.05	**120**	4.72	**87900**	14.98	**117**	5.62	**171**
70 646 22000	16.05	**120**	4.72	**87900**	14.98	**117**	5.62	**171**
70 646 22500	16.05	**120**	4.72	**87900**	14.98	**117**	5.62	**171**

9

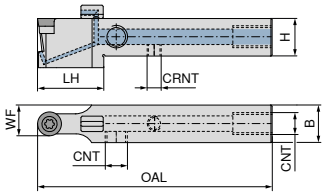
MaxiLock-S – SRDC 0° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key









NEW

Neutral

70 775 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	£ 2A/24	
SRDC N 1212 F06 DC	12	12	80	26	9.0	M6	M6	1,2	RC.. 0602	208.45	**01200**
SRDC N 1616 H06 DC	16	16	100	30	11.0	M6	G1/8"	1,2	RC.. 0602	210.85	**01600**
SRDC N 2020 K06 DC	20	20	125	30	13.0	M6	G1/8"	1,2	RC.. 0602	198.04	**02000**
SRDC N 2525 M06 DC	25	25	150	30	15.5	M6	G1/8"	1,2	RC.. 0602	205.52	**02500**
SRDC N 1616 H08 DC	16	16	100	30	12.0	M6	G1/8"	1,8	RC.. 0803	210.85	**11600**
SRDC N 2020 K08 DC	20	20	125	30	14.0	M6	G1/8"	1,8	RC.. 0803	198.04	**12000**
SRDC N 2525 M08 DC	25	25	150	31	16.5	M6	G1/8"	1,8	RC.. 0803	205.52	**12500**
SRDC N 1616 H10 DC	16	16	100	30	13.0	M6	G1/8"	3,2	RC.. 1003 / RC.. 10T3	210.85	**21600**
SRDC N 2020 K10 DC	20	20	125	30	15.0	M6	G1/8"	3,2	RC.. 1003 / RC.. 10T3	198.04	**22000**
SRDC N 2525 M10 DC	25	25	150	36	17.5	M6	G1/8"	3,2	RC.. 1003 / RC.. 10T3	205.52	**22500**

When using WSP RC .. 10T3 indexable inserts, use insert seat article no. 70 950 92100.



Clamping screw



Solid carbide support R



Grubscrew



Grubscrew



Threaded sleeve

70 950 ... | **70 950 ...** | **70 950 ...** | **70 950 ...** | **70 950 ...**

Spare parts for Article no.	£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28	
70 775 01200	4.96	**857**					3.51	**86700**		
70 775 01600	4.96	**857**			2.16	**88000**	3.51	**86700**		
70 775 02000	4.96	**857**			2.16	**88000**	3.51	**86700**		
70 775 02500	4.96	**857**			2.16	**88000**	3.51	**86700**		
70 775 11600	3.79	**819**			2.16	**88000**	3.51	**86700**		
70 775 12000	3.79	**819**			2.16	**88000**	3.51	**86700**		
70 775 12500	3.79	**819**			2.16	**88000**	3.51	**86700**		
70 775 21600	4.72	**87900**	14.98	**117**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 775 22000	4.72	**87900**	14.98	**117**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 775 22500	4.72	**87900**	14.98	**117**	2.16	**88000**	3.51	**86700**	5.62	**171**



Sealing plugs DC



Key D



O-Ring



Coolant nozzle DC



Coolant screw plug

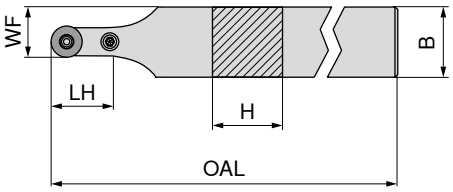
70 950 ... | **80 950 ...** | **70 950 ...** | **70 950 ...** | **70 950 ...**

Spare parts for Article no.	£ 2A/28		£ Y7		£ 2A/28		£ 2A/28		£ 2A/28	
70 775 01200			11.62	**039**						
70 775 01600	1.52	**87600**	11.62	**039**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 775 02000	1.52	**87600**	11.62	**039**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 775 02500	1.52	**87600**	11.62	**039**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 775 11600	1.52	**87600**	15.06	**118**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 775 12000	1.52	**87600**	15.06	**118**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 775 12500	1.52	**87600**	15.06	**118**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 775 21600	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 775 22000	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 775 22500	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**

MaxiLock-N – PRDC 0° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key







Neutral

70 544 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	£ 2A/24	
PRDC N 2525 M12	25	25	150	24	18.5	3	RC.. 1204	106.53	**025**
PRDC N 3225 P12	32	25	170	24	18.5	3	RC.. 1204	114.27	**032**
PRDC N 3225 P16	32	25	170	28	20.5	4	RC.. 1606	114.27	**132**


Key I


Shim


Assembly pin


Lever


Clamping screw


Solid carbide support R

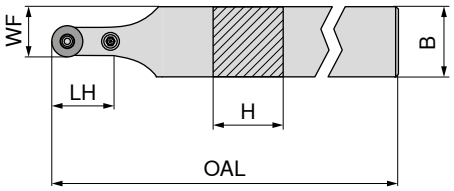
Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 544 025	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	18.80	**178**	3.87	**208**	8.59	**215**
70 544 032	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	18.80	**178**	3.87	**208**	8.59	**215**
70 544 132	SW3	2.97	**176**	1.67	**196**	1.49	**192**	19.46	**387**	4.24	**390**	15.25	**384**

MaxiLock-N – PRDC 0° – Toolholder with lever clamping

9

Scope of supply:
Tool holder with allen key







Neutral

70 545 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	£ 2A/24	
PRDC N 3232 P20	32	32	170	32	26.0	5	RC.. 2006	141.08	**23200**
PRDC N 4040 S25	40	40	250	42	32.5	6	RCMT 2507 / RCMX 2507	175.49	**40400**


Key I


Shim


Assembly pin


Lever


Clamping screw


Solid carbide support R

Spare parts for Article no.	70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 545 23200	2.97	**177**	1.34	**391**	1.49	**394**	18.45	**28100**	4.16	**28500**	20.63	**27400**
70 545 40400	3.13	**396**	2.13	**392**	1.49	**395**	22.71	**28400**	9.06	**28600**	38.70	**27500**

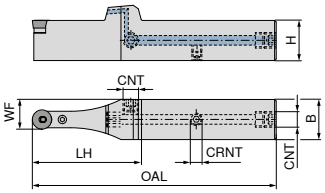
MaxiLock-N – PRDC 0° DC – Toolholder with lever clamping

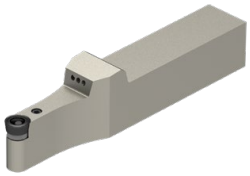
Scope of supply:

Tool holder with allen key









NEW

Neutral

70 595 ...

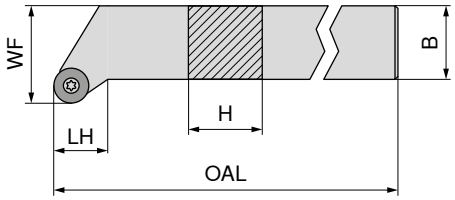
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	£ 2A/24	
PRDC N 2020 X12-T DC	20	20	132	63	16.0	M6	G1/8"	3	RC.. 1204	207.80	**02000**
PRDC N 2525 X12-T DC	25	25	152	68	18.5	M6	G1/8"	3	RC.. 1204	218.74	**02500**
PRDC N 3225 X12-T DC	32	25	168	68	18.5	M6	G1/8"	3	RC.. 1204	229.68	**03200**
PRDC N 3225 X16-T DC	32	25	172	72	20.5	M6	G1/8"	4	RC.. 1606	229.68	**13200**
PRDC N 3232 X20-T DC	32	32	176	76	26.0	M6	G1/8"	5	RC.. 2006	240.62	**23200**
PRDC N 4040 X25-T DC	40	40	216	91	32.5	M6	G1/8"	6	RCMT 2507 / RCMX 2507	262.51	**04000**

	 Key I		 Shim		Assembly pin		 Coolant screw plug		 Lever		 Clamping screw		 Solid carbide support R		 Grubscrew	
	70 950 ...		**70 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**	
Spare parts for Article no.	£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28	
70 595 02000	2.97	**175**	2.13	**197**	1.49	**191**	4.31	**294**	18.80	**178**	3.87	**208**	8.59	**215**	3.51	**86700**
70 595 02500	2.97	**175**	2.13	**197**	1.49	**191**	4.31	**294**	18.80	**178**	3.87	**208**	8.59	**215**	3.51	**86700**
70 595 03200	2.97	**175**	2.13	**197**	1.49	**191**	4.31	**294**	18.80	**178**	3.87	**208**	8.59	**215**	3.51	**86700**
70 595 13200	2.97	**175**	1.67	**196**	1.49	**192**	4.31	**294**	19.46	**387**	4.24	**390**	15.25	**384**	3.51	**86700**
70 595 23200	2.97	**177**	1.34	**391**	1.49	**394**	4.31	**294**	18.45	**28100**	4.16	**28500**	20.63	**27400**	3.51	**86700**
70 595 04000	3.13	**396**	2.13	**392**	1.49	**395**	4.31	**294**	22.71	**28400**	9.06	**28600**	38.70	**27500**	3.51	**86700**

MaxiLock-S – SRGC – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 647 ... £ 2A/24		NEW Right-hand 70 647 ... £ 2A/24	
SRGC R/L 1212 F06	12	12	80	12.5	16	1,2	RC.. 0602	89.36	**01200**	89.36	**01201**
SRGC R 1616 H06	16	16	100	12.5	20	1,2	RC.. 0602			94.36	**01601**
SRGC R/L 2020 K06	20	20	125	15.0	25	1,2	RC.. 0602	105.27	**02000**	105.27	**02001**
SRGC R/L 2525 M06	25	25	150	18.5	32	1,2	RC.. 0602	109.25	**02500**	109.25	**02501**
SRGC R/L 1616 H08	16	16	100	13.6	20	1,8	RC.. 0803	94.36	**11600**	94.36	**11601**
SRGC R 2020 K08	20	20	125	16.1	25	1,8	RC.. 0803			105.27	**12001**
SRGC R/L 2525 M08	25	25	150	19.6	32	1,8	RC.. 0803	109.25	**12500**	109.25	**12501**
SRGC R/L 2020 K10	20	20	125	16.1	25	3,2	RC.. 1003 / RC.. 10T3	105.27	**22000**	105.27	**22001**
SRGC R/L 2525 M10	25	25	150	19.6	32	3,2	RC.. 1003 / RC.. 10T3	109.25	**22500**	109.25	**22501**

When using WSP RC .. 10T3 indexable inserts, use insert seat article no. 70 950 92100.


Key D


Clamping screw


Solid carbide support R


Threaded sleeve

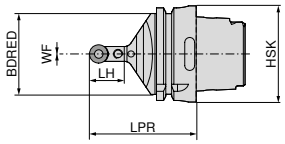
Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
70 647 01200 / 70 647 01201	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**					
70 647 01601	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**					
70 647 02000 / 70 647 02001	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**					
70 647 02500 / 70 647 02501	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**					
70 647 11600 / 70 647 11601	T09 - IP	15.06	**118**	M3x7 - IP	3.79	**819**					
70 647 12001	T09 - IP	15.06	**118**	M3x7 - IP	3.79	**819**					
70 647 12500 / 70 647 12501	T09 - IP	15.06	**118**	M3x7 - IP	3.79	**819**					
70 647 22000 / 70 647 22001	T15 - IP	16.05	**120**	M3,5x11	4.72	**87900**	14.98	**117**	M3,5	5.62	**171**
70 647 22500 / 70 647 22501	T15 - IP	16.05	**120**	M3,5x11	4.72	**87900**	14.98	**117**	M3,5	5.62	**171**

9

MaxiLock-N – PRDC 0° – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 548 ... £ 2D/80	
HSK T63 PRDC N 12	HSK-T 63	70	53	0	3	RC.. 1204 M0	415.94	**512**
HSK T100 PRDC N 12	HSK-T 100	80	88	0	3	RC.. 1204 M0	474.20	**712**
HSK T100 PRDC N 16	HSK-T 100	80	88	0	4	RC.. 1606 M0	474.20	**716**


Key I


Shim

Assembly pin


Lever


Clamping screw

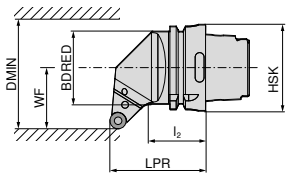

Solid carbide support R

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 548 512	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	18.80	**178**	3.87	**208**	8.59	**215**
74 548 712	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	18.80	**178**	3.87	**208**	8.59	**215**
74 548 716	SW3	2.97	**176**	1.67	**196**	1.49	**192**	19.46	**387**	4.24	**390**	15.25	**384**

MaxiLock-N – PRSC – Toolholder with lever clamping

Scope of supply:
Tool holder with allen key



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 552 ... £ 2D/80		Right-hand 74 551 ... £ 2D/80	
HSK T63 PRSC R/L 12	HSK-T 63	70	44	53	45	100	3	RC.. 1204 M0	415.94	**512**	415.94	**512**
HSK T100 PRSC R/L 12	HSK-T 100	80	57	88	55	106	3	RC.. 1204 M0	474.20	**712**	474.20	**712**
HSK T100 PRSC R/L 16	HSK-T 100	80	55	88	55	125	4	RC.. 1606 M0	474.20	**716**	474.20	**716**


Key I


Shim

Assembly pin


Lever

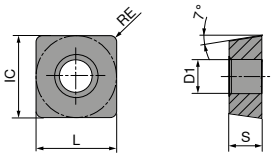

Clamping screw


Solid carbide support R

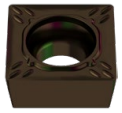
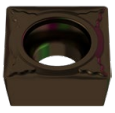
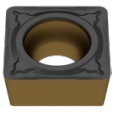
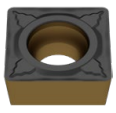
Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
74 551 512 / 74 552 512	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	18.80	**178**	3.87	**208**	8.59	**215**
74 551 712 / 74 552 712	SW2,5	2.97	**175**	2.13	**197**	1.49	**191**	18.80	**178**	3.87	**208**	8.59	**215**
74 551 716 / 74 552 716	SW3	2.97	**176**	1.67	**196**	1.49	**192**	19.46	**387**	4.24	**390**	15.25	**384**

SCGT / SCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
SC.T 09T3..	9.52	3.97	4.4	9.52
SC.T 1204..	12.70	4.76	5.5	12.70

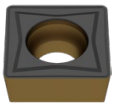


SCGT / SCMT

		NEW	NEW	NEW	NEW
	-CF05 CTEP110	-CF55 CTEP110	-SF TCM10	-SF CTCP115-P	-SF CTCP125-P	-SMF CTCP115-P	-SMF CTCP135-P
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	F	F	F	F	F	F	F
	CERMET SCGT	CERMET SCMT	CERMET SCGT	SCMT	SCMT	SCMT	SCMT
	76 261 ...	76 260 ...	70 271 ...	76 187 ...	76 269 ...	76 267 ...	76 267 ...
ISO / RE mm	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
09T304EN 0.4	18.29 004	11.73 004	16.78 902		11.75 50401	11.75 30401	
09T308EN 0.8	18.29 006	11.73 006	16.78 904	12.12 30601	11.75 50601	11.75 30601	
120408EN 0.8					16.54 51801		16.54 71801
P	●	●	●	●	●	●	●
M	○	○	○				○
K	○	○	○	○	○	○	
N							
S							
H							
O							

9

SCMT

			NEW	NEW	NEW
	-SM CTCK110	-SM CTCK120	-SM CTCP115-P	-SM CTCP125-P	-SM CTCP135-P
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	M	M	M	M	M
	SCMT	SCMT	SCMT	SCMT	SCMT
	70 268 ...	70 268 ...	76 268 ...	76 268 ...	76 268 ...
ISO / RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
09T304EN 0.4	11.75 004	11.75 504	11.75 30401	11.75 50401	11.75 70401
09T308EN 0.8	11.75 006	11.75 506	11.75 30601	11.75 50601	11.75 70601
120408EN 0.8	16.54 018	16.54 518	16.54 31801	16.54 51801	16.54 71801
120412EN 1.2	16.54 020	16.54 520		16.54 52001	
P	○	○	●	●	●
M					○
K	●	●	○	○	
N					
S					
H					
O					

SCMT

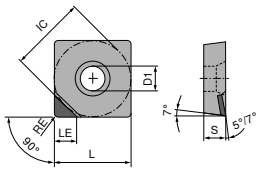
		NEW	NEW			
		-M25 CTPM125	-SM CTPM125	-M55 CTCM120	-M55 CTPM125	-M55 CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		F	M	M	M	M
		SCMT	SCMT	SCMT	SCMT	SCMT
		75 222 ...	75 049 ...	75 216 ...	75 216 ...	75 216 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
09T304EN	0.4	12.11 70400				
09T308EN	0.8		12.11 20600	11.75 10600	11.75 206	11.75 30600
120408EN	0.8		17.05 21800	16.54 11800	16.54 218	16.54 31800
P		○	○	○	○	○
M		●	●	●	●	●
K						
N						
S						○
H						
O						

SCGT

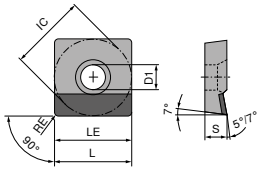
		-25P H210T	-25P CTPX710	-27 CTPX715	-27 H10T
			DRAGONSKIN	DRAGONSKIN	
					
		F	M	M	M
		SCGT	SCGT	SCGT	SCGT
		70 283 ...	70 283 ...	70 270 ...	70 270 ...
ISO	RE mm	£ 1A/90	£ 1A/90	£ 1A/90	£ 1A/90
09T304FN	0.4			16.33 80400	13.23 600
09T308FN	0.8			16.33 80600	13.23 602
120408FN	0.8	16.12 634	19.09 71600	19.54 71800	15.44 604
P			●	●	
M			●	●	
K		○		○	○
N		●	●	●	●
S		○	●	●	
H					
O		○		○	○

SCGW / SCGT

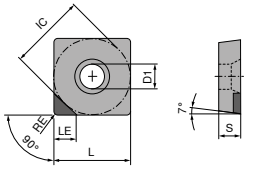
Designation	L	S	D1	IC
	mm	mm	mm	mm
SCG. 09T3..	9.52	3.97	4.4	9.52
SCG. 1204..	12.70	4.76	5.5	12.70



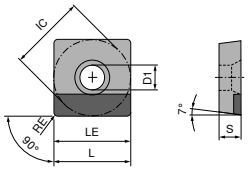
SCGT A



SCGT A



SCGW A



SCGW A

SCGW / SCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPD20		CTDPD20		-CB1 CTDPD20		CTDPS30		CTDPS30	
				F		F		F		F		F	
				DIAMOND SCGW		DIAMOND SCGW		DIAMOND SCGT		DIAMOND SCGW		DIAMOND SCGT	
				71 182 ...		71 183 ...		71 320 ...		71 182 ...		71 180 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
09T304FN	0.4	A (1)	9.52			135.77	10001						
09T304FN	0.4	A (1)	4.40	90.51	10001			145.18	114	90.51	20601	90.51	20001
09T308FN	0.8	A (1)	9.52			135.77	10101						
09T308FN	0.8	A (1)	4.30	90.51	10101			145.18	118			90.51	20101
09T312FN	1.2	A (1)	4.20	90.51	10201							90.51	20201
120404FN	0.4	A (1)	12.70			150.19	10201						
120404FN	0.4	A (1)	4.40	92.58	10301								
120408FN	0.8	A (1)	4.30	92.58	10401								
120408FN	0.8	A (1)	12.70			150.19	10301						
120412FN	1.2	A (1)	4.20	92.58	10501								
120412FN	1.2	A (1)	12.70			150.19	10401						
P													
M													
K													
N				●		●		●		●		●	
S													
H													
O				●		●		●		●		●	

9

SCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

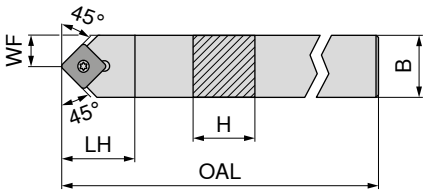
				CTDPS30		-CB2 CTDPS30		-CB3 CTDPU20	
									
				F		M		R	
				DIAMOND SCGT		DIAMOND SCGT		DIAMOND SCGT	
				71 181 ...		71 321 ...		71 322 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0	
09T304FN	0.4	A (1)	4.4			135.12	214	108.04	214
09T308FN	0.8	A (1)	9.5	135.77	20001				
09T308FN	0.8	A (1)	4.3			145.18	218	116.67	218
120408FN	0.8	A (1)	12.7	150.19	20101				
120412FN	1.2	A (1)	12.0	150.19	20201				
P									
M									
K									
N					●		●		●
S									
H									
O					●		●		●

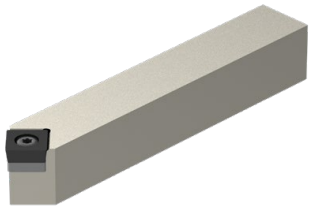
MaxiLock-S – SSDC 45° – Toolholder with screw clamping

Scope of supply:

Tool holder with Torx key







NEW

Neutral

70 651 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	£ 2A/24	
SSDC N 1212 F09	12	12	80	16	6.0	3,2	SC.. 09T3..	79.44	**01200**
SSDC N 1616 H09	16	16	100	20	8.0	3,2	SC.. 09T3..	99.31	**01600**
SSDC N 2020 K09	20	20	125	20	10.0	3,2	SC.. 09T3..	105.27	**02000**
SSDC N 1616 H12	16	16	100	25	8.0	5	SC.. 1204..	99.31	**11600**
SSDC N 2020 K12	20	20	125	25	10.0	5	SC.. 1204..	105.27	**12000**
SSDC N 2525 M12	25	25	150	25	12.5	5	SC.. 1204..	109.25	**12500**

	 Key D	 Clamping screw	 Solid Carbide support S	 Threaded sleeve
	80 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.	£ Y7	£ 2A/28	£ 2A/28	£ 2A/28
70 651 01200	16.05 **120**	4.72 **87900**		
70 651 01600	16.05 **120**	4.72 **87900**		
70 651 02000	16.05 **120**	4.72 **87900**	11.71 **167**	5.62 **171**
70 651 11600	16.05 **120**	3.62 **820**	14.98 **168**	5.62 **170**
70 651 12000	16.05 **120**	3.62 **820**	14.98 **168**	5.62 **170**
70 651 12500	16.05 **120**	3.62 **820**	14.98 **168**	5.62 **170**

9

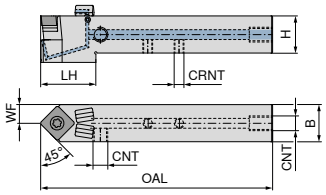
MaxiLock-S – SSDC 45° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key









NEW

Neutral

70 776 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	£ 2A/24	
SSDC N 1212 F09 DC	12	12	80	25	12.8	M6	M6	3,2	SC.. 09T3..	168.10	**01200**
SSDC N 1616 H09 DC	16	16	100	30	16.0	M6	G1/8"	3,2	SC.. 09T3..	186.88	**01600**
SSDC N 2020 K09 DC	20	20	125	30	20.0	M6	G1/8"	3,2	SC.. 09T3..	198.04	**02000**
SSDC N 1616 H12 DC	16	16	100	29	17.3	M6	G1/8"	5	SC.. 1204..	186.88	**11600**
SSDC N 2020 K12 DC	20	20	125	30	20.0	M6	G1/8"	5	SC.. 1204..	198.04	**12000**
SSDC N 2525 M12 DC	25	25	150	30	25.0	M6	G1/8"	5	SC.. 1204..	205.52	**02500**



Clamping screw

70 950 ...



Solid Carbide support S

70 950 ...



Grubscrew

70 950 ...



Grubscrew

70 950 ...



Threaded sleeve

70 950 ...

Spare parts for Article no.	£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28		£ 2A/28	
70 776 01200	4.72	**87900**					3.51	**86700**		
70 776 01600	4.72	**87900**	11.71	**167**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 776 02000	4.72	**87900**	11.71	**167**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 776 11600	3.62	**820**	14.98	**168**	2.16	**88000**	3.51	**86700**	5.62	**170**
70 776 12000	3.62	**820**	14.98	**168**	2.16	**88000**	3.51	**86700**	5.62	**170**
70 776 02500	3.62	**820**	14.98	**168**	2.16	**88000**	3.51	**86700**	5.62	**170**



Sealing plugs DC

70 950 ...



Key D

80 950 ...



O-Ring

70 950 ...



Coolant nozzle DC

70 950 ...



Coolant screw plug

70 950 ...

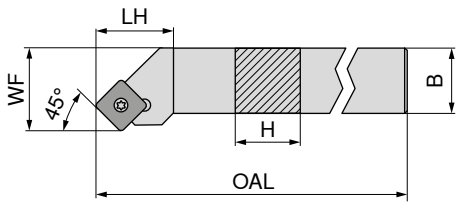
Spare parts for Article no.	£ 2A/28		£ Y7		£ 2A/28		£ 2A/28		£ 2A/28	
70 776 01200			16.05	**120**						
70 776 01600	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 776 02000	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 776 11600	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 776 12000	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 776 02500	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**

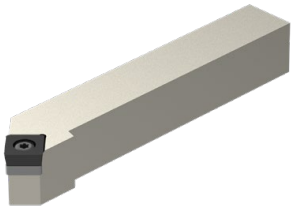
MaxiLock-S – SSSC 45° – Toolholder with screw clamping

Scope of supply:

Tool holder with Torx key







Illustrations show right-hand versions

ISO designation	H	B	OAL	LH	WF	torque moment	Insert	NEW Left-hand 70 654 ... £ 2A/24		NEW Right-hand 70 654 ... £ 2A/24	
	mm	mm	mm	mm	mm	Nm					
SSSC R/L 1212 F09	12	12	80	18	16	3,2	SC.. 09T3..	79.44	**01200**	79.44	**01201**
SSSC R/L 1616 H09	16	16	100	20	20	3,2	SC.. 09T3..	99.31	**01600**	99.31	**01601**
SSSC R/L 2020 K09	20	20	125	20	25	3,2	SC.. 09T3..	105.27	**02000**	105.27	**02001**
SSSC R/L 1616 H12	16	16	100	25	20	5	SC.. 1204..	99.31	**11600**	99.31	**11601**
SSSC R/L 2020 K12	20	20	125	25	25	5	SC.. 1204..	105.27	**12000**	105.27	**12001**
SSSC R/L 2525 M12	25	25	150	25	32	5	SC.. 1204..	109.25	**12500**	109.25	**12501**
SSSC R 3225 P12	32	25	170	25	32	5	SC.. 1204..			114.20	**13201**

Spare parts for Article no.	Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28		Solid Carbide support S 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 654 01201 / 70 654 01200	16.05	**120**	4.72	**87900**				
70 654 01601 / 70 654 01600	16.05	**120**	4.72	**87900**	11.71	**167**	5.62	**171**
70 654 02001 / 70 654 02000	16.05	**120**	4.72	**87900**	11.71	**167**	5.62	**171**
70 654 11601 / 70 654 11600	16.05	**120**	3.62	**820**	14.98	**168**	5.62	**170**
70 654 12001 / 70 654 12000	16.05	**120**	3.62	**820**	14.98	**168**	5.62	**170**
70 654 12501 / 70 654 12500	16.05	**120**	3.62	**820**	14.98	**168**	5.62	**170**
70 654 13201	16.05	**120**	3.62	**820**	14.98	**168**	5.62	**170**

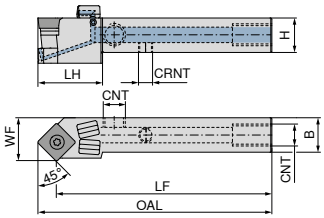
MaxiLock-S – SSSC 45° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key







Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert	NEW Left-hand 70 777 ... £ 2A/24		NEW Right-hand 70 777 ... £ 2A/24	
	mm	mm	mm	mm	mm			Nm					
SSSC R/L 1212 F09 DC	12	12	86.5	22	16.0	M6	M6	3,2	SC.. 09T3..	168.10	**01201**	168.10	**01200**
SSSC R/L 1616 H09 DC	16	16	106.5	30	20.0	M6	G1/8"	3,2	SC.. 09T3..	186.88	**01601**	186.88	**01600**
SSSC R/L 2020 K09 DC	20	20	131.5	30	25.0	M6	G1/8"	3,2	SC.. 09T3..	198.04	**02001**	198.04	**02000**
SSSC R/L 1616 H12 DC	16	16	108.5	30	20.0	M6	G1/8"	5	SC.. 1204..	186.88	**11601**	186.88	**11600**
SSSC R/L 2020 K12 DC	20	20	133.5	30	25.0	M6	G1/8"	5	SC.. 1204..	198.04	**12001**	198.04	**12000**
SSSC R/L 2525 M12 DC	25	25	158.5	32	32.0	M6	G1/8"	5	SC.. 1204..	205.52	**02501**	205.52	**02500**
SSSC L 3225 P 12 DC	32	25	178.5	32	32.1	G1/8"	G1/8"	5	SC.. 1204..	215.80	**03201**		



Clamping screw



Solid Carbide support S



Grubscrew



Grubscrew



Threaded sleeve

Spare parts for Article no.	70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 777 01200 / 70 777 01201	3.79	**859**					3.51	**86700**		
70 777 01600 / 70 777 01601	4.72	**87900**	11.71	**167**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 777 02000 / 70 777 02001	4.72	**87900**	11.71	**167**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 777 11600 / 70 777 11601	3.62	**820**	14.98	**168**	2.16	**88000**	3.51	**86700**	5.62	**170**
70 777 12000 / 70 777 12001	3.62	**820**	14.98	**168**	2.16	**88000**	3.51	**86700**	5.62	**170**
70 777 02500 / 70 777 02501	3.62	**820**	14.98	**168**	2.16	**88000**	3.51	**86700**	5.62	**170**
70 777 03201	3.62	**820**	14.98	**168**	2.16	**88000**			5.62	**170**



Sealing plugs DC

Key D



O-Ring



Coolant nozzle DC



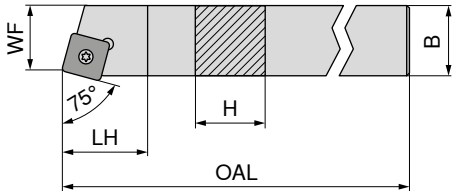
Coolant screw plug

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 777 01200 / 70 777 01201			16.05	**120**						
70 777 01600 / 70 777 01601	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 777 02000 / 70 777 02001	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 777 11600 / 70 777 11601	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 777 12000 / 70 777 12001	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 777 02500 / 70 777 02501	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 777 03201	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**

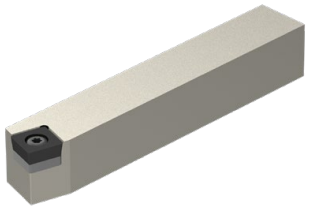
MaxiLock-S – SSBC 75° – Toolholder with screw clamping

Scope of supply:
Tool holder with blind plug and Torx key





Illustrations show right-hand versions



								NEW Left-hand 70 650 ... £ 2A/24		NEW Right-hand 70 650 ... £ 2A/24	
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert				
SSBC R/L 2020 K12	20	20	125	20	17	5	SC.. 1204..	105.27	**12000**	105.27	**12001**
SSBC R/L 2525 M12	25	25	150	20	22	5	SC.. 1204..	109.25	**12500**	109.25	**12501**


Key D


Clamping screw


Solid Carbide support S


Threaded sleeve

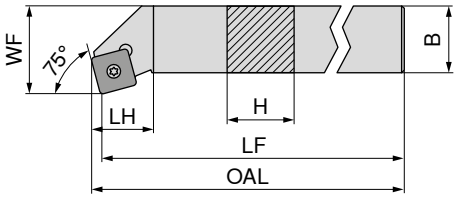
Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 650 12001 / 70 650 12000	16.05	**120**	3.62	**820**	14.98	**168**	5.62	**170**
70 650 12501 / 70 650 12500	16.05	**120**	3.62	**820**	14.98	**168**	5.62	**170**

MaxiLock-S – SSKC 75° – Toolholder with screw clamping

9

Scope of supply:
Tool holder with blind plug and Torx key





Illustrations show right-hand versions



									Left-hand 70 669 ... £ 2A/24		Right-hand 70 668 ... £ 2A/24	
ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert				
SSKC R/L 1616 H09	16	16	100	102.3	22	20	3,2	SC.. 09T3..	96.89	**016**	96.89	**016**
SSKC R/L 2020 K09	20	20	125	127.3	22	25	3,2	SC.. 09T3..	102.99	**020**	102.99	**020**
SSKC R 2020 K12	20	20	125	127.3	23	25	5	SC.. 1204..			102.99	**120**
SSKC R 2525 M12	25	25	150	153.3	23	32	5	SC.. 1204..			106.53	**125**


Key D


Combination Key


Clamping screw


Solid Carbide support S


Threaded sleeve

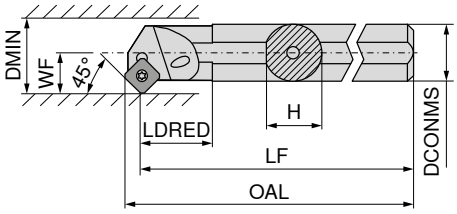
Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 668 016 / 70 669 016	16.32	**113**	10.04	**398**	3.79	**113**	11.71	**167**	5.62	**171**
70 668 020 / 70 669 020	16.32	**113**	10.04	**398**	3.79	**113**	11.71	**167**	5.62	**171**
70 668 120	16.32	**113**	10.04	**398**	3.13	**114**	14.98	**168**	5.62	**170**
70 668 125	16.32	**113**	10.04	**398**	3.13	**114**	14.98	**168**	5.62	**170**

MaxiLock-S – SSSC 45° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 721 ... £ 2A/24		Right-hand 70 720 ... £ 2A/24	
S16R SSSC R 09	16	15.00	200	206.0	13.97	11	20	3,2	SC.. 09T3..			119.50	**016**
A16M SSSC R/L 09	16	15.25	150	156.0	29.00	11	20	3,2	SC.. 09T3..	119.50	**216**	119.50	**216**
A20Q SSSC R/L 09	20	19.00	180	186.0	32.00	13	25	3,2	SC.. 09T3..	148.95	**220**	148.95	**220**
A25R SSSC R/L 09	25	24.50	200	206.0	36.00	17	32	3,2	SC.. 09T3..	171.24	**225**	171.24	**225**
A32S SSSC R/L 12	32	31.00	250	258.3	50.00	22	40	5	SC.. 1204..	235.43	**232**	235.43	**232**
A40T SSSC R/L 12	40	39.00	300	308.1	60.00	27	50	5	SC.. 1204..	282.64	**240**	282.64	**240**


Key D


Combination Key


Clamping screw


Solid Carbide support S

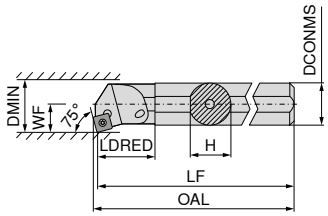

Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 720 016	16.32	**113**			3.79	**110**				
70 720 216 / 70 721 216	16.32	**113**			3.79	**110**				
70 720 220 / 70 721 220	16.32	**113**			3.79	**304**				
70 720 225 / 70 721 225	16.32	**113**			3.79	**304**				
70 720 232 / 70 721 232			10.04	**398**	3.13	**114**	14.98	**168**	5.62	**170**
70 720 240 / 70 721 240			10.04	**398**	3.13	**114**	14.98	**168**	5.62	**170**

MaxiLock-S – SSKC 75° – Boring bar with screw clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 725 ... £ 2A/24		Right-hand 70 724 ... £ 2A/24	
A16M SSKC R/L 09	16	15.0	150	152.4	29	11	20	3,2	SC.. 09T3..	119.50	**216**	119.50	**216**
A20Q SSKC R/L 09	20	18.5	180	182.4	32	13	25	3,2	SC.. 09T3..	148.95	**220**	148.95	**220**
A25R SSKC R/L 09	25	23.0	200	202.4	36	17	32	3,2	SC.. 09T3..	171.24	**225**	171.24	**225**

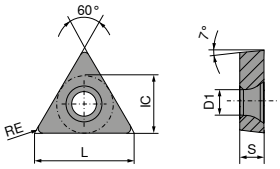

Key D


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 724 216 / 70 725 216	T15	16.32	**113**	M3,5x7,2	3.79	**110**
70 724 220	T15	16.32	**113**	M3,5x8,6	3.79	**304**
70 725 220	T15	16.32	**113**	M3,5x8,6	3.79	**304**
70 724 225 / 70 725 225	T15	16.32	**113**	M3,5x8,6	3.79	**304**

TCGT / TCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
TCMT 0902..	9.6	2.38	2.50	5.56
TC.T 1102..	11.0	2.38	2.80	6.35
TC.T 16T3..	16.5	3.97	4.40	9.52
TCMT 2204..	22.0	4.76	5.16	12.70



TCGT / TCMT

		-CF05 CTEP110	-CF55 CTEP110	-SF TCM10	-SMF TCM10	NEW -SF CTCP125-P	NEW -SMF CTCP115-P	NEW -SMF CTCP135-P
		DRAGONSKIN	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	F	F	F	F
		CERMET TCGT	CERMET TCMT	CERMET TCGT	CERMET TCMT	TCMT	TCMT	TCMT
		76 272 ...	76 266 ...	70 273 ...	70 284 ...	76 275 ...	76 284 ...	76 284 ...
ISO	RE mm	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/08	£ 1A/08	£ 1A/08
110202EN	0.2	16.42 014		15.18 900				
110204EN	0.4	16.42 016	9.36 016	15.18 902	8.82 902	9.27 51601		
110208EN	0.8	16.42 018				9.27 51801	9.27 31801	9.27 71801
16T304EN	0.4	20.78 028		19.25 906		13.37 52801	13.37 32801	
16T308EN	0.8		12.97 030			13.37 53001	13.37 33001	
P		●	●	●	●	●	●	●
M		○	○	○	○			○
K		○	○	○	○	○	○	
N								
S								
H								
O								

9

TCGT / TCMT

		NEW			NEW	NEW	NEW	NEW
		-SM CTCP135-P	-SM CTCK110	-SM CTCK120	-SM CTCP115-P	-SM CTCP115-P	-SM CTCP125-P	-SM CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	M	M	M	M	M
		TCGT	TCMT	TCMT	TCMT	TCMT	TCMT	TCMT
		76 270 ...	70 274 ...	70 274 ...	76 189 ...	76 274 ...	76 274 ...	76 274 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
090204EN	0.4						9.27 50401	9.27 70401
110202EN	0.2	16.42 71401						
110204EN	0.4		9.27 016	9.27 516		9.27 31601	9.27 51601	9.27 71601
110208EN	0.8		9.27 018	9.27 518		9.27 31801		9.27 71801
16T304EN	0.4		13.37 028	13.37 528		13.37 32801	13.37 52801	13.37 72801
16T308EN	0.8		13.37 030	13.37 530		13.37 33001	13.37 53001	13.37 73001
16T312EN	1.2		13.37 032	13.37 532				
220408EN	0.8				19.82 34201		19.25 54201	19.25 74201
P		●	○	○	●	●	●	●
M		○						○
K			●	●	○	○	○	
N								
S								
H								
O								

TCMT

		NEW				NEW	
		-F43 CTCM130	-M25 CTCM120	-M25 CTPM125	-M25 CTCM130	-SM CTPM125	-M55 CTCM120
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	F	F	F	M	M
		TCMT	TCMT	TCMT	TCMT	TCMT	TCMT
		75 033 ...	75 217 ...	75 217 ...	75 217 ...	75 050 ...	75 218 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
090204EN	0.4			9.52 20400		9.52 20400	9.27 10400
110204EN	0.4	9.52 31600	9.27 11600	9.27 216	9.27 31600	9.52 21600	9.27 11600
16T304EN	0.4	13.77 32800	12.72 12800	13.37 228	13.37 32800	13.77 22800	
16T308EN	0.8	13.77 33000	12.72 13000	13.37 230	13.37 33000	13.77 23000	13.37 13000
220408EN	0.8					19.82 24200	
220412EN	1.2					19.82 24400	
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S		○			○		
H							
O							

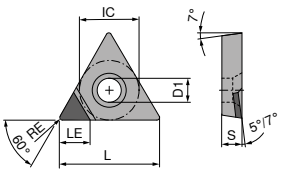
TCMT / TCGT

		-M55 CTPM125		-M55 CTCM130		-27 H10T		-27 CTPX715	
		DRAGONSKIN		DRAGONSKIN				DRAGONSKIN	
									
		M		M		M		M	
		TCMT		TCMT		TCGT		TCGT	
		75 218 ...		75 218 ...		70 276 ...		70 276 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/90		£ 1A/90	
090204EN	0.4	9.27	204	9.27	30400				
110202FN	0.2					13.23	600	16.44	71400
110204EN	0.4	9.27	216	9.27	31600				
110204FN	0.4					13.23	602	16.33	81600
16T302FN	0.2					15.56	604		
16T304FN	0.4					15.56	606	19.27	72800
16T308EN	0.8	13.37	230	13.37	33000				
16T308FN	0.8					15.56	608	19.18	83000
P		○		○				●	
M		●		●				●	
K							○	○	
N							●	●	
S				○				●	
H									
O							○	○	

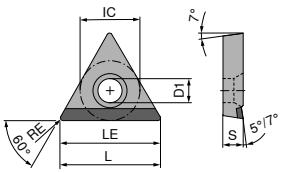
9

TCGW / TCGT

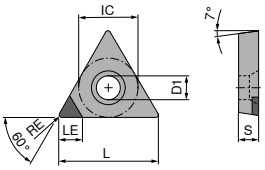
Designation	L	S	D1	IC
	mm	mm	mm	mm
TCG. 0902..	9.6	2.38	2.5	5.56
TCG. 1102..	11.0	2.38	2.8	6.35
TCG. 16T3..	16.5	3.97	4.4	9.52



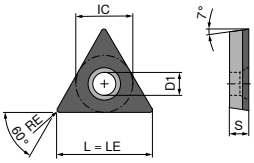
TCGT A



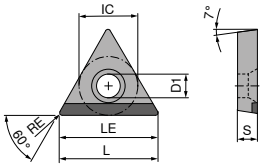
TCGT A



TCGW A



TCGW F



TCGW A

TCGW / TCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPD20		CTDPD20		CTDPD20		CTDPD20		-CB1 CTDPD20		CTDPS30	
															
				F		F		F		F		F		F	
				DIAMOND TCGW		DIAMOND TCGW		DIAMOND TCGW		DIAMOND TCGT		DIAMOND TCGT		DIAMOND TCGT	
				71 188 ...		71 187 ...		71 140 ...		71 184 ...		71 325 ...		71 184 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
090202FN	0.2	A (1)	3.7					106.11	100			117.65	112	80.24	20001
090204FN	0.4	A (1)	3.4					106.11	102			117.65	114	80.24	20101
090208FN	0.8	A (1)	3.0					106.11	104	80.24	10001				
090208FN	0.8	A (1)	9.6	121.38	10001										
110202FN	0.2	A (1)	3.7					101.41	106	84.35	10101	122.70	122		
110202FN	0.2	F	11.0			273.82	10001								
110204FN	0.4	A (1)	3.4					101.41	108	84.35	10201	122.70	124	84.35	20201
110204FN	0.4	F	11.0			273.82	10101								
110204FN	0.4	A (1)	11.0	127.54	10101										
110208FN	0.8	A (1)	3.0					101.41	110	84.35	10301				
110208FN	0.8	A (1)	11.0	127.54	10201										
16T304FN	0.4	A (1)	4.6					106.11	112	92.58	10401	122.80	134	92.58	20301
16T304FN	0.4	A (1)	16.5	168.65	10301										
16T308FN	0.8	A (1)	4.2					106.11	114	92.58	10501	122.80	13600		
16T308FN	0.8	A (1)	16.5	168.65	10401										
16T312FN	1.2	A (1)	3.8					106.11	11600						
P															
M															
K															
N				●		●		●		●		●		●	
S															
H															
O				●		●		●		●		●		●	

TCGW / TCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPS30		CTDPS30		-CB2 CTDPS30		CTDPU20		-CB3 CTDPU20		CTDCD10	
															
				F		F		M		F		R		F	
				DIAMOND TCGW		DIAMOND TCGT		DIAMOND TCGT		DIAMOND TCGW		DIAMOND TCGT		DIAMOND TCGW	
				71 186 ...		71 185 ...		71 326 ...		71 188 ...		71 327 ...		71 186 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
090202FN	0.2	A (1)	3.7	80.24	20001			117.65	212						
090204FN	0.4	A (1)	3.4					117.65	214						
090204FN	0.4	A (1)	9.6			121.38	20001								
110202FN	0.2	A (1)	2.6											106.96	40001
110202FN	0.2	A (1)	3.7	84.35	20101			122.70	222						
110204FN	0.4	A (1)	2.3											106.96	40101
110204FN	0.4	A (1)	3.4	84.35	20201			122.70	224			97.95	224		
110204FN	0.4	A (1)	11.0			127.54	20101			119.30	30001				
110208FN	0.8	A (1)	2.0											106.96	40201
110208FN	0.8	A (1)	11.0			127.54	20201								
16T304FN	0.4	A (1)	2.3											115.18	40301
16T304FN	0.4	A (1)	4.6					122.80	234						
16T304FN	0.4	A (1)	16.5			168.65	20301								
16T308FN	0.8	A (1)	2.0											115.18	40401
16T308FN	0.8	A (1)	4.2									103.70	238		
16T308FN	0.8	A (1)	16.5			168.65	20401								
P															
M															
K															
N				●		●		●		●		●		●	
S															
H															
O				●		●		●		●		●		●	

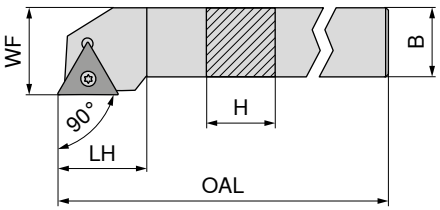
9

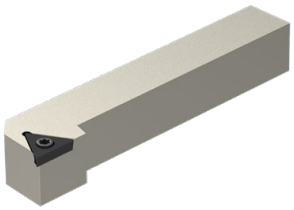
MaxiLock-S – STGC 90° – Toolholder with screw clamping

Scope of supply:

Tool holder with Torx key







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 659 ... £ 2A/24		NEW Right-hand 70 659 ... £ 2A/24	
STGC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	79.44	**01200**	79.44	**01201**
STGC R/L 1616 H16	16	16	100	22	20	3,2	TC.. 16T3	99.31	**01600**	99.31	**01601**
STGC R/L 2020 K16	20	20	125	22	25	3,2	TC.. 16T3	105.27	**02000**	105.27	**02001**
STGC R/L 2525 M16	25	25	150	22	32	3,2	TC.. 16T3	109.25	**02500**	109.25	**02501**

Spare parts for Article no.	 Key D 80 950 ... £ Y7		 Clamping screw 70 950 ... £ 2A/28		 Solid Carbide Seat T 70 950 ... £ 2A/28		 Threaded sleeve 70 950 ... £ 2A/28	
70 659 01201 / 70 659 01200	11.62	**039**	4.96	**857**				
70 659 01601 / 70 659 01600	16.05	**120**	4.72	**87900**	9.39	**169**	5.62	**171**
70 659 02001 / 70 659 02000	16.05	**120**	4.72	**87900**	9.39	**169**	5.62	**171**
70 659 02501 / 70 659 02500	16.05	**120**	4.72	**87900**	9.39	**169**	5.62	**171**

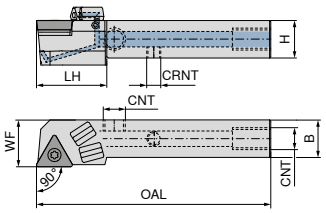
MaxiLock-S – STGC 90° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key







Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert	NEW Left-hand 70 778 ... £ 2A/24		NEW Right-hand 70 778 ... £ 2A/24	
	mm	mm	mm	mm	mm			Nm					
STGC R/L 1212 F11 DC	12	12	80	17.1	16	M6	M6	1,2	TC.. 1102	168.10	**01201**	168.10	**01200**
STGC R/L 1616 H16 DC	16	16	100	30.0	20	M6	G1/8"	3,2	TC.. 16T3	186.88	**01601**	186.88	**01600**
STGC R/L 2020 K16 DC	20	20	125	28.0	25	M6	G1/8"	3,2	TC.. 16T3	198.04	**02001**	198.04	**02000**
STGC R/L 2525 M16 DC	25	25	150	30.0	32	M6	G1/8"	3,2	TC.. 16T3	205.52	**02501**	205.52	**02500**

Spare parts for Article no.	Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat T 70 950 ... £ 2A/28		Grubscrew 70 950 ... £ 2A/28		Grubscrew 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 778 01200 / 70 778 01201	4.96	**857**					3.51	**86700**		
70 778 01600 / 70 778 01601	4.72	**87900**	9.39	**169**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 778 02000 / 70 778 02001	4.72	**87900**	9.39	**169**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 778 02500 / 70 778 02501	4.72	**87900**	9.39	**169**	2.16	**88000**	3.51	**86700**	5.62	**171**

Spare parts for Article no.	Sealing plugs DC 70 950 ... £ 2A/28		Key D 80 950 ... £ Y7		O-Ring 70 950 ... £ 2A/28		Coolant nozzle DC 70 950 ... £ 2A/28		Coolant screw plug 70 950 ... £ 2A/28	
70 778 01200 / 70 778 01201			11.62	**039**						
70 778 01600 / 70 778 01601	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 778 02000 / 70 778 02001	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 778 02500 / 70 778 02501	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**

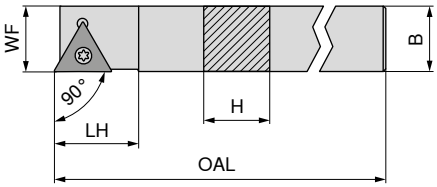
MaxiLock-S – STAC 90° – Toolholder with screw clamping

▲ for sliding head lathes

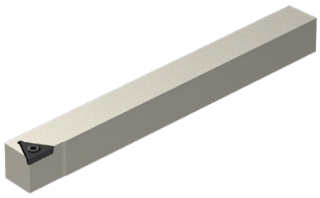
Scope of supply:

Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 655 ... £ 2A/24		NEW Right-hand 70 655 ... £ 2A/24	
STAC R/L 1212 K11	12	12	125	15	12	1,2	TC.. 1102	89.36	**01200**	89.36	**01201**



Key D



Clamping screw

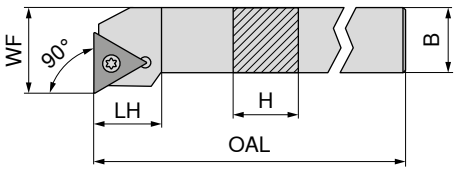
Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 655 01201 / 70 655 01200	T08 - IP	11.62	**039**	M2,5x6 - IP	4.96	**857**

MaxiLock-S – STFC 90° – Toolholder with screw clamping

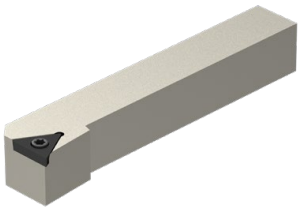
Scope of supply:

Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 658 ... £ 2A/24		NEW Right-hand 70 658 ... £ 2A/24	
STFC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	79.44	**01200**	79.44	**01201**
STFC R/L 1616 H16	16	16	100	20	20	3,2	TC.. 16T3	99.31	**01600**	99.31	**01601**
STFC R/L 2020 K16	20	20	125	20	25	3,2	TC.. 16T3	105.27	**02000**	105.27	**02001**
STFC R/L 2525 M16	25	25	150	20	32	3,2	TC.. 16T3	109.25	**02500**	109.25	**02501**

Key D



Clamping screw



Solid Carbide Seat T



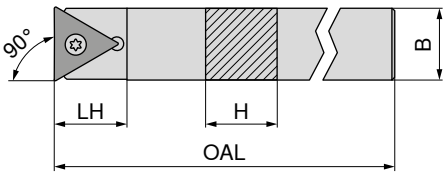
Threaded sleeve

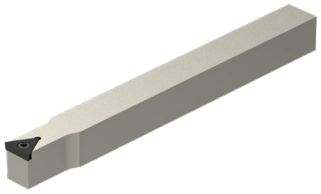
Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 658 01200 / 70 658 01201	11.62	**039**	4.96	**857**				
70 658 01600 / 70 658 01601	16.05	**120**	4.72	**87900**	9.39	**169**	5.62	**171**
70 658 02000 / 70 658 02001	16.05	**120**	4.72	**87900**	9.39	**169**	5.62	**171**
70 658 02500 / 70 658 02501	16.05	**120**	4.72	**87900**	9.39	**169**	5.62	**171**

MaxiLock-S – STCC 90° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







NEW
Neutral

ISO designation	H mm	B mm	OAL mm	LH mm	torque moment Nm	Insert	70 657 ... £ 2A/24	
STCC N 0808 K09	8	8	125	11	1	TC.. 0902	74.49	**00800**
STCC N 1010 K11	10	10	125	15	1,2	TC.. 1102	79.44	**01000**
STCC N 1212 K11	12	12	125	15	1,2	TC.. 1102	89.36	**01200**
STCC N 1414 K11	14	14	125	21	1,2	TC.. 1102	89.36	**01400**
STCC N 1616 K11	16	16	125	24	1,2	TC.. 1102	99.31	**01600**



Key D



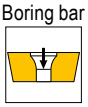
Clamping screw

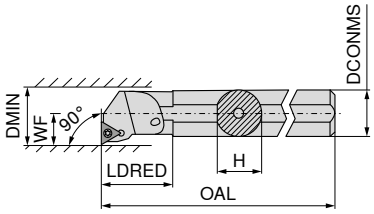
Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28	
70 657 00800	T07 - IP	13.95 **117**	M2,2x5 - IP	3.85 **856**
70 657 01000	T08 - IP	11.62 **039**	M2,5x6 - IP	4.96 **857**
70 657 01200	T08 - IP	11.62 **039**	M2,5x6 - IP	4.96 **857**
70 657 01400	T08 - IP	11.62 **039**	M2,5x6 - IP	4.96 **857**
70 657 01600	T08 - IP	11.62 **039**	M2,5x6 - IP	4.96 **857**

MaxiLock-S – STFC 90° – Boring bar with screw clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions



									Left-hand		Right-hand	
									70 729 ...		**70 728 ...**	
ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	£		£	
	mm	mm	mm	mm	mm	mm	Nm		2A/24		2A/24	
A10H STFC R/L 09	10	9.5	100	19	7	13	1	TC.. 0902	116.94	**210**	116.94	**210**
A12K STFC R/L 11	12	11.5	125	22	9	16	1,2	TC.. 1102	116.94	**212**	116.94	**212**
A16M STFC R/L 11	16	15.0	150	29	11	20	1,2	TC.. 1102	119.50	**216**	119.50	**216**
S16R STFC R 11	16	15.0	200	21	11	21	1,2	TC.. 1102			119.50	**016**
S20S STFC R 11	20	18.0	250	15	13	25	1,2	TC.. 1102			148.95	**020**
A20Q STFC R/L 11	20	18.5	180	32	13	25	1,2	TC.. 1102	148.95	**220**	148.95	**220**
A25R STFC R/L 16	25	24.0	200	36	17	32	3,2	TC.. 16T3	171.24	**225**	171.24	**225**
A32S STFC R/L 16	32	31.0	250	50	22	40	3,2	TC.. 16T3	235.43	**232**	235.43	**232**
A40T STFC R/L 16	40	39.0	300	60	27	50	3,2	TC.. 16T3	282.64	**240**	282.64	**240**


Clamping screw


Solid Carbide Seat T


Threaded sleeve

									70 950 ...		**70 950 ...**	
Spare parts for Article no.									£ 2A/28		£ 2A/28	
70 728 020								M2,5x6 - T08	2.86	**13800**		
70 729 210 / 70 728 210								M2,2x5	3.13	**111**		
70 728 016								M2,5x6 - T08	2.86	**13800**		
70 729 212 / 70 728 212								M2,5x6 - T08	2.86	**13800**		
70 729 216 / 70 728 216								M2,5x6 - T08	2.86	**13800**		
70 729 220 / 70 728 220								M2,5x6 - T08	2.86	**13800**		
70 729 225 / 70 728 225								M3,5x11	3.79	**113**	9.39	**169**	M3,5	5.62	**171**
70 729 232 / 70 728 232								M3,5x11	3.79	**113**	9.39	**169**	M3,5	5.62	**171**
70 729 240 / 70 728 240								M3,5x11	3.79	**113**	9.39	**169**	M3,5	5.62	**171**

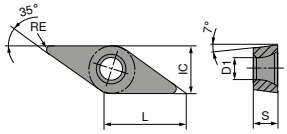

Key D


Combination Key

									80 950 ...		**70 950 ...**	
Spare parts for Article no.									£ Y7		£ 2A/28	
70 728 020								T08	13.73	**110**		
70 729 210 / 70 728 210								T07	13.73	**109**		
70 728 016								T08	13.73	**110**		
70 729 212 / 70 728 212								T08	13.73	**110**		
70 729 216 / 70 728 216								T08	13.73	**110**		
70 729 220 / 70 728 220								T08	13.73	**110**		
70 729 225 / 70 728 225											T15/SW	10.04	**398**
70 729 232 / 70 728 232											T15/SW	10.04	**398**
70 729 240 / 70 728 240											T15/SW	10.04	**398**

VCGT / VCMT / VCET

Designation	L	S	D1	IC
	mm	mm	mm	mm
VC.T 1103..	11.1	3.18	2.9	6.35
VC.T 1604..	16.6	4.76	4.4	9.52
VCGT 2205..	22.1	5.56	5.5	12.70



VCGT / VCMT

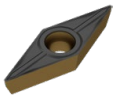
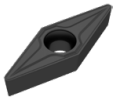
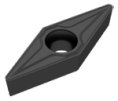
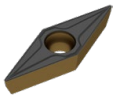
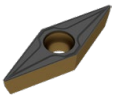
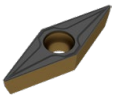
		NEW	NEW				NEW	NEW
		-CF05 CTEP110	-CF55 CTEP110	-SF TCM407	-SF TCM10	-SMF TCM10	-SF CTCP115-P	-SF CTCP115-P
		DRAGONSKIN	DRAGONSKIN				DRAGONSKIN	DRAGONSKIN
		F	F	F	F	F	F	F
		CERMET VCGT	CERMET VCMT	CERMET VCGT	CERMET VCGT	CERMET VCMT	VCMT	VCGT
		76 276 ...	76 292 ...	70 277 ...	70 277 ...	70 288 ...	76 279 ...	76 277 ...
ISO	RE mm	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/78	£ 1A/08	£ 1A/08
110301EN	0.1				18.57 892			
110302EN	0.2	20.33 014		18.57 844	18.57 894			19.39 31401
110304EN	0.4	20.33 016	15.78 016	18.57 846	18.57 896	14.91 896		19.39 31601
110308EN	0.8							19.39 31801
160404EN	0.4	24.25 028	19.39 028	23.43 850	23.43 900	18.45 900	19.39 32801	
160408EN	0.8	24.25 030	19.39 030		23.43 902	18.45 902	19.39 33001	
P		●	●	●	●	●	●	●
M		○	○	○	○	○		
K		○	○	○	○	○	○	○
N								
S								
H								
O								

9

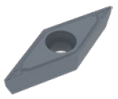
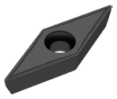
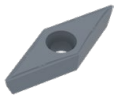
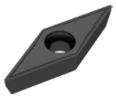
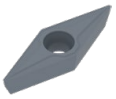
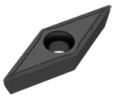
VCGT / VCMT

		NEW	NEW	NEW	NEW	NEW	NEW	NEW
		-SF CTCP125-P	-SF CTCP125-P	-SF CTCP135-P	-SF CTCP135-P	-SMF CTCP115-P	-SMF CTCP125-P	-SMF CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		F	F	F	F	F	F	F
		VCGT	VCMT	VCGT	VCMT	VCMT	VCMT	VCGT
		76 277 ...	76 279 ...	76 277 ...	76 279 ...	76 288 ...	76 288 ...	76 285 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
110302EN	0.2	19.39 51401		19.39 71401				19.39 71401
110304EN	0.4	19.39 51601		19.39 71601		16.68 31601	16.68 51601	
110308EN	0.8	19.39 51801		19.39 71801				
160404EN	0.4		19.39 52801		19.39 72801	19.39 32801	19.39 52801	
160408EN	0.8		19.39 53001			19.39 33001	19.39 53001	
P		●	●	●	●	●	●	●
M				○	○			○
K		○	○			○	○	
N								
S								
H								
O								

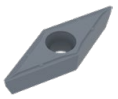
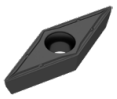
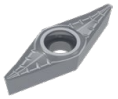
VCMT

		NEW				NEW	NEW	NEW
		-SMF CTCP135-P	-SM CTCK110	-SM CTCK120	-SM CTCP115-P	-SM CTCP125-P	-SM CTCP135-P
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F	M	M	M	M	M
		VCMT	VCMT	VCMT	VCMT	VCMT	VCMT
		76 288 ...	70 278 ...	70 278 ...	76 278 ...	76 278 ...	76 278 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
110304EN	0.4	16.68 71601					
160404EN	0.4	19.39 72801	19.39 028	19.39 528	19.39 32801	19.39 52801	19.39 72801
160406EN	0.6				19.39 32901		
160408EN	0.8	19.39 73001	19.39 030	19.39 530	19.39 33001	19.39 53001	19.39 73001
160412EN	1.2		19.39 032	19.39 532	19.39 33201	19.39 53201	19.39 73201
P		●	○	○	●	●	●
M		○					○
K			●	●	○	○	
N							
S							
H							
O							

VCGT / VCMT

		NEW	NEW				NEW	
		-SF CTPM125	-SF CTPM125	-M25 CTCM120	-M25 CTPM125	-M25 CTCM130	-SM CTPM125	-M55 CTCM120
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	F	F	F	F	M	M
		VCGT	VCMT	VCMT	VCMT	VCMT	VCMT	VCMT
		75 045 ...	75 046 ...	75 219 ...	75 219 ...	75 219 ...	75 051 ...	75 220 ...
ISO	RE mm	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08	£ 1A/08
110302EN	0.2	19.96 21400						
110304EN	0.4	19.96 21600						
160404EN	0.4		19.96 22800	19.39 12800	19.39 228	19.39 32800	19.96 22800	19.39 12800
160408EN	0.8		19.96 23000	19.39 13000	19.39 23000	19.39 33000	19.96 23000	19.39 13000
P		○	○	○	○	○	○	○
M		●	●	●	●	●	●	●
K								
N								
S						○		
H								
O								

VCMT / VCGT

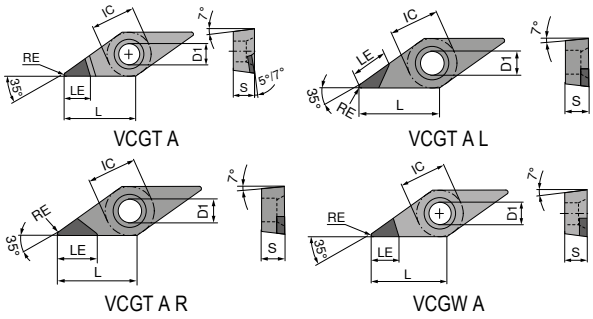
		-M55 CTPM125		-M55 CTCM130		-25P H210T		-25P CTPX710		-25Q H210T		NEW -25Q CTPX710	
		DRAGONSKIN		DRAGONSKIN				DRAGONSKIN					
													
		M		M		F		M		M		M	
		VCMT		VCMT		VCGT		VCGT		VCGT		VCGT	
		75 220 ...		75 220 ...		70 282 ...		70 282 ...		70 282 ...		70 282 ...	
ISO	RE mm	£ 1A/08		£ 1A/08		£ 1A/90		£ 1A/90		£ 1A/90		£ 1A/90	
110302FN	0.2					18.29	638	21.00	71400				
110304FL	0.4									20.33	670	25.87	81600
110304FN	0.4					18.29	640	21.00	71600				
110304FR	0.4									20.33	680	25.87	81700
160404EN	0.4	19.39	228	19.39	32800								
160404FN	0.4					22.35	642	26.03	72800				
160408EN	0.8	19.39	230	19.39	33000								
160408FN	0.8					22.35	644	26.03	73000				
160412FN	1.2					22.35	646	26.03	73200				
220530FN	3.0					30.21	648	34.68	75000				
P		○		○				●				●	
M		●		●				●				●	
K						○				○			
N						●		●		●		●	
S				○		○		●		○		●	
H													
O						○				○			

9

VCGT / VCMT / VCET

VCGT / VCGW

Designation	L	S	D1	IC
	mm	mm	mm	mm
VCG. 0702..	6.9	2.38	2.2	3.97
VCG. 1103..	11.1	3.18	2.9	6.35
VCG. 1303..	13.3	3.18	3.4	7.94
VCG. 1604..	16.6	4.76	4.4	9.52



VCGT / VCGW

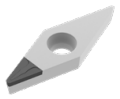
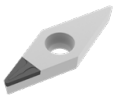
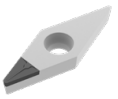
▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDMD05		CTDMD05		CTDPD20		CTDPD20		CTDPD20		CTDPD20	
				F		F		F		F		F		F	
				DIAMOND VCGT		DIAMOND VCGW		DIAMOND VCGW		DIAMOND VCGT		DIAMOND VCGT		DIAMOND VCGT	
				71 189 ...		71 160 ...		71 160 ...		71 062 ...		71 063 ...		71 064 ...	
ISO	RE	TCE (NOI)	LE	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
	mm		mm												
070202FN	0.2	A (1)		793.18	50001										
070204FN	0.4	A (1)		793.18	50101										
110301FN	0.1	A (1)	5.4							121.54	10100				
110302FN	0.2	A (1)	3.0			560.22	050								
110302FN	0.2	A (1)	4.6	822.75	50201			117.27	100	121.54	100				
110304FN	0.4	A (1)	3.0			560.22	052								
110304FN	0.4	A (1)	3.9	822.75	50301			117.27	102	121.54	102				
110304FR	0.4	A (1)	6.5									155.39	102		
110304FL	0.4	A (1)	6.5											155.39	102
110308FN	0.8	A (1)	3.3					121.54	104	121.54	104				
110308FR	0.8	A (1)	6.0									155.39	104		
110308FL	0.8	A (1)	6.0											155.39	104
160401FN	0.1	A (1)	6.0							132.94	10700				
160402FN	0.2	A (1)	5.9					123.79	105	132.94	105				
160402FN	0.2	A (1)		822.75	50401										
160404FN	0.4	A (1)	5.5					126.26	106	132.94	106				
160404FN	0.4	A (1)		822.75	50501										
160404FR	0.4	A (1)	7.5									166.80	106		
160404FL	0.4	A (1)	7.5											166.80	106
160408FN	0.8	A (1)	5.0			768.39	07800	132.94	108	132.94	108				
160408FR	0.8	A (1)	7.0									166.80	108		
160408FL	0.8	A (1)	7.0											166.80	108
160408FN	0.8	A (1)		934.64	50601										
160412FN	1.2	A (1)	4.5					143.98	110	153.07	110				
160412FR	1.2	A (1)	7.0									177.85	110		
160412FL	1.2	A (1)	7.0											177.85	110
P															
M															
K															
N				●		●		●		●		●		●	
S															
H															
O				●		●		●		●		●		●	

9

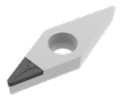
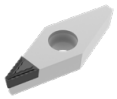
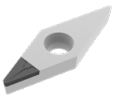
VCGT / VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				-CB1 CTDPD20	CTDPS30	CTDPS30	-CB1 CTDPS30	-CB2 CTDPS30	CTDPU20
									
				F	F	F	F	M	F
				DIAMOND VCGT	DIAMOND VCGW	DIAMOND VCGT	DIAMOND VCGT	DIAMOND VCGT	DIAMOND VCGW
				71 330 ...	71 191 ...	71 189 ...	71 330 ...	71 331 ...	71 191 ...
ISO	RE mm	TCE (NOI)	LE mm	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0	£ Y0
070201FN	0.1	A (1)	3.8			94.62 20001			
070202FN	0.2	A (1)	3.6		94.62 20001				
070204FN	0.4	A (1)	3.2		94.62 20101				
110301FN	0.1	A (1)	5.4	158.94 11000	106.96 20201	106.96 20101			
110302FN	0.2	A (1)	4.6	158.94 112	106.96 20301	106.96 20201	158.94 21200	154.15 212	
110304FN	0.4	A (1)	3.9	158.94 114	106.96 20401	106.96 20301	158.94 214	158.94 214	
110308FN	0.8	A (1)	3.3					158.94 21800	
130302FN	0.2	A (1)	5.9		111.09 20501	111.09 20401			
160401FN	0.1	A (1)	6.0		111.09 20601	111.09 20501			
160402FN	0.2	A (1)	5.9	172.75 13200		111.09 20601		172.75 23200	
160404FN	0.4	A (1)	5.5	172.75 134	111.09 20701	111.09 20701	172.75 234	172.75 234	115.18 30001
160408FN	0.8	A (1)	5.0	190.22 138	111.09 20801		190.22 238	190.22 238	
160412FN	1.2	A (1)	4.5	190.22 14000	123.40 20901		190.22 24000	202.26 242	
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

VCGT / VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

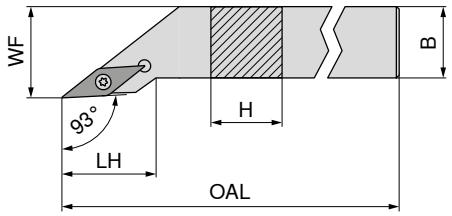
				-CB2 CTDPU20		-CB3 CTDPU20		CTDCD10		-CB1 CTDCD10		-CB2 CTDCD10	
													
				M		R		F		F		M	
				DIAMOND VCGT		DIAMOND VCGT		DIAMOND VCGW		DIAMOND VCGT		DIAMOND VCGT	
				71 190 ...		71 332 ...		71 191 ...		71 330 ...		71 331 ...	
ISO	RE mm	TCE (NOI)	LE mm	£ Y0		£ Y0		£ Y0		£ Y0		£ Y0	
110301FN	0.1	A (1)	3.0							190.22	31000		
110302FN	0.2	A (1)	3.0					113.16	40001	190.22	312	190.22	312
110304FN	0.4	A (1)	3.0					113.16	40101	190.22	314	190.22	314
110304FN	0.4	A (1)	3.9			132.50	214						
110308FN	0.8	A (1)	3.0					127.54	40201				
160402FN	0.2	A (1)	3.0					117.27	40301	190.28	32200	190.28	33200
160404FN	0.4	A (1)	3.0					125.49	40401	190.28	32400	190.28	334
160404FN	0.4	A (1)	5.5	148.11	30001	138.27	234						
160408FN	0.8	A (1)	3.0					141.95	40501	211.94	32600	211.94	338
160412FN	1.2	A (1)	3.0							211.94	32800	211.94	34000
P													
M													
K													
N				●		●		●		●		●	
S													
H													
O				●		●		●		●		●	

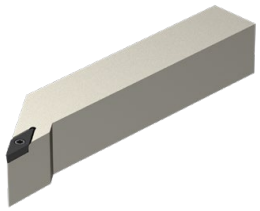
9

MaxiLock-S – SVJC 93° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 663 ... £ 2A/24		NEW Right-hand 70 663 ... £ 2A/24	
SVJC R/L 1212 F11	12	12	80	21.6	16	1,2	VC.. 1103	98.07	**01200**	98.07	**01201**
SVJC R/L 1616 H11	16	16	100	21.6	20	1,2	VC.. 1103	109.25	**01600**	109.25	**01601**
SVJC R/L 2020 K11	20	20	125	23.0	25	1,2	VC.. 1103	116.69	**02000**	116.69	**02001**
SVJC R/L 2525 M11	25	25	150	25.5	32	1,2	VC.. 1103	116.69	**02500**	116.69	**02501**
SVJC R/L 2020 K16	20	20	125	29.4	25	3,2	VC.. 1604	116.69	**12000**	116.69	**12001**
SVJC R/L 2525 M16	25	25	150	32.5	32	3,2	VC.. 1604	116.69	**12500**	116.69	**12501**
SVJC R/L 3225 P16	32	25	170	32.5	32	3,2	VC.. 1604	126.55	**13200**	126.55	**13201**

Spare parts for Article no.	Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat V 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
70 663 01201 / 70 663 01200	11.62	**039**	4.96	**857**				
70 663 01601 / 70 663 01600	11.62	**039**	4.96	**857**				
70 663 02001 / 70 663 02000	11.62	**039**	4.96	**857**				
70 663 02501 / 70 663 02500	11.62	**039**	4.96	**857**				
70 663 12001 / 70 663 12000	16.05	**120**	4.72	**87900**	12.19	**107**	5.62	**171**
70 663 12501 / 70 663 12500	16.05	**120**	4.72	**87900**	12.19	**107**	5.62	**171**
70 663 13201 / 70 663 13200	16.05	**120**	4.72	**87900**	12.19	**107**	5.62	**171**

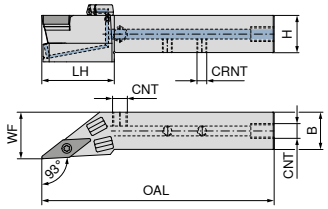
MaxiLock-S – SVJC 93° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key







Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 780 ... £ 2A/24		NEW Right-hand 70 780 ... £ 2A/24	
SVJC R/L 1212 F11 DC	12	12	80	30	16	M6	M6	1,2	VC.. 1103	205.52	**01201**	205.52	**01200**
SVJC R/L 1616 H11 DC	16	16	100	27	20	M6	G1/8"	1,2	VC.. 1103	209.71	**01601**	209.71	**01600**
SVJC R/L 2020 K11 DC	20	20	125	39	25	M6	G1/8"	1,2	VC.. 1103	215.80	**02001**	215.80	**02000**
SVJC R/L 2525 M11 DC	25	25	150	41	32	M6	G1/8"	1,2	VC.. 1103	227.85	**02501**	227.85	**02500**
SVJC R/L 2020 K16 DC	20	20	125	39	25	M6	G1/8"	3,2	VC.. 1604	215.80	**12001**	215.80	**12000**
SVJC R/L 2525 M16 DC	25	25	150	41	32	M6	G1/8"	3,2	VC.. 1604	227.85	**12501**	227.85	**12500**
SVJC R/L 3225 P16 DC	32	25	170	41	32	G1/8"	G1/8"	3,2	VC.. 1604	233.81	**03201**	233.81	**03200**


Clamping screw


Solid Carbide Seat V


Grubscrew


Grubscrew


Threaded sleeve

Spare parts for Article no.	70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 780 01200 / 70 780 01201	4.96	**857**					3.51	**86700**		
70 780 01600 / 70 780 01601	4.96	**857**			2.16	**88000**	3.51	**86700**		
70 780 02000 / 70 780 02001	4.96	**857**			2.16	**88000**	3.51	**86700**		
70 780 02500 / 70 780 02501	4.96	**857**			2.16	**88000**	3.51	**86700**		
70 780 12000 / 70 780 12001	4.72	**87900**	12.19	**107**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 780 12500 / 70 780 12501	4.72	**87900**	12.19	**107**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 780 03200 / 70 780 03201	4.72	**87900**	12.19	**107**	2.16	**88000**			5.62	**171**


Sealing plugs DC


Key D


O-Ring


Coolant nozzle DC

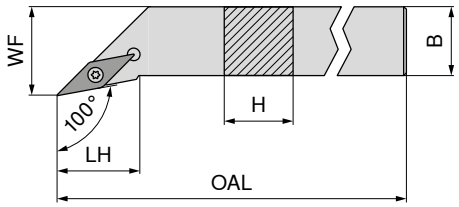

Coolant screw plug

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 780 01200 / 70 780 01201			11.62	**039**						
70 780 01600 / 70 780 01601	1.52	**87600**	11.62	**039**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 780 02000 / 70 780 02001	1.52	**87600**	11.62	**039**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 780 02500 / 70 780 02501	1.52	**87600**	11.62	**039**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 780 12000 / 70 780 12001	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 780 12500 / 70 780 12501	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 780 03200 / 70 780 03201	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**

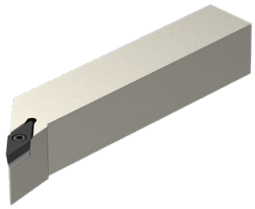
MaxiLock-S – SVZC 100° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions



NEW Left-hand — NEW Right-hand

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	70 667 ... £ 2A/24		70 667 ... £ 2A/24	
SVZC R/L 2525 M16	25	25	150	27.3	32	3,2	VC.. 1604	116.69	**02500**	116.69	**02501**


Key D


Clamping screw


Solid Carbide Seat V


Threaded sleeve

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 667 02500 / 70 667 02501	T15 - IP	16.05	**120**	M3,5x11	4.72	**87900**	12.19	**107**	M3,5	5.62	**171**

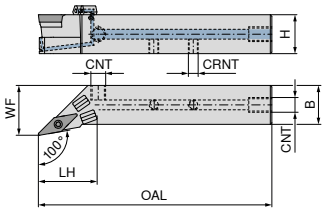
MaxiLock-S – SVZC 100° DC – Tool holder with screw clamping

Scope of supply:

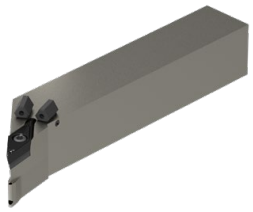
Tool holder with blind plug and Torx key







Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 783 ... £ 2A/24	NEW Right-hand 70 783 ... £ 2A/24
SVZC R/L 2525 M16 DC	25	25	150	38	32	M6	G1/8"	3,2	VC.. 1604	227.85 **02501**	227.85 **02500**

Spare parts for Article no.	Clamping screw 70 950 ... £ 2A/28	Solid Carbide Seat V 70 950 ... £ 2A/28	Grubscrew 70 950 ... £ 2A/28	Grubscrew 70 950 ... £ 2A/28	Threaded sleeve 70 950 ... £ 2A/28
70 783 02500 / 70 783 02501	4.72 **87900**	12.19 **107**	2.16 **88000**	3.51 **86700**	5.62 **171**

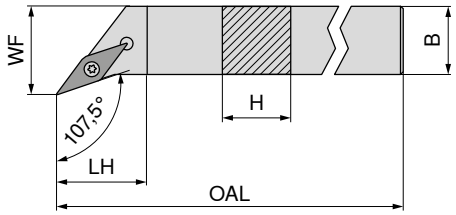
Spare parts for Article no.	Sealing plugs DC 70 950 ... £ 2A/28	Key D 80 950 ... £ Y7	O-Ring 70 950 ... £ 2A/28	Coolant nozzle DC 70 950 ... £ 2A/28	Coolant screw plug 70 950 ... £ 2A/28
70 783 02500 / 70 783 02501	1.52 **87600**	16.05 **120**	1.32 **88100**	29.58 **87700**	4.31 **294**

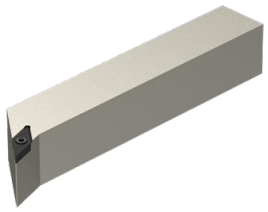
9

MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	NEW Left-hand 70 662 ... £ 2A/24		NEW Right-hand 70 662 ... £ 2A/24	
SVHC R/L 1212 F11	12	12	80	11.9	16	1,2	VC.. 1103	98.07	**01200**	98.07	**01201**
SVHC R/L 1616 H11	16	16	100	11.9	20	1,2	VC.. 1103	109.25	**01600**	109.25	**01601**
SVHC R/L 2020 K11	20	20	125	14.7	25	1,2	VC.. 1103	116.69	**02000**	116.69	**02001**
SVHC R/L 2525 M11	25	25	150	20.1	32	1,2	VC.. 1103	120.40	**02500**	120.40	**02501**
SVHC R/L 2020 K16	20	20	125	13.7	25	3,2	VC.. 1604	116.69	**12000**	116.69	**12001**
SVHC R/L 2525 M16	25	25	150	20.0	32	3,2	VC.. 1604	120.40	**12500**	120.40	**12501**
SVHC R/L 3225 P16	32	25	170	20.0	32	3,2	VC.. 1604	126.55	**13200**	126.55	**13201**
SVHC R/L 2525 M22	25	25	150	21.9	32	5	VC.. 2205	120.40	**22500**	120.40	**22501**



Key D



Clamping screw



Solid Carbide Seat V



Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 662 01201 / 70 662 01200	11.62	**039**	4.96	**857**				
70 662 01601 / 70 662 01600	11.62	**039**	4.96	**857**				
70 662 02001 / 70 662 02000	11.62	**039**	4.96	**857**				
70 662 02501 / 70 662 02500	11.62	**039**	4.96	**857**				
70 662 12001 / 70 662 12000	16.05	**120**	4.72	**87900**	12.19	**107**	5.62	**171**
70 662 12501 / 70 662 12500	16.05	**120**	4.72	**87900**	12.19	**107**	5.62	**171**
70 662 13201 / 70 662 13200	16.05	**120**	4.72	**87900**	12.19	**107**	5.62	**171**
70 662 22501 / 70 662 22500	16.05	**120**	3.62	**820**	16.19	**109**	5.62	**170**

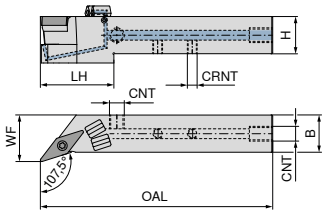
MaxiLock-S – SVHC 107.5° DC – Tool holder with screw clamping

Scope of supply:

Tool holder with blind plug and Torx key







Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 779 ... £ 2A/24		NEW Right-hand 70 779 ... £ 2A/24	
SVHC R/L 1212 F11 DC	12	12	80	28	16	M6	M6	1,2	VC.. 1103	209.71	**01201**	209.71	**01200**
SVHC R/L 1616 H11 DC	16	16	100	27	20	M6	G1/8"	1,2	VC.. 1103	215.80	**01601**	215.80	**01600**
SVHC R/L 2020 K11 DC	20	20	125	37	27	M6	G1/8"	1,2	VC.. 1103	221.76	**02001**	221.76	**02000**
SVHC R/L 2525 M11 DC	25	25	150	38	32	M6	G1/8"	1,2	VC.. 1103	227.85	**02501**	227.85	**02500**
SVHC R/L 2020 K16 DC	20	20	125	38	25	M6	G1/8"	3,2	VC.. 1604	221.76	**12001**	221.76	**12000**
SVHC R/L 2525 M16 DC	25	25	150	38	32	M6	G1/8"	3,2	VC.. 1604	227.85	**12501**	227.85	**12500**
SVHC R/L 3225 P16 DC	32	25	170	38	32	M6	G1/8"	3,2	VC.. 1604	233.81	**03201**	233.81	**03200**
SVHC R/L 2525 M22 DC	25	25	150	41	32	M6	G1/8"	5	VC.. 2205	227.85	**22501**	227.85	**22500**


Clamping screw


Solid Carbide Seat V


Grubscrew


Grubscrew


Threaded sleeve

Spare parts for Article no.	70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 779 01200 / 70 779 01201	4.96	**857**					3.51	**86700**		
70 779 01600 / 70 779 01601	4.96	**857**			2.16	**88000**	3.51	**86700**		
70 779 02000 / 70 779 02001	4.96	**857**			2.16	**88000**	3.51	**86700**		
70 779 02500 / 70 779 02501	4.96	**857**			2.16	**88000**	3.51	**86700**		
70 779 12000 / 70 779 12001	4.72	**87900**	12.19	**107**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 779 12500 / 70 779 12501	4.72	**87900**	12.19	**107**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 779 03200 / 70 779 03201	4.72	**87900**	12.19	**107**	2.16	**88000**	3.51	**86700**	5.62	**171**
70 779 22500 / 70 779 22501	3.62	**820**	16.19	**109**	2.16	**88000**	3.51	**86700**	5.62	**170**


Sealing plugs DC


Key D


O-Ring


Coolant nozzle DC


Coolant screw plug

Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 779 01200 / 70 779 01201			11.62	**039**						
70 779 01600 / 70 779 01601	1.52	**87600**	11.62	**039**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 779 02000 / 70 779 02001	1.52	**87600**	11.62	**039**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 779 02500 / 70 779 02501	1.52	**87600**	11.62	**039**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 779 12000 / 70 779 12001	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 779 12500 / 70 779 12501	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 779 03200 / 70 779 03201	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**
70 779 22500 / 70 779 22501	1.52	**87600**	16.05	**120**	1.32	**88100**	29.58	**87700**	4.31	**294**

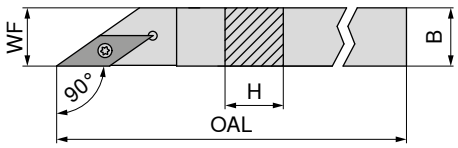
MaxiLock-S – SVAC 90° – Toolholder with screw clamping

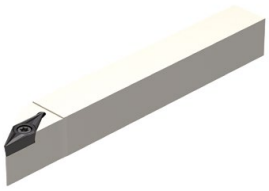
▲ for sliding head lathes

Scope of supply:

Tool holder with Torx key







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand 70 695 ... £ X0		Right-hand 70 694 ... £ X0	
SVAC R/L 0808 H11	8	8	100	8	1,2	VC.. 1103	242.74	**008**	242.74	**008**
SVAC R/L 1010 H11	10	10	100	10	1,2	VC.. 1103	242.74	**010**	242.74	**010**
SVAC R/L 1212 H11	12	12	100	12	1,2	VC.. 1103	288.63	**012**	288.63	**012**

Key D



Clamping screw

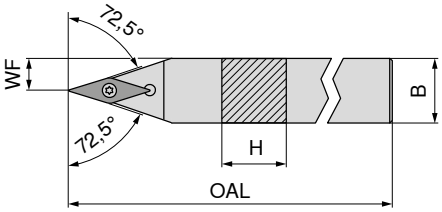
Spare parts for Article no.		80 950 ... £ Y7			70 950 ... £ 2A/28	
70 694 008 / 70 695 008	T08	13.73	**110**	M2,5x6 - T08	2.86	**13800**
70 694 010 / 70 695 010	T08	13.73	**110**	M2,5x6 - T08	2.86	**13800**
70 694 012 / 70 695 012	T08	13.73	**110**	M2,5x6 - T08	2.86	**13800**

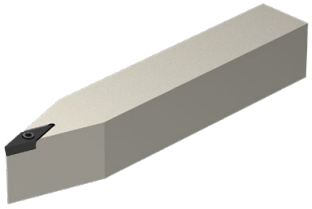
MaxiLock-S – SVVC 72.5° – Toolholder with screw clamping

Scope of supply:

Tool holder with Torx key







NEW

Neutral

ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	70 666 ... £ 2A/24	
SVVC N 1212 F11	12	12	80	6.0	1,2	VC.. 1103	98.07	**01200**
SVVC N 1616 H11	16	16	100	8.0	1,2	VC.. 1103	109.25	**01600**
SVVC N 2020 K11	20	20	125	10.0	1,2	VC.. 1103	116.69	**02000**
SVVC N 2525 M11	25	25	150	12.5	1,2	VC.. 1103	116.69	**02500**
SVVC N 2020 K16	20	20	125	10.0	3,2	VC.. 1604	116.69	**12000**
SVVC N 2525 M16	25	25	150	12.5	3,2	VC.. 1604	116.69	**12500**
SVVC N 3225 P16	32	25	170	12.5	3,2	VC.. 1604	126.55	**13200**

Key D



Clamping screw



Solid Carbide Seat V



Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 666 01200	11.62	**039**	4.96	**857**				
70 666 01600	11.62	**039**	4.96	**857**				
70 666 02000	11.62	**039**	4.96	**857**				
70 666 02500	11.62	**039**	4.96	**857**				
70 666 12000	16.05	**120**	4.72	**87900**	12.19	**107**	5.62	**171**
70 666 12500	16.05	**120**	4.72	**87900**	12.19	**107**	5.62	**171**
70 666 13200	16.05	**120**	4.72	**87900**	12.19	**107**	5.62	**171**

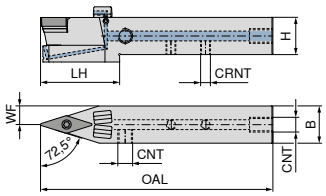
MaxiLock-S – SVVC 72.5° DC – Tool holder with screw clamping

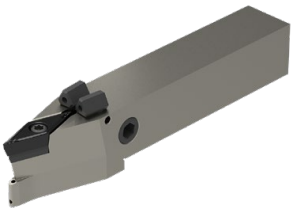
Scope of supply:

Tool holder with blind plug and Torx key









NEW

Neutral

70 781 ...

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	£ 2A/24	
SVVC N 1212 F11 DC	12	12	80	29.0	6.0	M6	M6	1,2	VC.. 1103	205.52	**01200**
SVVC N 1616 H11 DC	16	16	100	29.5	8.0	M6	G1/8"	1,2	VC.. 1103	209.71	**01600**
SVVC N 2020 K11 DC	20	20	125	43.0	10.0	M6	G1/8"	1,2	VC.. 1103	215.80	**02000**
SVVC N 2525 M11 DC	25	25	150	43.0	12.5	M6	G1/8"	1,2	VC.. 1103	227.85	**02500**
SVVC N 2020 K16 DC	20	20	125	43.0	10.0	M6	G1/8"	3,2	VC.. 1604	215.80	**12000**
SVVC N 2525 M16 DC	25	25	150	43.0	12.5	M6	G1/8"	3,2	VC.. 1604	227.85	**12500**
SVVC N 3225 P16 DC	32	25	170	44.0	12.5	G1/8"	G1/8"	3,2	VC.. 1604	233.81	**03200**

	 Clamping screw	 Solid Carbide Seat V	 Grubscrew	 Grubscrew	 Threaded sleeve
	70 950 ...	**70 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28	£ 2A/28
70 781 01200	4.96 **857**			3.51 **86700**	
70 781 01600	4.96 **857**		2.16 **88000**	3.51 **86700**	
70 781 02000	4.96 **857**		2.16 **88000**	3.51 **86700**	
70 781 02500	4.96 **857**		2.16 **88000**	3.51 **86700**	
70 781 12000	4.72 **87900**	12.19 **107**	2.16 **88000**	3.51 **86700**	5.62 **171**
70 781 12500	4.72 **87900**	12.19 **107**	2.16 **88000**	3.51 **86700**	5.62 **171**
70 781 03200	4.72 **87900**	12.19 **107**	2.16 **88000**		5.62 **171**

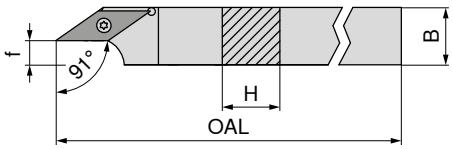
	 Sealing plugs DC	Key D	 O-Ring	 Coolant nozzle DC	 Coolant screw plug
	70 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**
Spare parts for Article no.	£ 2A/28	£ Y7	£ 2A/28	£ 2A/28	£ 2A/28
70 781 01200		11.62 **039**			
70 781 01600	1.52 **87600**	11.62 **039**	1.32 **88100**	29.58 **87700**	4.31 **294**
70 781 02000	1.52 **87600**	11.62 **039**	1.32 **88100**	29.58 **87800**	4.31 **294**
70 781 02500	1.52 **87600**	11.62 **039**	1.32 **88100**	29.58 **87700**	4.31 **294**
70 781 12000	1.52 **87600**	16.05 **120**	1.32 **88100**	29.58 **87800**	4.31 **294**
70 781 12500	1.52 **87600**	16.05 **120**	1.32 **88100**	29.58 **87800**	4.31 **294**
70 781 03200	1.52 **87600**	16.05 **120**	1.32 **88100**	29.58 **87700**	4.31 **294**

MaxiLock-S – SVXC 91° – Toolholder with screw clamping

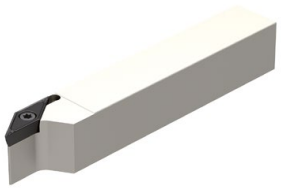
▲ for sliding head lathes

Scope of supply:
Tool holder with Torx key





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	f mm	torque moment Nm	Insert	Left-hand 70 691 ... £ X0		Right-hand 70 690 ... £ X0	
SVXC R/L 1010 H11	10	10	100	2.5	1,2	VC.. 1103	242.74	**010**	242.74	**010**
SVXC R/L 1212 H11	12	12	100	4.5	1,2	VC.. 1103	288.63	**012**	288.63	**012**
SVXC R/L 1616 K11	16	16	125	8.5	1,2	VC.. 1103	302.71	**016**	320.50	**016**
SVXC R/L 2020 K16	20	20	125	8.5	3,2	VC.. 1604	348.90	**020**	348.90	**020**



Key D



Clamping screw

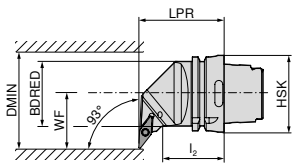
Spare parts for Article no.		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28	
70 690 010 / 70 691 010	T08	13.73	**110**	M2,5x6 - T08	2.86 **13800**
70 690 012 / 70 691 012	T08	13.73	**110**	M2,5x6 - T08	2.86 **13800**
70 690 016 / 70 691 016	T08	13.73	**110**	M2,5x6 - T08	2.86 **13800**
70 690 020 / 70 691 020	T15	16.32	**113**	M3,5x11	3.79 **113**

MaxiLock-S – SVUC 93° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 557 ... £ 2D/80		Right-hand 74 558 ... £ 2D/80	
HSK T63 SVUC R/L 16	HSK-T 63	70	42	53	45	100	3.2	VC.. 1604	494.20	**516**	494.20	**516**



Combination Key



Clamping screw



Solid Carbide Seat V



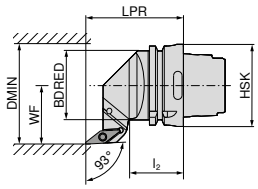
Threaded sleeve

Spare parts for Article no.		Combination Key 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat V 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
74 558 516 / 74 557 516	T15/SW	10.04	**398**	M3,5x11	3.79 **113**		12.19 **107**	M3,5	5.62 **171**

MaxiLock-S – SVJC 93° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key

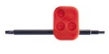


Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 556 ... £ 2D/80		Right-hand 74 555 ... £ 2D/80	
HSK T63 SVJC R/L 16	HSK-T 63	75	42	53	45	100	3.2	VC.. 1604	494.20	**516**	494.20	**516**


Combination Key
70 950 ...
Spare parts for Article no.
£ 2A/28
74 555 516 / 74 556 516
T15/SW
10.04 **398**


Clamping screw
70 950 ...
£ 2A/28
M3,5x11
3.79 **113**

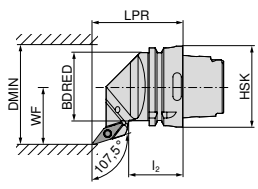

Solid Carbide Seat V
70 950 ...
£ 2A/28
12.19 **107**


Threaded sleeve
70 950 ...
£ 2A/28
M3,5
5.62 **171**

MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping

Scope of supply:
Tool holder with Torx key



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 554 ... £ 2D/80		Right-hand 74 553 ... £ 2D/80	
HSK T63 SVHC R/L 16	HSK-T 63	70	42	53	45	100	3.2	VC.. 1604	494.20	**516**	494.20	**516**


Combination Key
70 950 ...
Spare parts for Article no.
£ 2A/28
74 553 516 / 74 554 516
T15/SW
10.04 **398**


Clamping screw
70 950 ...
£ 2A/28
M3,5x11
3.79 **113**


Solid Carbide Seat V
70 950 ...
£ 2A/28
12.19 **107**

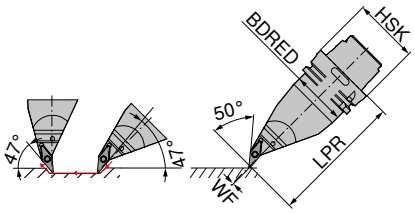

Threaded sleeve
70 950 ...
£ 2A/28
M3,5
5.62 **171**

9

MaxiLock-S – SVMC 50° – Toolholder with screw clamping

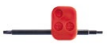
Scope of supply:
Tool holder with Torx key





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 560 ... £ 2D/80	
HSK T63 SVMC L 16	HSK-T 63	130	53	0	3.2	VC.. 1604	663.14	**516**


Combination Key


Clamping screw


Solid Carbide Seat V

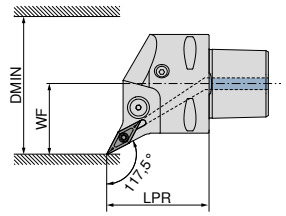

Threaded sleeve

Spare parts for Article no.		70 950 ... £ 2A/28			70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
74 560 516	T15/SW	10.04	**398**	M3,5x11	3.79	**113**	12.19	**107**	M3,5	5.62	**171**

MaxiLock-S – SVPC 117,5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	Left-hand 84 671 ... £ Y8		Right-hand 84 670 ... £ Y8	
PSC40 SVPC R/L 50050-16	PSC 40	50	27	50	3	VC.. 1604	DC	569.11	**01695**	569.11	**01695**
PSC50 SVPC R/L 65060-16	PSC 50	60	35	65	3	VC.. 1604	DC	652.06	**01694**	652.06	**01694**
PSC63 SVPC R/L 80065-16	PSC 63	65	45	80	3	VC.. 1604	DC	725.33	**01693**	725.33	**01693**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**

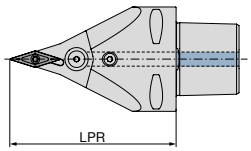

Clamping screw

Spare parts for Article no.	84 950 ... £ Y8	
84 670 01695 / 84 671 01695	8.84	**27600**
84 670 01694 / 84 671 01694	8.84	**27600**
84 670 01693 / 84 671 01693	8.84	**27600**

MaxiLock-S – SVVC 72.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





Neutral

84 678 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	£ Y8	
PSC63 SVVC N 0100-16	PSC 63	100	3	VC.. 1604	DC	725.33	**01693**
PSC63 SVVC N 0130-16	PSC 63	130	3	VC.. 1604	DC	725.33	**11693**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**



Clamping screw

84 950 ...

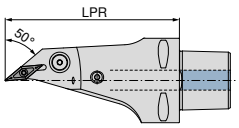
Spare parts for Article no.	£ Y8	
84 678 01693	8.84	**27600**
84 678 11693	8.84	**27600**

9

MaxiLock-S – SVMC 50° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





Neutral

84 681 ...

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	£ Y8	
PSC63 SVMC L 0130-16	PSC 63	130	3	VC.. 1604	DC	978.53	**11693**

The high-performance coolant set with article number **84 950 27400** can be ordered as an optional extra → **Page 40.**



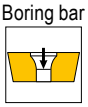
Clamping screw

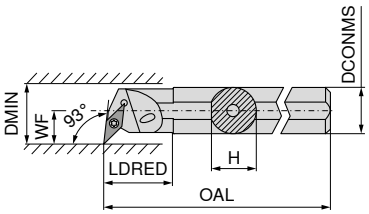
84 950 ...

Spare parts for Article no.	£ Y8	
84 681 11693	8.84	**27600**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 745 ... £ 2A/24		Right-hand 70 744 ... £ 2A/24	
A16M SVUC R/L 11	16	15	150	29	11	20	1,2	VC.. 1103	152.45	**216**	152.45	**216**
A20Q SVUC R/L 11	20	19	180	43	13	25	1,2	VC.. 1103	175.73	**220**	175.73	**220**
A25R SVUC R/L 11	25	24	200	38	17	32	1,2	VC.. 1103	215.32	**225**	215.32	**225**
A32S SVUC R/L 16	32	31	250	50	22	40	3,2	VC.. 1604	258.32	**232**	258.32	**232**
A40T SVUC R/L 16	40	39	300	60	27	50	3,2	VC.. 1604	299.71	**240**	299.71	**240**

Key D


Combination Key


Clamping screw


Solid Carbide Seat V

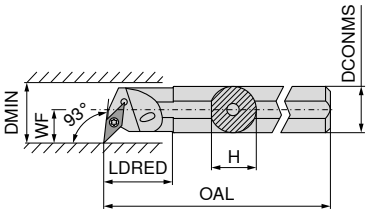

Threaded sleeve

Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 744 216 / 70 745 216	13.73	**110**			2.86	**13800**				
70 744 220 / 70 745 220	13.73	**110**			2.86	**13800**				
70 744 225 / 70 745 225	13.73	**110**			2.86	**13800**				
70 744 232 / 70 745 232			10.04	**398**	3.79	**113**	12.19	**107**	5.62	**171**
70 744 240 / 70 745 240			10.04	**398**	3.79	**113**	12.19	**107**	5.62	**171**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Right-hand 70 746 ... £ 2A	
E-A16M SVUC R 11	16	15	150	16.5	11	21	1,2	VC.. 1103	394.89	**216**
E-A20Q SVUC R 11	20	18	180	20.5	13	25	1,2	VC.. 1103	562.49	**220**
E-A25R SVUC R 11	25	23	200	25.5	17	31	1,2	VC.. 1103	954.85	**225**
E-A25R SVUC R 16	25	23	200	25.5	17	31	3,2	VC.. 1604	954.85	**325**
E-A32S SVUC R 16	32	30	250	32.5	22	39	3,2	VC.. 1604	1,029.81	**232**

Key D

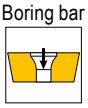

Clamping screw

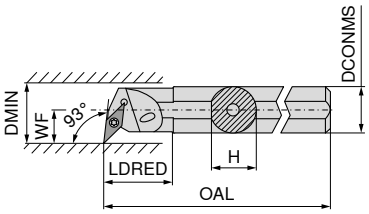
Spare parts for Article no.	80 950 ... £ Y7		70 950 ... £ 2A/28	
70 746 216	13.73	**110**	2.86	**13800**
70 746 220	13.73	**110**	2.86	**13800**
70 746 225	13.73	**110**	2.86	**13800**
70 746 325	16.32	**113**	3.79	**449**
70 746 232	16.32	**113**	3.79	**449**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 747 ... £ 2A/24		Right-hand 70 746 ... £ 2A/24	
E16R SVUC L 11	16	15.0	200	34	11	20	1,2	VC.. 1103	583.81	**016**		
E16R SVUC R 11	16	15.5	200	34	11	20	1,2	VC.. 1103			583.81	**016**
E20S SVUC L 11	20	18.5	250	38	13	25	1,2	VC.. 1103	692.44	**020**		
E20S SVUC R 11	20	19.0	250	38	13	25	1,2	VC.. 1103			692.44	**020**


Key D

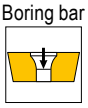

Clamping screw

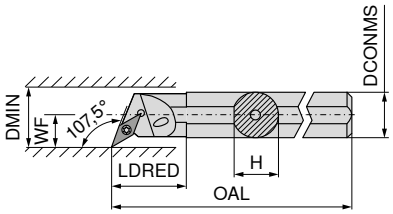
Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 747 016	T08	13.73	**110**	M2,5x6 - T08	2.86 **13800**
70 746 016	T08	13.73	**110**	M2,5x6 - T08	2.86 **13800**
70 747 020	T08	13.73	**110**	M2,5x6 - T08	2.86 **13800**
70 746 020	T08	13.73	**110**	M2,5x6 - T08	2.86 **13800**

9

MaxiLock-S – SVQC 107.5° – Boring bar with screw clamping

Scope of supply:
Boring bar with Torx key





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 749 ... £ 2A/24		Right-hand 70 748 ... £ 2A/24	
A16M SVQC R/L 11	16	15.0	150	29	11	20	1,2	VC.. 1103	152.45	**216**	152.45	**216**
A20Q SVQC R/L 11	20	18.5	180	32	13	25	1,2	VC.. 1103	175.73	**220**	175.73	**220**
A25R SVQC R/L 11	25	23.0	200	36	17	32	1,2	VC.. 1103	215.32	**225**	215.32	**225**
A32S SVQC R/L 16	32	30.0	250	50	22	40	3,2	VC.. 1604	258.32	**232**	258.32	**232**
A40T SVQC R/L 16	40	38.0	300	60	27	50	3,2	VC.. 1604	299.71	**240**	299.71	**240**


Key D


Combination Key


Clamping screw

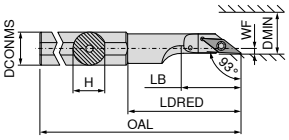

Solid Carbide Seat V


Threaded sleeve

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 748 216 / 70 749 216		13.73	**110**			2.86	**13800**				
70 748 220 / 70 749 220		13.73	**110**			2.86	**13800**				
70 748 225 / 70 749 225		13.73	**110**			2.86	**13800**				
70 748 232 / 70 749 232				10.04	**398**	3.79	**113**	12.19	**107**	5.62	**171**
70 748 240 / 70 749 240				10.04	**398**	3.79	**113**	12.19	**107**	5.62	**171**

MaxiLock-S – SVJC 93° – Boring bar with screw clamping







ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 727 ... £ 2A	
A16M SVJC L 11	16	15	150	50.0	2	22	1,2	VC.. 1103	138.43	**216**
A20M SVJC L 11	20	19	150	55.5	2	25	1,2	VC.. 1103	138.43	**220**
A25M SVJC L 16	25	24	150	58.0	5	28	3,2	VC.. 1604	138.43	**225**

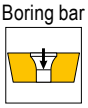

Key D


Clamping screw

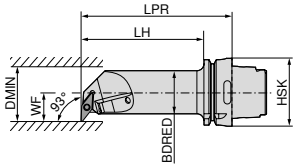
Spare parts for Article no.	Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28	
70 727 216 / 70 726 216	13.73	**110**	2.86	**13800**
70 727 220 / 70 726 220	13.73	**110**	2.86	**13800**
70 727 225 / 70 726 225	16.32	**113**	4.11	**174**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

Scope of supply:
Boring bar with Torx key







Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 568 ... £ 2D/80		Right-hand 74 567 ... £ 2D/80	
HSK T63 40L SVUC R/L 16	HSK-T 63	140	114	40	27	50	3.2	VC.. 1604	658.93	**516**	658.93	**516**


Combination Key


Clamping screw

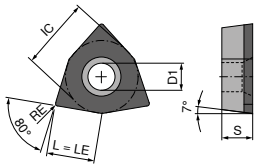

Solid Carbide Seat V


Threaded sleeve

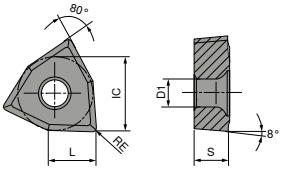
Spare parts for Article no.		Combination Key 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Solid Carbide Seat V 70 950 ... £ 2A/28		Threaded sleeve 70 950 ... £ 2A/28	
74 567 516 / 74 568 516	T15/SW	10.04	**398**	M3,5x11	3.79	**113**	12.19	**107**	M3,5	5.62	**171**

WCGT / WCGW

Designation	L	S	D1	IC
	mm	mm	mm	mm
WCGW 0201..	2.70	1.58	2.3	3.97
WCGT 0201..	2.71	1.59	2.1	3.97



CBN/PKD WCGW F



WCGT

WCGT

	-SF TCM10	-SF CTPP430	-SF H216T
		DRAGONSKIN	
			
	F	**F**	**F**
	CERMET WCGT	WCGT	WCGT
	70 287 ...	**70 287 ...**	**70 287 ...**
ISO / RE mm	£ 1A/78	£ 1A/08	£ 1A/08
020102EN 0.2	19.65 **900**	21.15 **450**	16.18 **600**
020104EN 0.4	19.65 **902**	21.15 **452**	16.18 **602**
P	●	●	
M	○	●	
K	○	○	○
N		○	●
S		○	
H			
O			○

WCGW

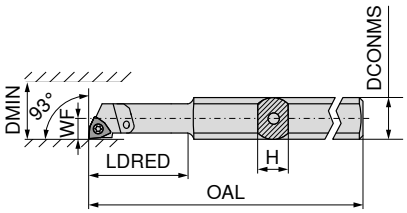
▲ TCE(NOI) = Design and number of equipped cutting edge corners

	CTDPD20
	
	F
	DIAMOND WCGW
	71 154 ...
ISO / RE mm / TCE (NOI) / LE mm	£ Y0
020102FN 0.2 **F** 2.7	265.31 **100**
020104FN 0.4 **F** 2.7	265.31 **102**
P	
M	
K	
N	●
S	
H	
O	●

9

MaxiLock-S – SWUC 93° – Boring bar with screw clamping





Illustrations show right-hand versions



ISO designation	H mm	OAL mm	LDRED mm	WF mm	DCONMS mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 731 ... £ 2A		Right-hand 70 730 ... £ 2A	
A0508H SWUC R/L 02	7	100	24	2.9	8	5.8	0,4	WC.. 0201..	167.61	**005**	167.61	**005**
A0608H SWUC R/L 02	7	100	24	3.9	8	7.8	0,4	WC.. 0201..	167.61	**006**	167.61	**006**



Key D



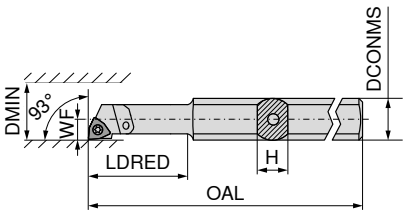
Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 731 005 / 70 730 005	T06	14.85	**108**	M1,8x3,4	4.47	**334**
70 731 006 / 70 730 006	T06	14.85	**108**	M1,8x3,4	4.47	**334**

MaxiLock-S – SWUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	H mm	OAL mm	LDRED mm	WF mm	DCONMS mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 743 ... £ 2A		Right-hand 70 742 ... £ 2A	
E-A0508H SWUC R/L 02	7	100	24	2.9	8	5.8	0,4	WC.. 0201..	186.61	**005**	186.61	**005**
E-A0608H SWUC R/L 02	7	100	24	3.9	8	7.8	0,4	WC.. 0201..	186.61	**006**	186.61	**006**
SET							0,4	WC.. 0201..	370.80	**999**	370.80	**999**

Set includes boring bars **70 743 005** and **70 743 006** or **70 742 005** and **70 742 006**

Key D



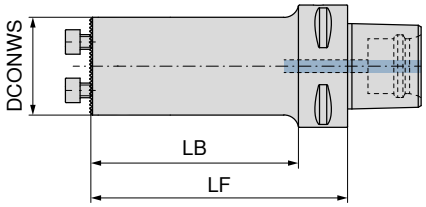
Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 743 005 / 70 742 005	T06	14.85	**108**	M1,8x3,4	4.47	**334**
70 743 006 / 70 742 006	T06	14.85	**108**	M1,8x3,4	4.47	**334**

MaxiChange – Base holders for the exchangeable head system

Scope of supply:
Includes clamping screws







NEW

Adapter	LF mm	LB mm	DCONWS mm		£ Y8	84 192 ...
PSC 40	40	20	16		605.27	**01695**
PSC 40	50	30	20		625.20	**02095**
PSC 40	55	35	25		729.72	**02595**
PSC 40	75	55	32		729.72	**03295**
PSC 40	80		40		729.72	**04095**
PSC 50	40	20	16		681.85	**01694**
PSC 50	50	30	20		681.85	**02094**
PSC 50	55	35	25		821.15	**02594**
PSC 50	75	55	32		821.15	**03294**
PSC 50	100	80	40		821.15	**04094**
PSC 63	40	18	16		742.69	**01693**
PSC 63	50	28	20		742.69	**02093**
PSC 63	65	43	25		895.89	**02593**
PSC 63	90	68	32		895.89	**03293**
PSC 63	125	103	32		895.89	**13293**
PSC 63	100	78	40		895.89	**04093**
PSC 63	140	118	40		895.89	**14093**



Clamping Screw

Spare parts for Article no.		£ Y8	84 950 ...
84 192 02595	M4X12 (SW3)	4.81	**30000**
84 192 03295	M5X14 (SW4)	4.81	**29900**
84 192 04095	M6X16 (SW5)	4.81	**29800**
84 192 02594	M4X12 (SW3)	4.81	**30000**
84 192 03294	M5X14 (SW4)	4.81	**29900**
84 192 04094	M6X16 (SW5)	4.81	**29800**
84 192 02593	M4X12 (SW3)	4.81	**30000**
84 192 03293	M5X14 (SW4)	4.81	**29900**
84 192 04093	M6X16 (SW5)	4.81	**29800**
84 192 13293	M5X14 (SW4)	4.81	**29900**
84 192 14093	M6X16 (SW5)	4.81	**29800**

9

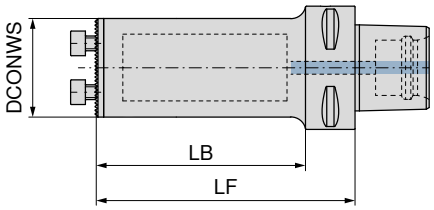
MaxiChange – Base holders for the exchangeable head system – vibration-damped

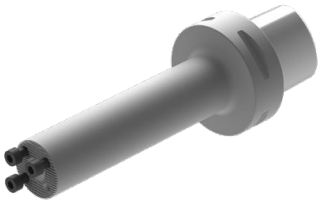
▲ Heavy metal core reduces vibrations

Scope of supply:

Includes clamping screws







Adapter	LF mm	LB mm	DCONWS mm	84 195 ... £ Y8	
PSC 63	115	93	25	2,521.18	**02593**
PSC 63	150	128	32	2,786.69	**03293**
PSC 63	185	163	40	3,053.67	**04093**



Clamping Screw

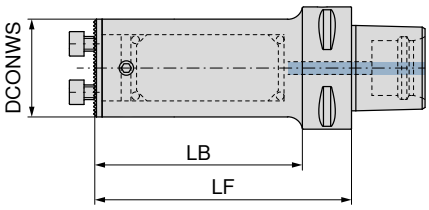
Spare parts for Article no.	84 950 ... £ Y8	
84 195 02593	4.81	**30000**
84 195 03293	4.81	**29900**
84 195 04093	4.81	**29800**

MaxiChange – Base holders for the exchangeable head system – actively vibration-damped

▲ Reduction of vibrations through actively mounted dampers
▲ Improvement in surface finish and chip evacuation

Scope of supply:
Includes clamping screws







NEW

Adapter	LF mm	LB mm	DCONWS mm	84 198 ... £ Y8	
PSC 40	88	68	16	2,885.80	**31695**
PSC 40	107	87	20	2,111.64	**32095**
PSC 40	132	112	25	1,090.73	**42595**
PSC 40	154	134	32	1,298.39	**43295**
PSC 40	173		40	1,391.94	**44095**
PSC 50	85	65	16	2,313.05	**31694**
PSC 50	109	89	20	2,271.09	**32094**
PSC 50	133	113	25	1,213.06	**32594**
PSC 50	180	160	25	1,817.54	**42594**
PSC 50	154	134	32	1,311.75	**33294**
PSC 50	224	204	32	1,377.55	**43294**
PSC 50	194	174	40	1,576.98	**34094**
PSC 50	288	268	40	2,625.56	**44094**
PSC 63	90	68	16	2,959.23	**31693**
PSC 63	110	88	20	2,915.17	**32093**
PSC 63	132	110	25	1,439.23	**32593**
PSC 63	180	158	25	2,018.00	**42593**
PSC 63	230	208	25	2,859.95	**52593**
PSC 63	159	137	32	1,632.50	**33293**
PSC 63	224	202	32	2,286.32	**43293**
PSC 63	288	266	32	3,243.40	**53293**
PSC 63	198	176	40	1,786.70	**34093**
PSC 63	288	266	40	2,625.56	**44093**
PSC 63	368	346	40	3,433.59	**54093**



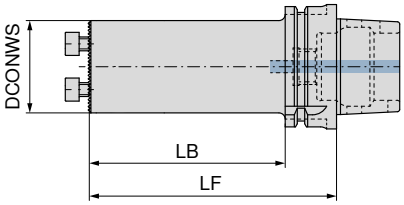
Clamping Screw

Spare parts for Article no.	84 950 ... £ Y8	
84 198 42595	4.81	**30000**
84 198 43295	4.81	**29900**
84 198 44095	4.81	**29800**
84 198 32594	4.81	**30000**
84 198 33294	4.81	**29900**
84 198 42594	4.81	**30000**
84 198 34094	4.81	**29800**
84 198 43294	4.81	**29900**
84 198 44094	4.81	**29800**
84 198 32593	4.81	**30000**
84 198 33293	4.81	**29900**
84 198 42593	4.81	**30000**
84 198 34093	4.81	**29800**
84 198 43293	4.81	**29900**
84 198 52593	4.81	**30000**
84 198 53293	4.81	**29900**
84 198 44093	4.81	**29800**
84 198 54093	4.81	**29800**

MaxiChange – Base holders for the exchangeable head system

Scope of supply:
Includes clamping screws







NEW

Adapter	LF mm	LB mm	DCONWS mm		£ Y8	84 193 ...
HSK-T 40	55	35	25		729.72	**02539**
HSK-T 40	75	55	25		729.72	**12539**
HSK-T 40	80	60	32		729.72	**03239**
HSK-T 40	80		40		729.72	**04039**
HSK-T 63	56	30	16		893.75	**01637**
HSK-T 63	80	54	20		1,005.99	**02037**
HSK-T 63	80	44	25		895.89	**02537**
HSK-T 63	90	64	32		895.89	**03237**
HSK-T 63	100	74	40		895.89	**04037**
HSK-T 63	125	99	32		895.89	**13237**
HSK-T 63	140	114	40		895.89	**14037**
HSK-T 100	140	111	40		1,182.19	**04035**


Clamping Screw

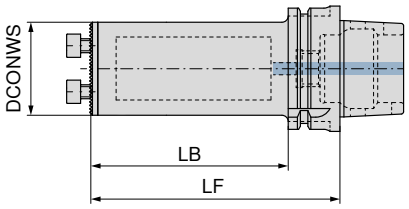
Spare parts for Article no.		£ Y8	84 950 ...
84 193 02539	M4X12 (SW3)	4.81	**30000**
84 193 12539	M4X12 (SW3)	4.81	**30000**
84 193 03239	M5X14 (SW4)	4.81	**29900**
84 193 04039	M6X16 (SW5)	4.81	**29800**
84 193 02537	M4X12 (SW3)	4.81	**30000**
84 193 03237	M5X14 (SW4)	4.81	**29900**
84 193 04037	M6X16 (SW5)	4.81	**29800**
84 193 13237	M5X14 (SW4)	4.81	**29900**
84 193 14037	M6X16 (SW5)	4.81	**29800**
84 193 04035	M6X16 (SW5)	4.81	**29800**

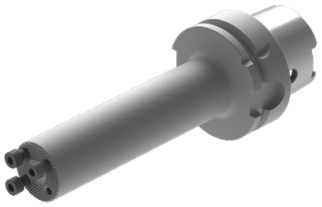
MaxiChange – Base holders for the exchangeable head system – vibration-damped

▲ Heavy metal core reduces vibrations

Scope of supply:
Includes clamping screws







NEW

Adapter	LF mm	LB mm	DCONWS mm	84 195 ... £ Y8	
HSK-T 63	115	89	25	2,354.06	**02537**
HSK-T 63	150	124	32	2,601.82	**03237**
HSK-T 63	185	159	40	2,850.67	**04037**



Clamping Screw

Spare parts for Article no.	84 950 ... £ Y8	
84 195 02537	4.81	**30000**
84 195 03237	4.81	**30000**
84 195 04037	4.81	**30000**

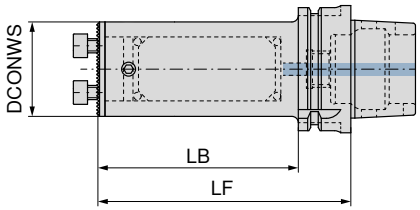
9

MaxiChange – Base holders for the exchangeable head system – actively vibration-damped

▲ Reduction of vibrations through actively mounted dampers
▲ Improvement in surface finish and chip evacuation

Scope of supply:
Includes clamping screws







NEW

Adapter	LF mm	LB mm	DCONWS mm	84 198 ... £ Y8	
HSK-T 63	90	64	16	2,959.23	**31637**
HSK-T 63	106	80	20	2,915.17	**32037**
HSK-T 63	126	100	25	1,439.23	**32537**
HSK-T 63	151	125	25	2,015.95	**42537**
HSK-T 63	154	128	32	1,630.44	**33237**
HSK-T 63	186	160	32	2,284.26	**43237**
HSK-T 63	186	160	40	1,784.64	**34037**
HSK-T 63	226	200	40	2,625.56	**44037**


Clamping Screw

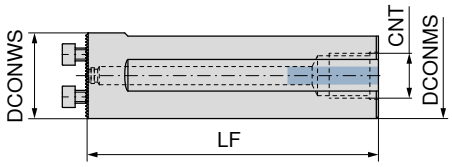
Spare parts for Article no.	84 950 ... £ Y8	
84 198 42537	4.81	**30000**
84 198 32537	4.81	**30000**
84 198 43237	4.81	**29900**
84 198 33237	4.81	**29900**
84 198 44037	4.81	**29800**
84 198 34037	4.81	**29800**

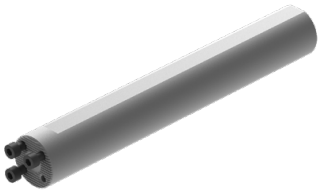
MaxiChange – Base holders for the exchangeable head system – cylindrical

▲ Connection thread for thro' coolant
▲ 3 clamping flats

Scope of supply:
Includes clamping screws







NEW

DCONWS mm	LF mm	DCONMS mm	CNT		84 194 ... £ Y8	
25	100	25	M8 x 1		458.41	**12599**
32	120	32	M8 x 1		458.41	**13299**
40	120	40	M8 x 1		458.41	**14099**
25	200	25	1/4		707.74	**02599**
32	218	32	3/8		752.87	**03299**
40	283	40	1/2		919.04	**04099**


Clamping Screw

Spare parts for Article no.		84 950 ... £ Y8	
84 194 02599	M4X12 (SW3)	4.81	**30000**
84 194 03299	M5X14 (SW4)	4.81	**29900**
84 194 04099	M6X16 (SW5)	4.81	**29800**

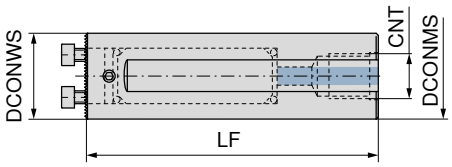
9

MaxiChange –
Base holders for the exchangeable head system – actively vibration-damped

▲ Reduction of vibrations through actively mounted dampers
▲ Improvement in surface finish and chip evacuation

Scope of supply:
Includes clamping screws







NEW

DCONWS mm	LF mm	DCONMS mm	CNT		84 198 ... £ Y8	
16	170	16	1/4		1,915.47	**31699**
20	200	20	1/4		2,241.71	**32099**
25	255	25	1/4		2,346.61	**32599**
32	320	32	1/2		2,396.97	**33299**
40	408	40	1/2		3,386.17	**34099**



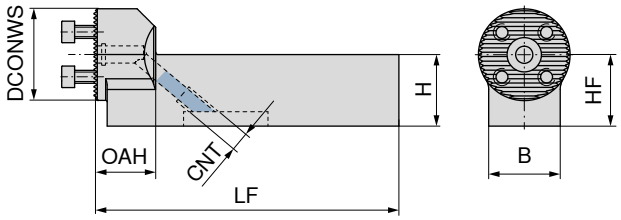
Clamping Screw

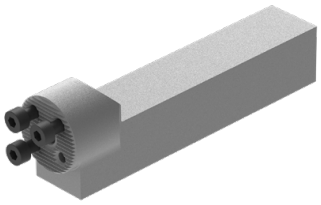
Spare parts for Article no.	84 950 ... £ Y8	
84 198 31699	8.39	**44800**
84 198 32099	17.83	**44900**
84 198 32599	4.81	**30000**
84 198 33299	4.81	**29900**
84 198 34099	4.81	**29800**

MaxiChange – 0° base holders for the exchangeable head system

Scope of supply:
Includes clamping screws

Direct Cooling





NEW

DCONWS mm	H mm	B mm	HF mm	OAH mm	LF mm	CNT	£ Y8	84 185 ...
25	20	20	20	21	106	M8x1	458.41	**02500**
32	20	20	20	21	106	M8x1	458.41	**03200**
32	25	25	25	21	106	M8x1	458.41	**13200**
40	25	25	25	21	106	M8x1	458.41	**14000**



Clamping Screw

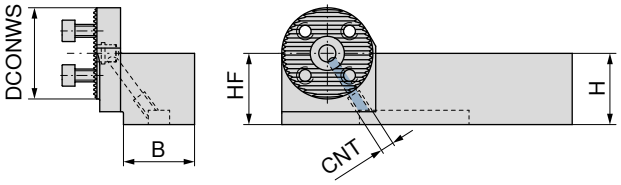
Spare parts for Article no.	£ Y8	84 950 ...
84 185 02500	4.81	**30000**
84 185 03200	4.81	**29900**
84 185 13200	4.81	**29900**
84 185 14000	4.81	**29800**

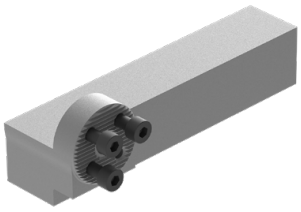
→ **Chapter 16 Adapters and accessories**
Here you will find the suitable base adaptors.

MaxiChange – 90° base holders for the exchangeable head system

Scope of supply:
Includes clamping screws

Direct Cooling





NEW

DCONWS mm	H mm	B mm	HF mm	CNT	84 184 ... £ Y8	
25	20	20	20	M8x1	458.41	**02500**
32	20	20	20	M8x1	458.41	**03200**
32	25	25	25	M8x1	458.41	**13200**
40	25	25	25	M8x1	458.41	**14000**

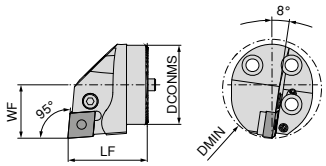

Clamping Screw

Spare parts for Article no.	84 950 ... £ Y8	
84 184 02500	4.81	**30000**
84 184 03200	4.81	**30000**
84 184 13200	4.81	**30000**
84 184 14000	4.81	**29800**

→ **Chapter 16 Adapters and accessories**
Here you will find the suitable base adaptors.

MaxiChange-N – Exchangeable cutting head PCLN 95°





Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	Left-hand 84 159 ... £ Y8		Right-hand 84 160 ... £ Y8	
25	35	32	17	5	CN.. 1204	555.06	**02500**	555.06	**02500**
32	35	40	22	5	CN.. 1204	570.88	**03200**	570.88	**03200**
40	40	50	27	5	CN.. 1204	578.49	**04000**	578.49	**04000**


Shim


Elbow lever screw

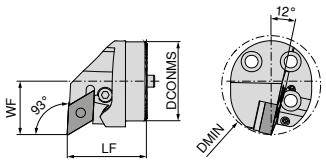

Lever

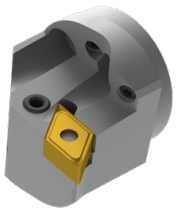

Carbide type C

Spare parts for Article no.	Shim 84 950 ... £ Y8		Elbow lever screw 84 950 ... £ Y8		Lever 84 950 ... £ Y8		Carbide type C 84 950 ... £ Y8	
84 160 02500 / 84 159 02500	3.22	**29200**	M8X1/L17 SW3	12.55 **28700**	37.25	**29000**	36.36	**27800**
84 160 03200 / 84 159 03200	3.22	**29200**	M8X1/L17 SW3	12.55 **28700**	37.25	**29000**	36.36	**27800**
84 160 04000 / 84 159 04000	3.22	**29200**	M8X1/L17 SW3	12.55 **28700**	37.25	**29000**	36.36	**27800**

MaxiChange-N – Exchangeable cutting head PDUN 93°





Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	Left-hand 84 161 ... £ Y8		Right-hand 84 162 ... £ Y8	
25	35	32	17	5	DN.. 1104	555.06	**02500**	555.06	**02500**
32	35	40	22	5	DN.. 1104	570.88	**03200**	570.88	**03200**
32	35	40	22	5	DN.. 1504 / 1506	570.88	**13200**	570.88	**13200**
40	40	50	27	5	DN.. 1104	578.49	**04000**	578.49	**04000**
40	40	50	27	5	DN.. 1504 / 1506	578.49	**14000**	578.49	**14000**

When using DN.. 1504 indexable inserts, use insert seat article no. **84 950 28200**.


Shim


Elbow lever screw

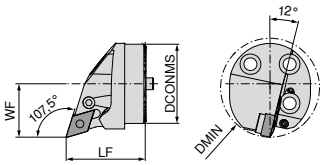

Lever


Solid Carbide Seat D

Spare parts for Article no.	Shim 84 950 ... £ Y8		Elbow lever screw 84 950 ... £ Y8		Lever 84 950 ... £ Y8		Solid Carbide Seat D 84 950 ... £ Y8	
84 162 02500 / 84 161 02500	3.22	**29300**	M6/ L14 SW2,5	12.55 **28800**	43.38	**29100**	66.87	**28100**
84 162 03200 / 84 161 03200	3.22	**29300**	M6/ L14 SW2,5	12.55 **28800**	43.38	**29100**	66.87	**28100**
84 162 13200 / 84 161 13200	3.22	**29200**	M8X1/L17 SW3	12.55 **28700**	43.38	**28900**	66.87	**27900**
84 162 04000 / 84 161 04000	3.22	**29300**	M6/ L14 SW2,5	12.55 **28800**	43.38	**29100**	66.87	**28100**
84 162 14000 / 84 161 14000	3.22	**29200**	M8X1/L17 SW3	12.55 **28700**	43.38	**28900**	66.87	**27900**

MaxiChange-N – Exchangeable cutting head PDQN 107.5°





Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	Left-hand 84 163 ... £ Y8	Right-hand 84 164 ... £ Y8
25	35	32	17	5	DN.. 1104	555.06 **02500**	555.06 **02500**
32	35	40	22	5	DN.. 1104	570.88 **03200**	570.88 **03200**
40	40	50	27	5	DN.. 1104	578.49 **04000**	578.49 **04000**


Shim


Elbow lever screw

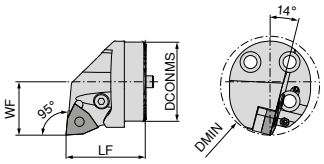

Lever


Solid Carbide Seat D

Spare parts for Article no.	Shim 84 950 ... £ Y8		Elbow lever screw 84 950 ... £ Y8	Lever 84 950 ... £ Y8	Solid Carbide Seat D 84 950 ... £ Y8
84 163 02500 / 84 164 02500	3.22 **29300**	M6/ L14 SW2,5	12.55 **28800**	43.38 **29100**	66.87 **28100**
84 163 03200 / 84 164 03200	3.22 **29300**	M6/ L14 SW2,5	12.55 **28800**	43.38 **29100**	66.87 **28100**
84 163 04000 / 84 164 04000	3.22 **29300**	M6/ L14 SW2,5	12.55 **28800**	43.38 **29100**	66.87 **28100**

MaxiChange-N – Exchangeable cutting head PWLN 95°





Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	Left-hand 84 165 ... £ Y8	Right-hand 84 166 ... £ Y8
32	35	40	22	5	WN.. 0804	570.88 **03200**	570.88 **03200**
40	40	50	27	5	WN.. 0804	578.49 **04000**	578.49 **04000**


Shim

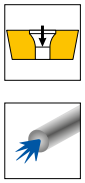

Elbow lever screw

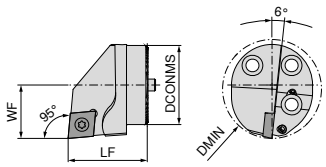

Lever

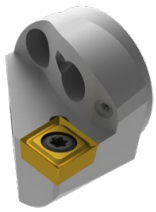

Solid Carbide Seat W

Spare parts for Article no.	Shim 84 950 ... £ Y8		Elbow lever screw 84 950 ... £ Y8	Lever 84 950 ... £ Y8	Solid Carbide Seat W 84 950 ... £ Y8
84 166 03200 / 84 165 03200	3.22 **29200**	M8X1/L17 SW3	12.55 **28700**	43.38 **28900**	66.87 **27700**
84 166 04000 / 84 165 04000	3.22 **29200**	M8X1/L17 SW3	12.55 **28700**	43.38 **28900**	66.87 **27700**

MaxiChange-S – SCLC 95° – Exchangeable cutting head with screw clamping







Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 147 ... £ Y8		NEW Right-hand 84 148 ... £ Y8	
16	20	20	11	0.9	CC.. 0602	376.59	**01600**	376.59	**01600**
20	20	25	13	3	CC.. 09T3	408.06	**02000**	376.59	**02000**
25	35	32	17	5	CC.. 1204	453.37	**02500**	453.37	**02500**
32	35	40	22	5	CC.. 1204	461.28	**03200**	461.28	**03200**
40	40	50	27	5	CC.. 1204	469.19	**04000**	469.19	**04000**

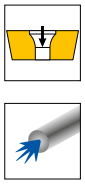


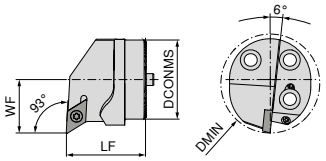
Clamping screw

Spare parts for Article no.	84 950 ... £ Y8	
84 148 02500 / 84 147 02500	13.36	**27500**
84 148 03200 / 84 147 03200	13.36	**27500**
84 148 04000 / 84 147 04000	13.36	**27500**

9

MaxiChange-S – SDUC 93° – Exchangeable cutting head with screw clamping







Illustrations show right-hand versions

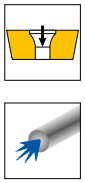
DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 143 ... £ Y8		NEW Right-hand 84 144 ... £ Y8	
16	20	20	11	0,9	DC.. 0702	376.59	**01600**	376.59	**01600**
20	20	25	13	3	DC.. 11T3	376.59	**02000**	376.59	**02000**
25	35	32	17	3	DC.. 11T3	453.37	**02500**	453.37	**02500**
32	35	40	22	3	DC.. 11T3	461.28	**03200**	461.28	**03200**
40	40	50	27	3	DC.. 11T3	469.19	**04000**	469.19	**04000**

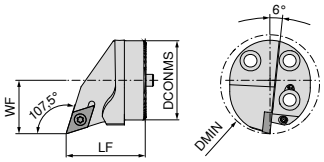


Clamping screw

Spare parts for Article no.	84 950 ... £ Y8	
84 144 01600 / 84 143 01600	7.34	**44700**
84 144 02000 / 84 143 02000	8.84	**27600**
84 144 02500 / 84 143 02500	8.84	**27600**
84 144 03200 / 84 143 03200	8.84	**27600**
84 144 04000 / 84 143 04000	8.84	**27600**

MaxiChange-S – SDQC 107.5° – Exchangeable cutting head with screw clamping







Illustrations show right-hand versions

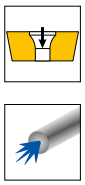
DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 145 ... £ Y8	NEW Right-hand 84 146 ... £ Y8
20	20	25	13	3	DC.. 11T3	376.59 **02000**	376.59 **02000**
25	35	32	17	3	DC.. 11T3	453.37 **02500**	453.37 **02500**
32	35	40	22	3	DC.. 11T3	461.28 **03200**	461.28 **03200**
40	40	50	27	3	DC.. 11T3	469.19 **04000**	469.19 **04000**

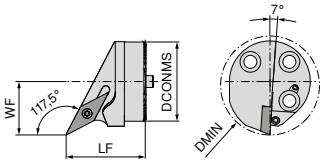


Clamping screw

Spare parts for Article no.	84 950 ... £ Y8
84 146 02500 / 84 145 02500	8.84 **27600**
84 146 03200 / 84 145 03200	8.84 **27600**
84 146 04000 / 84 145 04000	8.84 **27600**

MaxiChange-S – SVPC 117.5° – Exchangeable cutting head with screw clamping







Illustrations show right-hand versions

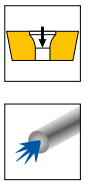
DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 176 ... £ Y8	NEW Right-hand 84 176 ... £ Y8
25	35	32	17	3	VC.. 1103	382.89 **12500**	376.59 **02500**
32	35	40	22	3	VC.. 1604	389.18 **13200**	376.59 **03200**
40	40	50	27	3	VC.. 1604	389.18 **14000**	382.89 **04000**

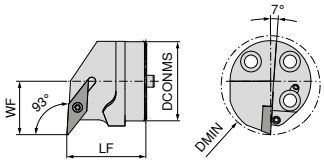


Clamping screw

for Article no.	84 950 ... £ Y8
84 176 02500 / 84 176 12500	8.84 **27600**
84 176 03200 / 84 176 13200	8.84 **27600**
84 176 04000 / 84 176 14000	8.84 **27600**

MaxiChange-S – SVUC 93° – Exchangeable cutting head with screw clamping







Illustrations show right-hand versions

DCONMS	LF	DMIN	WF	torque moment	Insert	NEW Left-hand 84 177 ... £ Y8		NEW Right-hand 84 177 ... £ Y8	
mm	mm	mm	mm	Nm					
20	20	25	13	3	VC.. 1103	382.89	**12000**	376.59	**02000**
25	35	32	17	3	VC.. 1103	382.89	**12500**	376.59	**02500**
32	35	40	22	3	VC.. 1604	389.18	**13200**	376.59	**03200**
40	40	50	27	3	VC.. 1604	389.18	**14000**	376.59	**04000**



Clamping screw

Spare parts for Article no.	84 950 ... £ Y8	
84 177 02000 / 84 177 12000	8.84	**27600**
84 177 02500 / 84 177 12500	8.84	**27600**
84 177 03200 / 84 177 13200	8.84	**27600**
84 177 04000 / 84 177 14000	8.84	**27600**

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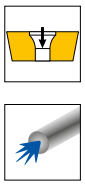
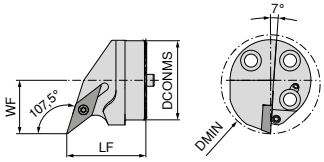
MaxiChange-S – SVQC 107.5° – Exchangeable cutting head with screw clamping







Illustrations show right-hand versions

DCONMS	LF	DMIN	WF	torque moment	Insert	NEW Left-hand 84 178 ... £ Y8		NEW Right-hand 84 178 ... £ Y8	
mm	mm	mm	mm	Nm					
20	20	25	13	3	VC.. 1103	382.89	**12000**	376.59	**02000**
25	35	32	17	3	VC.. 1103	382.89	**12500**	376.59	**02500**
32	35	40	22	3	VC.. 1604	389.18	**13200**	376.59	**03200**
40	40	50	27	3	VC.. 1604	389.18	**14000**	376.59	**04000**

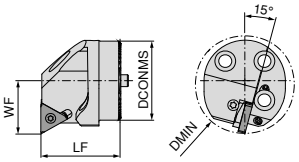


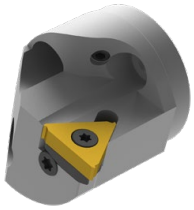
Clamping screw

for Article no.	84 950 ... £ Y8	
84 178 02000 / 84 178 12000	8.84	**27600**
84 178 02500 / 84 178 12500	8.84	**27600**
84 178 03200 / 84 178 13200	8.84	**27600**
84 178 04000 / 84 178 14000	8.84	**27600**

MaxiChange – Exchangeable cutting head for internal thread







Illustrations show right-hand versions

DCONMS	LF	DMIN	WF	torque moment	Insert	Left-hand		Right-hand	
						84 167 ...		84 168 ...	
mm	mm	mm	mm	Nm		£ Y8		£ Y8	
25	35	32	17	2	16 ..	601.93	**02500**	601.93	**02500**
32	35	40	22	2	16 ..	627.73	**03200**	627.73	**03200**
40	40	50	27	2	16 ..	660.54	**04000**	660.54	**04000**

Suitable internal thread inserts can be found in → **Chapter 8 Thread Turning Tools, pages 6-30**

	 Shim			 Screw-U		 Clamping screw	
	84 950 ...			84 950 ...		84 950 ...	
Spare parts for Article no.	£ Y8			£ Y8		£ Y8	
84 168 02500	78.74	**29500**	UNC5x7,3	15.86	**29700**	15.86	**29400**
84 167 02500	78.74	**29600**	UNC5x7,3	15.86	**29700**	15.86	**29400**
84 168 03200	78.74	**29500**	UNC5x7,3	15.86	**29700**	15.86	**29400**
84 167 03200	78.74	**29600**	UNC5x7,3	15.86	**29700**	15.86	**29400**
84 168 04000	78.74	**29500**	UNC5x7,3	15.86	**29700**	15.86	**29400**
84 167 04000	78.74	**29600**	UNC5x7,3	15.86	**29700**	15.86	**29400**

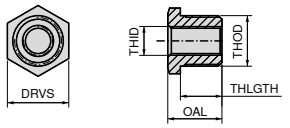
Flexible coolant hoses

▲ incl. prefitted quick-coupler and coupler connector
▲ extremely flexible
▲ pressure-resistant up to 300 bar



Designation	BD mm	CND mm	OAL mm	72 990 ... £ X0	
MU.KSS-DN3-150	6.0	3	150	96.40	11005
MU.KSS-DN3-250	6.0	3	250	101.83	11006
MU.KSS-DN5-200	9.5	5	200	109.98	11001
MU.KSS-DN5-300	9.5	5	300	115.41	11002
MU.KSS-DN5-400	9.5	5	400	118.10	11003
MU.KSS-DN5-500	9.5	5	500	120.84	11004

Threaded adapter

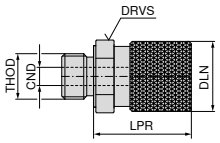




THID	THOD	THLGTH mm	DRVS mm	OAL mm	72 988 ... £ X0	
G1/8"	G1/4"	11.5	17	15.0	30.36	01005
G1/8"	M8x1	11.5	14	15.0	30.36	01006
G1/8"	M12x1	11.5	14	15.0	30.36	01007
G1/8"	M14x1	11.5	17	15.0	30.36	01008
M8x1	G1/4"	11.5	17	15.0	16.19	01003
M8x1	M12x1	11.5	14	15.0	16.19	01001
M8x1	M14x1	11.5	17	15.0	16.19	01002
M8x1	G1/8"	11.5	14	23.5	16.19	01004

Quick-coupler

▲ pressure-resistant up to at least 400 bar
▲ rapid change of coolant distribution without screws thanks to click system

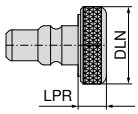




THOD	BD mm	DLN mm	LPR mm	CND mm	DRVS mm	72 993 ... £ X0	
G1/8"	16	15.5	21.5	4	14	35.98	15001

Sealing plugs

▲ for closing off the quick-coupler to protect against contamination

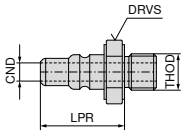




Designation	LPR mm	DLN mm	72 994 ... £ X0	
MU.KSVS	5.5	15.5	4.74	17001

Coupler connector

▲ pressure-resistant up to at least 400 bar





Designation	LPR mm	CND mm	DRVS mm	OAL mm	72 992 ... £ X0	
MU.KSKS-M8x1	18.5	4	12	19	15.61	13001

G1/8" screw plug

▲ Max. 200 bar/2900 psi
▲ No sealing ring required



Designation	THSZMS	72 950 ... £ X0	
VS.G1/8	G1/8"	57.26	010

Angled coolant connection for distributor

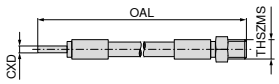


Designation	THOD	THID	72 987 ... £ X0	
MU.KS-KA-KSV	G1/8"	G1/8"	45.52	18003

9

Hose (connecting piece/thread)

▲ Max. 200 bar/2900 psi
▲ No sealing ring required

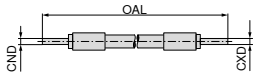




Designation	THSZMS	CXD mm	OAL mm	72 305 ... £ X0	
HDKS.150.M5-4	M5	4	150	163.18	**010**
HDKS.200.M5-4	M5	4	200	165.05	**021**
HDKS.300.M5-4	M5	4	300	166.15	**033**
HDKS.500.M5-4	M5	4	500	170.56	**045**

Hose (connecting piece/connecting piece)

▲ Max. 200 bar/2900 psi

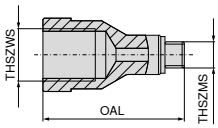




Designation	CND mm	CXD mm	OAL mm	72 305 ... £ X0	
HDKS.150.4-4	4	4	150	150.27	**003**
HDKS.200.4-4	4	4	200	152.12	**014**
HDKS.300.4-4	4	4	300	152.84	**025**
HDKS.500.4-4	4	4	500	157.64	**037**

Reducer fitting

▲ Max. 200 bar/2900 psi
▲ Includes sealing ring

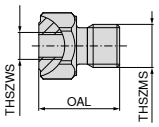




Designation	THSZWS	THSZMS	OAL mm	72 301 ... £ X0	
RV.100.M5-M6	M6	M5	15	106.32	**001**
RV.100.M5-M8x1	M8x1	M5	23	106.32	**003**
RV.100.M5-M10x1	M10x1	M5	27	106.32	**005**
RV.100.M5-G1/8	G1/8"	M5	27	106.32	**004**

Reducer fitting

▲ Max. 200 bar/2900 psi
▲ No sealing ring required

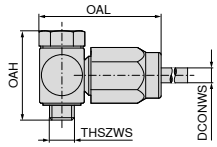




Designation	THSZWS	THSZMS	OAL mm	72 301 ... £ X0	
RV.100.M6-M5	M5	M6	18	106.32	**002**
RV.100.M8x1-M5	M5	M8x1	15	106.32	**008**
RV.100.M10x1-M5	M5	M10x1	15	106.32	**007**
RV.100.G1/8-M5	M5	G1/8"	15	106.32	**006**

Swivel fitting

▲ Max. 200 bar/2900 psi

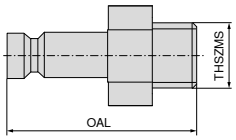




Designation	DCONWS mm	OAH mm	THSZMS	OAL mm	72 307 ... £ X0	
KA.SV.M5-4	4	21	M5	28	272.01	017
KA.SV.G1/8-4	4	30	G1/8"	37	341.27	012

Quick connection (connector)

▲ Max. 200 bar/2900 psi
▲ No sealing ring required

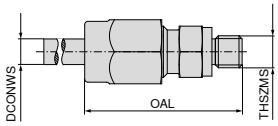


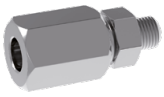


Designation	THSZMS	OAL mm	72 320 ... £ X0	
SAG.M5	M5	20	108.32	001

Straight fitting

▲ Max. 200 bar/2900 psi

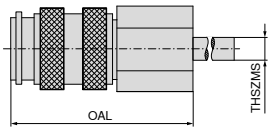




Designation	DCONWS mm	THSZMS	OAL mm	72 307 ... £ X0	
KA. M5-4	4	M5	27	107.44	009
KA. G1/8-4	4	G1/8"	32	93.77	003

Quick connection (coupling)

▲ Max. 200 bar/2900 psi





Designation	THSZMS	OAL mm	72 319 ... £ X0	
KIG.M5	M5	26	308.97	001

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Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

* Tensile strength

Cutting data standard values

Index			DRAGONSKIN														
	TCM407	TCM10	CTEP110	CTCP115-P	CTCP125-P	CTCP135-P	CTCK110	CTCK120	CTPM125	CTCM120	CTCM130	CTPX710 -F05 -F34 -M34 -M42	CTPX710 -25P -25Q	CTPX715 -27 -29	H210T	H10T H216T
	v_c in m/min															
P.1.1	**380**	**310**	**460**	**370**	**295**	**210**	395	330	200	230	185	**325**	**340**	**275**		
P.1.2	**330**	**265**	**400**	**315**	**250**	**175**	345	280	170	200	150	**290**	**300**	**235**		
P.1.3	**280**	**230**	**350**	**270**	**210**	**145**	300	240	140	175	125	**250**	**260**	**200**		
P.1.4	**265**	**210**	**330**	**250**	**200**	**135**	280	220	130	165	115	**240**	**250**	**190**		
P.1.5	**240**	**190**	**300**	**230**	**180**	**120**	260	200	120	150	100	**220**	**235**	**170**		
P.2.1	**335**	**270**	**410**	**325**	**260**	**180**	350	290	175	200	160	**290**	**300**	**240**		
P.2.2	**260**	**210**	**325**	**250**	**195**	**130**	280	220	130	160	110	**235**	**250**	**185**		
P.2.3	**240**	**190**	**300**	**230**	**180**	**120**	260	200	120	150	100	**220**	**235**	**170**		
P.2.4	**180**	**145**	**230**	**170**	**130**	**85**	200	150	80	115	60	**175**	**190**	**125**		
P.3.1	**280**	**220**	**345**	**200**	**170**	**150**	270	220	140	160	125	**140**	**150**	**140**		
P.3.2	**225**	**170**	**280**	**140**	**105**	**95**	225	175	100	115	80	**85**	**95**	**80**		
P.3.3	**170**	**115**	**210**	**85**	**40**	**35**	180	130	50	75	40	**30**	**35**	**25**		
P.4.1	**280**	**220**	**345**	**200**	**170**	**155**			140	160	125	**140**	**155**	**140**		
P.4.2	**250**	**195**	**310**	**170**	**135**	**125**			120	140	100	**115**	**130**	**110**		
M.1.1	280	220	345			155			**140**	**160**	**125**	**140**	**150**	**140**		
M.2.1						95			**100**	**115**	**80**	**85**	**90**	**80**		
M.3.1						135			**130**	**150**	**110**	**125**	**130**	**120**		
K.1.1			410	255	170		**400**	**275**						200	170	140
K.1.2			310	235	160		**310**	**265**						160	130	115
K.2.1	355	260	440	270	180		**320**	**290**						190	180	150
K.2.2	315	215	350	205	160		**275**	**230**						150	130	110
K.3.1	325	300	415	250	200		**310**	**275**						210	190	170
K.3.2	250	205	250	210	160		**265**	**230**						180	160	140
N.1.1												1840	**1840**	**1750**	**1650**	**1400**
N.1.2												1600	**1600**	**1500**	**1350**	**1100**
N.2.1												1250	**1250**	**1200**	**1200**	**950**
N.2.2												1250	**1250**	**1200**	**1100**	**950**
N.2.3												750	**750**	**700**	**600**	**500**
N.3.1												650	**650**	**625**	**525**	**425**
N.3.2												630	**630**	**600**	**500**	**400**
N.3.3												500	**500**	**475**	**375**	**275**
N.4.1												340	**340**	**325**	**275**	**225**
S.1.1											35	**100**	**110**	**40**	45	
S.1.2											25	**80**	**85**	**30**	35	
S.2.1											20	**65**	**75**	**30**	35	
S.2.2											20	**40**	**45**	**25**	25	
S.2.3											20	**40**	**45**	**20**	20	
S.3.1											110	**95**	**100**	**110**	110	
S.3.2											65	**55**	**60**	**70**	70	
S.3.3											45	**40**	**45**	**50**	50	
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1														140	160	130
O.1.2																
O.2.1														150	140	105
O.2.2																
O.3.1																

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

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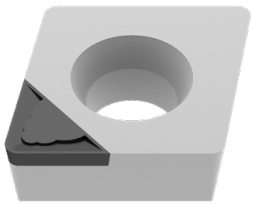
Cutting data standard values for diamond cutting materials CTD PD20 / PS30 / PU20 / CD10 / MD05

Index	Material group			a_p = 0,04–0,4 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,04–0,4 mm Surface roughness R_z in µm 5,0–10	a_p = 0,4–1,0 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,4–1,0 mm Surface roughness R_z in µm 5,0–10	a_p = 0,4–2,5 mm Surface roughness R_z in µm 2,5–5,0	a_p = 0,4–2,5 mm Surface roughness R_z in µm 5,0–10
				CTD ...	CTD ...	CTD ...	CTD ...	CTD ...	CTD ...
N.1.1 N.1.2	Aluminium wrought alloys without Si f=0.05–0.5 mm/rev.	○	Tool Material v_c in m/min	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**
		◐	Tool Material v_c in m/min		PD20 / CD10 **min. 400**		PD20 / CD10 **min. 400**		PD20 / CD10 **min. 400**
		◌	Tool Material v_c in m/min	PD20 / PU20 **min. 400**	PD20 / PU20 **min. 400**	PD20 / PU20 **min. 400**	PD20 / PU20 **min. 400**	PD20 / PU20 **min. 400**	PD20 / PU20 **min. 400**
N.2.1	Cast Aluminium Alloys Si≤12 % – hardened or Si=12–20% – non hardened f=0,05–0,5 mm/rev.	○	Tool Material v_c in m/min	PS30 / PU20 / CD10 / MD05 **min. 600**	PS30 / PU20 / CD10 / MD05 **min. 600**	PS30 / PU20 / CD10 / MD05 **min. 600**	PS30 / PU20 / CD10 / MD05 **min. 600**	PS30 / PU20 / CD10 / MD05 **min. 600**	PS30 / PU20 / CD10 / MD05 **min. 600**
		◐	Tool Material v_c in m/min	PD20 / PU20 / CD10 **min. 400**	PD20 / PU20 / CD10 **min. 400**	PD20 / PU20 / CD10 **min. 400**	PS30 / PU20 / CD10 **min. 600**	PS30 / PU20 / CD10 **min. 400**	PS30 / PU20 / CD10 **min. 400**
		◌	Tool Material v_c in m/min	PS30 **min. 600**	PS30 **min. 600**	PS30 **min. 600**	PS30 **min. 600**	PS30 **min. 600**	
N.2.2 N.2.3	Aluminium cast alloys Si=12–20 % f=0.05–0.5 mm/rev.	○	Tool Material v_c in m/min	PU20 / CD10 / MD05 **min. 800**	PU20 / CD10 / MD05 **min. 400**	PU20 / CD10 / MD05 **min. 700**	PU20 / CD10 / MD05 **min. 400**	PU20 / CD10 / MD05 **min. 600**	PU20 / CD10 / MD05 **min. 400**
		◐	Tool Material v_c in m/min		PU20 / CD10 **min. 600**		PU20 / CD10 **min. 600**		PU20 / CD10 **min. 600**
		◌	Tool Material v_c in m/min		PU20 **min. 600**		PU20 **min. 600**		
N.3.1 N.3.2 N.3.3	Copper and copper wrought alloys f=0.05–0.5 mm/rev.	○	Tool Material v_c in m/min	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**	PS30 / PU20 / CD10 / MD05 **300–1600**	PD20 / PU20 / CD10 / MD05 **min. 400**	PD20 / PU20 / CD10 / MD05 **min. 400**
		◐	Tool Material v_c in m/min	PU20 / CD10 **min. 300**	PD20 / PU20 / CD10 **min. 300**	PD20 / PU20 / CD10 **min. 400**	PS30 / PU20 / CD10 **min. 300**	PD20 / PU20 / CD10 **min. 400**	PD20 / PU20 / CD10 **min. 300**
		◌	Tool Material v_c in m/min		PD20 / PU20 **min. 300**		PS30 / PU20 **min. 300**	PD20 / PU20 **min. 300**	PS30 / PU20 **min. 200**
O.1.1 O.1.2	Plastic materials without reinforcement (acrylic glass) f=0.05–0.7 mm/rev.	○	Tool Material v_c in m/min		PD20 / CD10 / MD05 **min. 400**		PD20 / CD10 / MD05 **min. 300**		PS30 / CD10 / MD05 **min. 200**
		◐	Tool Material v_c in m/min		PD20 / CD10 **min. 300**		PD20 / CD10 **min. 200**		PS30 / CD10 **min. 200**
		◌	Tool Material v_c in m/min		PD20 / CD10 **min. 400**		PD20 / CD10 **min. 300**		PD20 / CD10 **min. 200**
O.2.1 O.2.2	Plastic materials with reinforcement (glass-fibre, carbon-fibre reinforced) f=0.05–0.7 mm/rev.	○	Tool Material v_c in m/min	PS30 / PU20 / CD10 / MD05 **min. 500**		PS30 / PU20 / CD10 / MD05 **min. 400**	PS30 / PU20 / CD10 / MD05 **min. 300**	PS30 / PU20 / CD10 / MD05 **min. 300**	PS30 / PU20 / CD10 / MD05 **min. 200**
		◐	Tool Material v_c in m/min	PS30 / PU20 / CD10 **min. 400**		PS30 / PU20 / CD10 **min. 300**	PS30 / PU20 / CD10 **min. 200**	PS30 / PU20 / CD10 **min. 200**	PS30 / PU20 / CD10 **min. 200**
		◌	Tool Material v_c in m/min	PU20 **min. 500**		PU20 **min. 400**	PU20 **min. 300**	PU20 **min. 300**	
O.3.1	Graphite		Tool Material v_c in m/min	PD20 / PS30 / PU20 / CD10 **min. 100**		PD20 / PS30 / PU20 / CD10 **min. 100**		PD20 / PS30 / PU20 / CD10 **min. 100**	

○ Smooth cut | ◐ Irregular cutting depth | ◌ Interrupted cut

Cutting data standard values for the CB chip breaker geometries

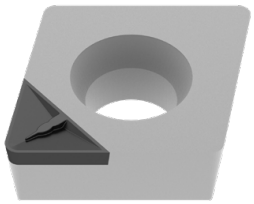
-CB1



3D-Chip Breaker -CB1				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,1 mm	0,05	0,30	0,02	0,05
0,2 mm	0,06	0,40	0,03	0,08
0,4 mm	0,10	0,80	0,04	0,15
0,8 mm	0,15	1,00	0,08	0,20
1,2 mm	0,30	1,50	0,12	0,25

- ▲ Finish and Superfinish
- ▲ Extremely sharp cutting edge geometry
- ▲ Depth of Cut a_p: 0.05–1.5 mm
- ▲ Smallest cutting pressure for highest accuracies
- ▲ For machining of thin-walled and unstable workpieces

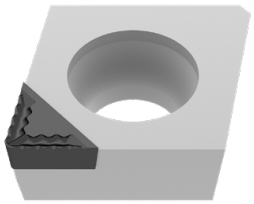
-CB2



3D-Chip Breaker -CB2				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,2 mm	0,50	0,80	0,08	0,12
0,4 mm	0,60	1,50	0,08	0,20
0,8 mm	0,70	1,50	0,15	0,30
1,2 mm	0,80	2,00	0,20	0,40

- ▲ Semi-finish and Finish machining
- ▲ Negative edge preperation
- ▲ Cutting Depth a_p: 0,5–2,0 mm
- ▲ High surface quality and tight tolerances
- ▲ Machining of solid workpieces under stable conditions

-CB3



3D-Chip Breaker -CB3				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,4 mm	1,00	3,00	0,10	0,20
0,8 mm	1,00	3,00	0,15	0,35

- ▲ Medium and rough machining
- ▲ Highly aggressive chip breaker
- ▲ Cutting depth a_p: 1,0–3,0 mm
- ▲ Stable component conditions necessary
- ▲ Cooling must be ensured

Cutting data standard values for negative inserts

	Designation	-CF20 (Cermet)						-F50					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304							0,06	**0,15**	0,25	0,2	**0,5**	1,5
	CN.. 090308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	CN.. 120404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	CN.. 120408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	CN.. 120412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	CN.. 120416												
	CN.. 160608												
	CN.. 160612												
	CN.. 160616												
	CN.. 160624												
	CN.. 190608												
	CN.. 190612												
	CN.. 190616												
	CN.. 190624												
	CN.. 250924												
	DN.. 110402							0,04	**0,10**	0,20	0,1	**0,4**	2,3
	DN.. 110404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 110408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 110412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 150408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 150412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150416												
	DN.. 150604	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 150608	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 150612	0,10	**0,20**	0,30	0,5	**0,7**	1,5	0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150616												
	SN.. 090308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	SN.. 120404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	SN.. 120408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	SN.. 120412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	SN.. 120416												
	SN.. 150608												
	SN.. 150612												
	SN.. 150616												
	SN.. 190612												
	SN.. 190616												
	SN.. 190624												
	SN.. 250724												
	SN.. 250924												
	TN.. 110304							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	TN.. 110308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	TN.. 160404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	TN.. 160408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	TN.. 160412	0,10	**0,20**	0,30	0,5	**0,7**	1,5	0,14	**0,25**	0,35	0,6	**1,4**	2,6
	TN.. 220404												
	TN.. 220408												
	TN.. 220412												
	TN.. 220416												
	VN.. 160404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	VN.. 160408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	VN.. 160412												
	WN.. 060404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	WN.. 060408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	WN.. 060412												
	WN.. 080404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	WN.. 080408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	WN.. 080412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	WN.. 080416												

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-TFQ						-XU						-M50					
	f			a_p			f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404	0,10	**0,15**	0,35	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**2,0**	5,0
CN.. 120408	0,10	**0,25**	0,50	0,5	**1,5**	4,0	0,13	**0,25**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**2,0**	5,0
CN.. 120412	0,15	**0,30**	0,70	0,8	**2,0**	5,0	0,15	**0,30**	0,45	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**2,0**	5,0
CN.. 120416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
CN.. 160608													0,15	**0,25**	0,40	0,6	**3,0**	8,0
CN.. 160612													0,20	**0,30**	0,50	1,0	**3,0**	8,0
CN.. 160616													0,25	**0,40**	0,60	1,4	**3,0**	8,0
CN.. 160624																		
CN.. 190608																		
CN.. 190612																		
CN.. 190616																		
CN.. 190624																		
CN.. 250924																		
DN.. 110402																		
DN.. 110404													0,10	**0,20**	0,30	0,4	**1,5**	4,0
DN.. 110408													0,15	**0,25**	0,40	0,6	**1,5**	4,0
DN.. 110412													0,20	**0,30**	0,50	1,0	**1,5**	4,0
DN.. 150404													0,10	**0,20**	0,30	0,4	**2,0**	5,0
DN.. 150408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
DN.. 150412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
DN.. 150416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
DN.. 150604	0,10	**0,15**	0,30	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**2,0**	5,0
DN.. 150608	0,10	**0,25**	0,40	0,5	**1,5**	4,0	0,13	**0,25**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**2,0**	5,0
DN.. 150612	0,1	**0,35**	0,5	1,0	**2,5**	4,0	0,15	**0,25**	0,40	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**2,0**	5,0
DN.. 150616													0,25	**0,40**	0,60	1,4	**2,0**	5,0
SN.. 090308																		
SN.. 120404																		
SN.. 120408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
SN.. 120412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
SN.. 120416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
SN.. 150608													0,15	**0,25**	0,40	0,6	**3,0**	8,0
SN.. 150612													0,20	**0,30**	0,50	1,0	**3,0**	8,0
SN.. 150616													0,25	**0,40**	0,60	1,4	**3,0**	8,0
SN.. 190612																		
SN.. 190616																		
SN.. 190624																		
SN.. 250724																		
SN.. 250924																		
TN.. 110304																		
TN.. 110308																		
TN.. 160404													0,10	**0,20**	0,30	0,4	**2,0**	5,0
TN.. 160408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
TN.. 160412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
TN.. 220404																		
TN.. 220408													0,15	**0,25**	0,40	0,6	**3,0**	8,0
TN.. 220412													0,20	**0,30**	0,50	1,0	**3,0**	8,0
TN.. 220416																		
VN.. 160404							0,08	**0,15**	0,20	0,3	**1,0**	1,8	0,10	**0,20**	0,30	0,4	**1,0**	4,0
VN.. 160408							0,13	**0,20**	0,30	0,6	**1,5**	2,5	0,15	**0,25**	0,40	0,6	**1,0**	4,0
VN.. 160412													0,20	**0,30**	0,50	1,0	**1,0**	4,0
WN.. 060404	0,10	**0,18**	0,35	0,4	**0,8**	3,0							0,10	**0,20**	0,30	0,4	**1,0**	3,0
WN.. 060408	0,10	**0,20**	0,50	0,5	**1,5**	3,0							0,15	**0,25**	0,40	0,6	**1,0**	3,0
WN.. 060412													0,20	**0,30**	0,50	1,0	**1,0**	3,0
WN.. 080404	0,1	**0,15**	0,35	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**1,5**	4,0
WN.. 080408	0,10	**0,25**	0,50	0,5	**1,5**	4,0	0,13	**0,22**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**1,5**	4,0
WN.. 080412	0,15	**0,30**	0,70	0,8	**2,0**	5,0	0,15	**0,25**	0,45	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**1,5**	4,0
WN.. 080416													0,25	**0,40**	0,60	1,4	**1,5**	4,0

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 211–217**

Cutting data standard values for negative inserts

	Designation	-TMQ						-M70					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304												
	CN.. 090308												
	CN.. 120404												
	CN.. 120408	0,20	**0,40**	0,65	0,8	**3,0**	5,0	0,20	**0,30**	0,45	0,8	**3,0**	6,0
	CN.. 120412	0,25	**0,50**	0,85	1,0	**3,0**	6,0	0,25	**0,40**	0,60	1,2	**3,0**	6,0
	CN.. 120416							0,30	**0,45**	0,70	1,6	**3,0**	6,0
	CN.. 160608							0,20	**0,30**	0,45	0,8	**4,0**	8,0
	CN.. 160612							0,25	**0,40**	0,60	1,2	**4,0**	8,0
	CN.. 160616							0,30	**0,45**	0,70	1,6	**4,0**	8,0
	CN.. 160624							0,40	**0,70**	1,20	2,4	**4,0**	8,0
	CN.. 190608							0,20	**0,30**	0,45	0,8	**4,5**	9,0
	CN.. 190612							0,25	**0,40**	0,60	1,2	**4,5**	9,0
	CN.. 190616							0,30	**0,45**	0,70	1,6	**4,5**	9,0
	CN.. 190624							0,40	**0,70**	1,20	2,4	**4,5**	9,0
	CN.. 250924							0,40	**0,70**	1,20	2,4	**6,0**	13,0
	DN.. 110402												
	DN.. 110404												
	DN.. 110408							0,20	**0,25**	0,45	0,8	**2,0**	5,0
	DN.. 110412							0,25	**0,35**	0,60	1,2	**2,0**	5,0
	DN.. 150404												
	DN.. 150408							0,20	**0,25**	0,45	0,8	**2,5**	6,0
	DN.. 150412							0,25	**0,35**	0,60	1,2	**2,5**	6,0
	DN.. 150416							0,30	**0,40**	0,70	1,6	**2,5**	6,0
	DN.. 150604												
	DN.. 150608	0,15	**0,30**	0,50	0,8	**2,5**	5,0	0,20	**0,25**	0,45	0,8	**2,5**	6,0
	DN.. 150612	0,20	**0,40**	0,60	1,0	**3,0**	5,0	0,25	**0,35**	0,60	1,2	**2,5**	6,0
	DN.. 150616							0,30	**0,40**	0,70	1,6	**2,5**	6,0
	SN.. 090308												
	SN.. 120404												
	SN.. 120408							0,20	**0,30**	0,50	0,8	**3,0**	6,0
	SN.. 120412							0,25	**0,40**	0,65	1,2	**3,0**	6,0
	SN.. 120416							0,30	**0,45**	0,70	1,6	**3,0**	6,0
	SN.. 150608												
	SN.. 150612							0,25	**0,40**	0,65	1,2	**4,0**	8,0
	SN.. 150616							0,30	**0,45**	0,75	1,6	**4,0**	8,0
	SN.. 190612							0,25	**0,40**	0,65	1,2	**4,5**	9,0
	SN.. 190616							0,30	**0,45**	0,75	1,6	**4,5**	9,0
	SN.. 190624							0,40	**0,70**	1,20	2,4	**4,5**	9,0
	SN.. 250724												
	SN.. 250924							0,40	**0,70**	1,20	2,4	**6,0**	13,0
	TN.. 110304												
	TN.. 110308												
	TN.. 160404												
	TN.. 160408							0,20	**0,25**	0,45	0,8	**2,5**	6,0
	TN.. 160412							0,25	**0,35**	0,60	1,2	**2,5**	6,0
	TN.. 220404							0,15	**0,20**	0,30	0,4	**3,0**	7,0
	TN.. 220408							0,20	**0,25**	0,45	0,8	**3,0**	7,0
	TN.. 220412							0,25	**0,35**	0,60	1,2	**3,0**	7,0
	TN.. 220416							0,30	**0,40**	0,70	1,6	**3,0**	7,0
	VN.. 160404												
	VN.. 160408												
	VN.. 160412												
	WN.. 060404												
	WN.. 060408							0,20	**0,30**	0,45	0,8	**2,0**	4,0
	WN.. 060412							0,25	**0,40**	0,60	1,2	**2,0**	4,0
	WN.. 080404												
	WN.. 080408	0,20	**0,30**	0,65	0,8	**3,0**	5,0	0,20	**0,30**	0,45	0,8	**2,5**	5,0
	WN.. 080412	0,25	**0,40**	0,85	1,0	**3,0**	6,0	0,25	**0,40**	0,60	1,2	**2,5**	5,0
	WN.. 080416							0,30	**0,45**	0,70	1,6	**2,5**	5,0

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-R28						-R58						-R88					
	f			a_p			f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404																		
CN.. 120408	0,25	**0,35**	0,55	0,8	**3,0**	7,0	0,25	**0,45**	0,70	1,0	**3,0**	7,0						
CN.. 120412	0,30	**0,45**	0,70	1,0	**3,0**	7,0	0,30	**0,55**	0,85	1,5	**3,0**	7,0						
CN.. 120416	0,30	**0,60**	0,90	1,5	**3,0**	7,0	0,35	**0,65**	1,00	2,0	**3,0**	7,0						
CN.. 160608																		
CN.. 160612	0,30	**0,45**	0,70	1,0	**4,0**	9,0	0,30	**0,55**	0,85	1,5	**4,0**	9,0						
CN.. 160616	0,35	**0,60**	0,90	1,5	**4,0**	9,0	0,35	**0,65**	1,00	2,0	**4,0**	9,0						
CN.. 160624							0,40	**0,75**	1,20	2,5	**4,0**	9,0	0,40	**0,70**	1,20	2,0	**5,0**	9,0
CN.. 190608																		
CN.. 190612	0,30	**0,45**	0,70	1,0	**5,5**	12,0	0,35	**0,55**	0,85	1,5	**5,5**	12,0						
CN.. 190616	0,35	**0,60**	0,90	1,5	**5,5**	12,0	0,40	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,70**	1,00	2,0	**5,0**	12,0
CN.. 190624	0,35	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,75**	1,20	2,5	**5,5**	12,0	0,40	**0,70**	1,20	2,0	**5,0**	12,0
CN.. 250924	0,35	**0,7**	1,0	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
DN.. 110402																		
DN.. 110404																		
DN.. 110408																		
DN.. 110412																		
DN.. 150404																		
DN.. 150408																		
DN.. 150412																		
DN.. 150416																		
DN.. 150604																		
DN.. 150608																		
DN.. 150612	0,25	**0,45**	0,70	1,0	**2,5**	6,0	0,30	**0,50**	0,80	1,5	**2,5**	6,0						
DN.. 150616	0,30	**0,60**	0,85	1,5	**2,5**	6,0	0,35	**0,60**	0,90	2,0	**2,5**	6,0						
SN.. 090308																		
SN.. 120404																		
SN.. 120408							0,25	**0,45**	0,70	1,0	**3,0**	7,0						
SN.. 120412							0,30	**0,55**	0,85	1,5	**3,0**	7,0						
SN.. 120416																		
SN.. 150608																		
SN.. 150612	0,30	**0,35**	0,70	1,0	**4,0**	9,0	0,30	**0,55**	0,85	1,5	**4,0**	9,0						
SN.. 150616	0,35	**0,60**	0,90	1,5	**4,0**	9,0	0,35	**0,65**	1,00	2,0	**4,0**	9,0						
SN.. 190612							0,35	**0,55**	0,85	1,5	**5,5**	12,0						
SN.. 190616	0,35	**0,60**	0,90	1,5	**5,5**	12,0	0,40	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,70**	1,00	2,0	**5,0**	12,0
SN.. 190624							0,40	**0,75**	1,20	2,0	**5,5**	12,0	0,40	**0,70**	1,20	2,0	**5,0**	12,0
SN.. 250724	0,35	**0,65**	1,00	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
SN.. 250924	0,35	**0,65**	1,00	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
TN.. 110304																		
TN.. 110308																		
TN.. 160404																		
TN.. 160408																		
TN.. 160412																		
TN.. 220404																		
TN.. 220408																		
TN.. 220412							0,30	**0,50**	0,80	1,5	**3,0**	7,0						
TN.. 220416	0,30	**0,55**	0,85	1,5	**3,0**	7,0												
VN.. 160404																		
VN.. 160408																		
VN.. 160412																		
WN.. 060404																		
WN.. 060408																		
WN.. 060412																		
WN.. 080404																		
WN.. 080408																		
WN.. 080412																		
WN.. 080416																		

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 211–217**

Cutting data standard values for negative inserts

	Designation	-F30						-M30					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304												
	CN.. 090308												
	CN.. 120404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	CN.. 120408	0,10	**0,22**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	CN.. 120412							0,20	**0,30**	0,50	1,2	**2,5**	5,0
	CN.. 120416							0,25	**0,35**	0,55	1,6	**2,5**	5,0
	CN.. 160608												
	CN.. 160612												
	CN.. 160616												
	CN.. 160624												
	CN.. 190608												
	CN.. 190612												
	CN.. 190616												
	CN.. 190624												
	CN.. 250924												
	DN.. 110402												
	DN.. 110404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 110408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	DN.. 110412							0,20	**0,30**	0,50	1,2	**2,0**	4,5
	DN.. 150404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 150408	0,1	**0,2**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,35	1,0	**2,5**	4,0
	DN.. 150412							0,2	**0,3**	0,5	1,0	**2,5**	4,0
	DN.. 150416												
	DN.. 150604	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 150608	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	5,5
	DN.. 150612							0,20	**0,30**	0,50	1,2	**2,0**	5,5
	DN.. 150616												
	SN.. 090308												
	SN.. 120404	0,10	**0,15**	0,30	0,4	**1,0**	2,0						
	SN.. 120408	0,15	**0,20**	0,40	0,8	**1,5**	2,5	0,20	**0,25**	0,45	1,0	**2,0**	4,5
	SN.. 120412	0,15	**0,20**	0,40	1,2	**1,8**	2,5	0,25	**0,30**	0,50	1,2	**2,0**	5,0
	SN.. 120416												
	SN.. 150608												
	SN.. 150612												
	SN.. 150616												
	SN.. 190612												
	SN.. 190616												
	SN.. 190624												
	SN.. 250724												
	SN.. 250924												
	TN.. 110304												
	TN.. 110308												
	TN.. 160404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	TN.. 160408	0,10	**0,15**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	TN.. 160412							0,20	**0,30**	0,50	1,2	**2,0**	4,5
	TN.. 220404												
	TN.. 220408												
	TN.. 220412												
	TN.. 220416												
	VN.. 160404	0,08	**0,10**	0,20	0,4	**1,0**	2,0						
	VN.. 160408	0,10	**0,15**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	4,0
	VN.. 160412												
	WN.. 060404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	WN.. 060408	0,10	**0,20**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	3,5
	WN.. 060412							0,20	**0,30**	0,45	1,2	**1,5**	4,0
	WN.. 080404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	WN.. 080408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	WN.. 080412							0,20	**0,30**	0,50	1,2	**2,0**	5,0
	WN.. 080416												

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M60						-M34						-M42					
	f			a_p			f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404							0,08	**0,12**	0,18	1,0	**1,5**	3,0	0,1	**0,2**	0,25	0,8	**1,5**	4,0
CN.. 120408	0,25	**0,30**	0,50	1,5	**2,5**	6,0	0,10	**0,15**	0,35	1,0	**1,8**	3,5	0,2	**0,3**	0,44	1,0	**2,5**	4,0
CN.. 120412	0,30	**0,35**	0,55	2,0	**3,0**	6,0	0,13	**0,20**	0,40	1,5	**2,0**	4,0	0,28	**0,35**	0,55	1,2	**3,0**	4,2
CN.. 120416	0,30	**0,40**	0,60	2,0	**3,0**	6,0	0,15	**0,25**	0,45	2,0	**3,0**	4,5						
CN.. 160608																		
CN.. 160612	0,30	**0,35**	0,55	2,0	**3,0**	8,0												
CN.. 160616																		
CN.. 160624																		
CN.. 190608																		
CN.. 190612																		
CN.. 190616																		
CN.. 190624																		
CN.. 250924																		
DN.. 110402																		
DN.. 110404													0,15	**0,25**	0,3	1,0	**2,0**	3,5
DN.. 110408													0,2	**0,3**	0,4	1,2	**2,5**	4,0
DN.. 110412																		
DN.. 150404							0,08	**0,12**	0,18	0,8	**1,2**	2,5	0,15	**0,25**	0,35	1,0	**2,0**	4,0
DN.. 150408	0,25	**0,3**	0,45	1,5	**2,5**	6,0	0,10	**0,15**	0,30	1,0	**1,8**	3,5	0,2	**0,3**	0,4	1,2	**2,5**	5,0
DN.. 150412	0,3	**0,4**	0,55	1,5	**2,5**	6,0	0,13	**0,20**	0,38	1,5	**2,0**	4,0						
DN.. 150416																		
DN.. 150604													0,15	**0,25**	0,35	1,0	**2,0**	4,0
DN.. 150608	0,25	**0,30**	0,45	1,5	**2,5**	6,0	0,10	**0,15**	0,30	1,0	**1,8**	3,5	0,2	**0,3**	0,44	1,2	**2,5**	5,0
DN.. 150612	0,30	**0,40**	0,55	1,5	**2,5**	6,0	0,13	**0,20**	0,38	1,5	**2,0**	4,0						
DN.. 150616																		
SN.. 090308																		
SN.. 120404																		
SN.. 120408	0,30	**0,35**	0,50	1,5	**2,0**	6,0	0,15	**0,25**	0,40	1,0	**2,0**	4,0	0,15	**0,25**	0,4	1,0	**2,0**	4,5
SN.. 120412	0,30	**0,40**	0,55	2,0	**2,5**	6,0	0,15	**0,25**	0,45	1,5	**2,5**	4,5	0,2	**0,25**	0,45	1,0	**2,0**	5,0
SN.. 120416	0,30	**0,40**	0,60	2,0	**2,5**	6,0												
SN.. 150608																		
SN.. 150612																		
SN.. 150616																		
SN.. 190612																		
SN.. 190616																		
SN.. 190624																		
SN.. 250724																		
SN.. 250924																		
TN.. 110304																		
TN.. 110308																		
TN.. 160404													0,1	**0,2**	0,3	0,8	**2,0**	5,0
TN.. 160408	0,25	**0,25**	0,45	1,5	**2,5**	5,0	0,10	**0,15**	0,35	1,0	**2,0**	4,0	0,12	**0,2**	0,35	0,8	**2,0**	5,0
TN.. 160412	0,30	**0,30**	0,55	2,0	**2,5**	5,5												
TN.. 220404							0,10	**0,15**	0,35	1,0	**2,0**	4,0						
TN.. 220408							0,13	**0,20**	0,40	1,5	**2,5**	4,0						
TN.. 220412																		
TN.. 220416							0,15	**0,25**	0,45	2,0	**2,5**	4,5						
VN.. 160404							0,07	**0,10**	0,18	0,8	**1,2**	2,0						
VN.. 160408							0,10	**0,15**	0,20	1,0	**1,5**	2,5						
VN.. 160412							0,13	**0,18**	0,25	1,5	**1,8**	3,0						
WN.. 060404													0,1	**0,22**	0,35	0,5	**1,0**	3,0
WN.. 060408	0,25	**0,30**	0,45	1,5	**2,0**	4,0							0,1	**0,22**	0,35	0,5	**1,0**	3,0
WN.. 060412	0,30	**0,35**	0,50	2,0	**2,5**	4,5												
WN.. 080404													0,1	**0,2**	0,35	0,4	**1,5**	4,0
WN.. 080408	0,25	**0,30**	0,50	1,5	**2,0**	5,0	0,10	**0,15**	0,35	1,0	**2,0**	4,0	0,15	**0,25**	0,4	0,8	**1,5**	4,0
WN.. 080412	0,30	**0,35**	0,55	2,0	**2,5**	5,5	0,13	**0,20**	0,40	1,5	**2,0**	4,0	0,2	**0,3**	0,45	1,0	**2,0**	4,0
WN.. 080416																		

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 211–217**

Cutting data values for positive inserts

	Designation	-CF05						-SF					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CC.. 060200							0,02	**0,035**	0,05	0,1	**0,4**	1,5
	CC.. 060201							0,02	**0,035**	0,05	0,2	**0,4**	1,5
	CC.. 060202	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,03	**0,1**	0,15	0,2	**0,4**	1,5
	CC.. 060204	0,05	**0,10**	0,12	0,1	**0,3**	1,3	0,05	**0,1**	0,2	0,2	**0,6**	1,5
	CC.. 060208							0,05	**0,125**	0,2	0,2	**1**	1,5
	CC.. 09T300							0,02	**0,035**	0,05	0,2	**0,75**	2
	CC.. 09T301							0,02	**0,035**	0,05	0,2	**0,75**	2
	CC.. 09T302	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,05	**0,075**	0,1	0,2	**0,75**	2
	CC.. 09T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,75**	2
	CC.. 09T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,05	**0,125**	0,25	0,4	**1**	2
	CC.. 09T312												
	CC.. 120402							0,05	**0,075**	0,1	0,2	**0,8**	2,5
	CC.. 120404							0,05	**0,12**	0,2	0,2	**1**	2,5
	CC.. 120408							0,08	**0,15**	0,25	0,4	**1**	2,5
	CC.. 120412							0,08	**0,15**	0,25	0,4	**1,5**	2,5
	DC.. 0702005												
	DC.. 070201												
	DC.. 0702015												
	DC.. 070202	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,03	**0,1**	0,15	0,1	**0,4**	1,5
	DC.. 070204	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,6**	1,5
	DC.. 070208												
	DC.. 11T3005												
	DC.. 11T301												
	DC.. 11T3015												
	DC.. 11T302	0,03	**0,08**	0,12	0,1	**0,3**	1,3						
	DC.. 11T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	DC.. 11T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	DC.. 11T312												
	RC.. 0602MO												
	RC.. 0803MO												
	RC.. 1003MO												
	RC.. 1204MO												
	RC.. 1606MO												
	RC.. 2006MO												
	RC.. 2507MO												
	SC.. 09T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	SC.. 09T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	SC.. 120408							0,08	**0,15**	0,25	0,4	**1**	2,5
	SC.. 120412												
	TC.. 090204												
	TC.. 110202	0,03	**0,08**	0,12	0,1	**0,3**	1,3						
	TC.. 110204	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	TC.. 110208	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	TC.. 16T302												
	TC.. 16T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,8**	2,5
	TC.. 16T308							0,08	**0,15**	0,25	0,4	**1**	2,5
	TC.. 16T312												
	TC.. 220408												
	VC.. 1103005												
	VC.. 110301												
	VC.. 1103015												
	VC.. 110302	0,03	**0,06**	0,12	0,1	**0,3**	1,3	0,02	**0,08**	0,15	0,1	**0,4**	1,5
	VC.. 110304	0,05	**0,08**	0,22	0,2	**0,4**	1,3	0,05	**0,1**	0,2	0,2	**0,6**	1,5
	VC.. 110308							0,08	**0,12**	0,22	0,4	**1**	1,5
	VC.. 160402												
	VC.. 160404	0,05	**0,08**	0,22	0,2	**0,4**	1,3	0,05	**0,1**	0,2	0,2	**0,7**	2
	VC.. 160408	0,06	**0,10**	0,22	0,2	**0,4**	1,3	0,08	**0,12**	0,22	0,4	**1**	2
	VC.. 160412												
	VC.. 220530												
	WC.. 020102							0,02	**0,075**	0,1	0,1	**0,4**	1
	WC.. 020104							0,02	**0,1**	0,2	0,1	**0,6**	1,5

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-CF55						-SMF						-SM					
	f			a_p			f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CC.. 060200																		
CC.. 060201																		
CC.. 060202													0,04	**0,12**	0,2	0,2	**0,6**	2,5
CC.. 060204	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,7**	2	0,08	**0,17**	0,3	0,4	**0,8**	2,5
CC.. 060208							0,1	**0,17**	0,27	0,6	**1**	2	0,12	**0,2**	0,35	0,8	**1**	2,5
CC.. 09T300																		
CC.. 09T301																		
CC.. 09T302																		
CC.. 09T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,08	**0,17**	0,3	0,4	**1**	3
CC.. 09T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
CC.. 09T312													0,15	**0,22**	0,4	1,2	**1,5**	3
CC.. 120402																		
CC.. 120404	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**1**	3	0,08	**0,17**	0,3	0,4	**1,2**	3,5
CC.. 120408							0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
CC.. 120412													0,15	**0,22**	0,4	1,2	**2**	3,5
DC.. 0702005																		
DC.. 070201																		
DC.. 0702015																		
DC.. 070202	0,03	**0,10**	0,12	0,1	**0,4**	1,3							0,04	**0,12**	0,2	0,2	**0,6**	2,5
DC.. 070204	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,7**	2	0,08	**0,17**	0,3	0,4	**0,8**	2,5
DC.. 070208							0,1	**0,17**	0,27	0,6	**1**	2	0,12	**0,2**	0,3	0,8	**1**	2,5
DC.. 11T3005																		
DC.. 11T301																		
DC.. 11T3015																		
DC.. 11T302																		
DC.. 11T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,8	**0,17**	0,3	0,4	**1**	3
DC.. 11T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1,2**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
DC.. 11T312													0,15	**0,22**	0,4	1,2	**1,7**	3
RC.. 0602MO													0,2	**0,3**	0,5	0,2	**0,5**	1,5
RC.. 0803MO													0,2	**0,3**	0,6	0,2	**0,6**	2
RC.. 1003MO													0,25	**0,4**	0,7	0,2	**0,7**	2,5
RC.. 1204MO													0,3	**0,5**	0,8	0,2	**0,8**	3
RC.. 1606MO							0,15	**0,3**	0,6	0,25	**2**	3,5	0,4	**0,6**	1	0,3	**1**	3,5
RC.. 2006MO													0,5	**0,8**	1,2	0,4	**1,2**	4
RC.. 2507MO													0,6	**0,9**	1,4	0,6	**2**	5
SC.. 09T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,08	**0,17**	0,3	0,4	**1**	3
SC.. 09T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
SC.. 120408							0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
SC.. 120412													0,15	**0,22**	0,4	1,2	**2**	3,5
TC.. 090204													0,08	**0,12**	0,2	0,4	**0,8**	2
TC.. 110202													0,08	**0,1**	0,2	0,4	**0,6**	3
TC.. 110204	0,05	**0,12**	0,22	0,2	**0,5**	1,3							0,12	**0,2**	0,35	0,8	**1,2**	3
TC.. 110208							0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
TC.. 16T302																		
TC.. 16T304							0,07	**0,15**	0,25	0,3	**1**	3	0,08	**0,17**	0,3	0,4	**1,2**	3,5
TC.. 16T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
TC.. 16T312													0,15	**0,22**	0,4	1,2	**1,7**	3,5
TC.. 220408													0,12	**0,2**	0,35	0,8	**2,5**	6
VC.. 1103005																		
VC.. 110301																		
VC.. 1103015																		
VC.. 110302							0,05	**0,1**	0,18	0,2	**0,5**	2						
VC.. 110304	0,05	**0,10**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,23	0,3	**0,7**	2						
VC.. 110308																		
VC.. 160402																		
VC.. 160404	0,05	**0,10**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,23	0,3	**0,8**	2,5	0,08	**0,17**	0,25	0,4	**1**	3
VC.. 160408	0,06	**0,12**	0,22	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,3	0,8	**1,2**	3
VC.. 160412													0,15	**0,22**	0,32	1,2	**1,5**	3
VC.. 220530																		
WC.. 020102																		
WC.. 020104																		

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 211–217**

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Cutting data values for positive inserts

	Designation	-SMQ						-M25					
		f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		mm/rev.			mm			mm/rev.			mm		
	CC.. 060200												
	CC.. 060201												
	CC.. 060202												
	CC.. 060204							0,06	**0,13**	0,20	0,2	**1,1**	2,0
	CC.. 060208												
	CC.. 09T300												
	CC.. 09T301												
	CC.. 09T302												
	CC.. 09T304	0,10	**0,25**	0,4	0,4	**2**	4	0,06	**0,14**	0,22	0,2	**1,2**	2,2
	CC.. 09T308	0,15	**0,30**	0,5	0,8	**2**	4	0,10	**0,20**	0,30	0,4	**1,8**	3,2
	CC.. 09T312												
	CC.. 120402												
	CC.. 120404	0,10	**0,25**	0,4	0,4	**2**	4						
	CC.. 120408	0,15	**0,30**	0,5	0,8	**2**	4						
	CC.. 120412												
	DC.. 0702005												
	DC.. 070201												
	DC.. 0702015												
	DC.. 070202							0,04	**0,09**	0,13	0,1	**0,9**	1,6
	DC.. 070204	0,10	**0,18**	0,25	0,4	**1,5**	3	0,06	**0,12**	0,18	0,2	**1,1**	2,0
	DC.. 070208												
	DC.. 11T3005												
	DC.. 11T301												
	DC.. 11T3015												
	DC.. 11T302							0,04	**0,10**	0,16	0,1	**1,1**	2,0
	DC.. 11T304	0,10	**0,25**	0,4	0,4	**2**	4	0,06	**0,14**	0,22	0,2	**1,2**	2,2
	DC.. 11T308	0,15	**0,30**	0,5	0,8	**2**	4	0,10	**0,20**	0,30	0,4	**1,8**	3,2
	DC.. 11T312												
	RC.. 0602MO												
	RC.. 0803MO												
	RC.. 1003MO												
	RC.. 1204MO												
	RC.. 1606MO												
	RC.. 2006MO												
	RC.. 2507MO												
	SC.. 09T304												
	SC.. 09T308												
	SC.. 120408												
	SC.. 120412												
	TC.. 090204												
	TC.. 110202												
	TC.. 110204							0,06	**0,13**	0,20	0,2	**1,2**	2,2
	TC.. 110208												
	TC.. 16T302												
	TC.. 16T304							0,06	**0,14**	0,22	0,2	**1,6**	3,0
	TC.. 16T308							0,10	**0,20**	0,30	0,4	**1,9**	3,4
	TC.. 16T312												
	TC.. 220408												
	VC.. 1103005												
	VC.. 110301												
	VC.. 1103015												
	VC.. 110302												
	VC.. 110304												
	VC.. 110308												
	VC.. 160402												
	VC.. 160404							0,06	**0,13**	0,20	0,2	**1,2**	2,2
	VC.. 160408							0,10	**0,15**	0,25	0,4	**1,4**	3,0
	VC.. 160412												
	VC.. 220530												
	WC.. 020102												
	WC.. 020104												

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M55						-F05					
	f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	mm/rev.			mm			mm/rev.			mm		
CC.. 060200												
CC.. 060201							0,02	**0,03**	0,05	0,1	**1**	2
CC.. 060202							0,02	**0,05**	0,1	0,1	**1**	2
CC.. 060204	0,06	**0,13**	0,20	0,4	**1,5**	2,6	0,02	**0,1**	0,2	0,1	**1**	2
CC.. 060208												
CC.. 09T300												
CC.. 09T301												
CC.. 09T302												
CC.. 09T304	0,08	**0,16**	0,24	0,4	**1,7**	3,0						
CC.. 09T308	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
CC.. 09T312												
CC.. 120402												
CC.. 120404	0,08	**0,18**	0,28	0,4	**2,2**	4,0						
CC.. 120408	0,12	**0,26**	0,40	0,8	**2,8**	4,8						
CC.. 120412												
DC.. 0702005							0,02	**0,025**	0,04	0,1	**1**	2
DC.. 070201							0,02	**0,03**	0,05	0,1	**1**	2
DC.. 0702015							0,02	**0,04**	0,075	0,1	**1**	2
DC.. 070202							0,02	**0,05**	0,1	0,1	**1**	2
DC.. 070204	0,06	**0,14**	0,22	0,4	**1,3**	2,2						
DC.. 070208	0,08	**0,16**	0,24	0,8	**1,6**	2,4						
DC.. 11T3005							0,02	**0,025**	0,04	0,1	**1,25**	2,5
DC.. 11T301							0,02	**0,03**	0,05	0,1	**1,25**	2,5
DC.. 11T3015							0,02	**0,04**	0,075	0,1	**1,25**	2,5
DC.. 11T302							0,02	**0,075**	0,1	0,1	**1,25**	2,5
DC.. 11T304	0,08	**0,16**	0,24	0,4	**1,7**	3,0	0,02	**0,1**	0,25	0,1	**1,25**	2,5
DC.. 11T308	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
DC.. 11T312												
RC.. 0602MO												
RC.. 0803MO												
RC.. 1003MO												
RC.. 1204MO												
RC.. 1606MO												
RC.. 2006MO												
RC.. 2507MO												
SC.. 09T304	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
SC.. 09T308	0,12	**0,26**	0,40	0,8	**2,8**	4,8						
SC.. 120408												
SC.. 120412												
TC.. 090204	0,06	**0,12**	0,18	0,4	**1,3**	2,2						
TC.. 110202												
TC.. 110204	0,06	**0,14**	0,22	0,4	**1,4**	2,4						
TC.. 110208												
TC.. 16T302												
TC.. 16T304												
TC.. 16T308	0,12	**0,24**	0,35	0,8	**2,6**	4,4						
TC.. 16T312												
TC.. 220408												
VC.. 1103005							0,02	**0,025**	0,04	0,1	**1,25**	2,5
VC.. 110301							0,02	**0,03**	0,05	0,1	**1,25**	2,5
VC.. 1103015							0,02	**0,04**	0,075	0,1	**1,25**	2,5
VC.. 110302							0,02	**0,075**	0,1	0,1	**1,25**	2,5
VC.. 110304							0,02	**0,15**	0,25	0,1	**1,25**	2,5
VC.. 110308												
VC.. 160402												
VC.. 160404	0,08	**0,14**	0,20	0,4	**1,7**	3,0						
VC.. 160408	0,12	**0,21**	0,30	0,8	**2,1**	3,4						
VC.. 160412												
VC.. 220530												
WC.. 020102												
WC.. 020104												

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 211–217**

9

Diamond as a cutting material



Ensures

- ▲ optimal surface quality
- ▲ burr-free workpieces
- ▲ high service lives
- ▲ lowest cutting forces
- ▲ high Process Security

Complete programme of roughing, finishing and Trailing edge inserts for machining aluminium, non ferrous metals, plastics, ...

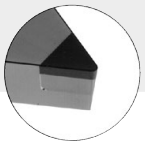
The cutting materials

	CTD CD10 (CVD)	CTD PD20 (PKD)	CTD PU20 (PKD)	CTD PS30 (PKD)
	Fine grain Size (N10)	Fine grain grade (N20)	Coarse grain grade (N20)	Coarse grain Size (N30)
Properties	▲ perfect sharp edges ▲ no cutting pressure ▲ very close tolerances ▲ highest abrasion resistance with highest toughness ▲ very high heat conductivity	▲ high sharpness ▲ lower cutting pressure than PDC-S ▲ close tolerance ▲ lower abrasion resistance with increased toughness	▲ very sharp cutting edge ▲ reduced cutting pressure ▲ tight tolerances ▲ very high level of wear resistance and toughness	▲ high sharpness ▲ lower cutting pressure ▲ close tolerance ▲ lower abrasion resistance than with the PDC, with increased toughness
Material	suitable for superfinishing and semi-finishing of all non ferrous metals and NE-composite materials with small to high levels of abrasiveness	suitable for fine machining of all NE-materials with low abrasiveness	suitable for finishing to roughing non-ferrous metals and non-ferrous materials with highly abrasive alloying element. High chip removal on fibre-reinforced plastics such as CFRP and GFRP.	suitable for fine machining of all NE-materials and non-ferrous metals with low to very high levels of abrasiveness

Cutting Geometries

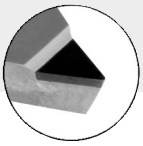
Neutral rake angle:

- ▲ higher cuting force
- ▲ higher temperature
- ▲ improved surface quality
- ▲ for stable workpieces



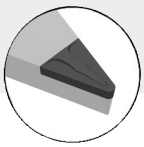
Positive rake angle: 5° / 7°

- ▲ lower cutting force
- ▲ lower temperature
- ▲ reduction in surface quality
- ▲ for unstable workpieces
- ▲ improved accuracy



CB chip breaker geometries:

- ▲ reliable chip control
- ▲ ideal for low-alloy aluminium
- ▲ For F | M | R applications



Notes on diamond usage

- ▲ Coolant is not generally needed, however it facilitates chip removal
- ▲ Note the chemical reaction to carbide-forming elements (PCD)
- ▲ Note the thermal interaction and critical temperature:
  PCD: 600 °C, CVD: 700 °C
  Depending on the material, use cooling.

Standard chip breakers / application notes

Main application steel and cast iron, secondary application stainless steels

Negative

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-CF / -CF20 ▲ Fine finishing ▲ Sharp cutting edge for low cutting forces ▲ Good chip control even at small depths of cut	**CTEP110 / TCM10** CTEP110 / TCM10 CTEP110 / TCM10			0,30–1,50	0,07–0,25	CN.. DN.. TN.. WN..
-F40 ▲ Fine turning chip breaker for machining steels ▲ Good chip control ▲ Ideal for copy turning work	**CTCP125-P** CTCP125-P	**CTCP125-P** CTCP125-P		0,50–2,00	0,10–0,30	VN..
-F50 ▲ Fine turning chip breaker for fine machining ▲ Steel and stainless steels ▲ Excellent chip control ▲ High surface quality	**CTCP115-P / CTCP125-P**	**CTCP115-P / CTCP125-P / CTCP135-P** CTCP135-P	**CTCP135-P** CTCP135-P	0,10–2,60	0,06–0,35	CN.. DN.. SN.. TN.. VN.. WN..
-TFQ ▲ Wiper geometry ▲ Finishing to medium machining ▲ Very high feeds ▲ High surface quality	**CTEP110 / CTCP115-P** CTEP110 CTEP110 / CTCP115-P	**CTCP115-P / CTCP125-P** CTCP115-P / CTCP125-P		0,50–5,00	0,10–0,60	CN.. DN.. WN..
-XU ▲ Finishing to light roughing ▲ Universal chip breaker ▲ Copy turning ▲ Excellent chip formation ▲ Low cutting forces	**CTCP115-P / CTCP125-P** CTCP115-P	CTCP115-P / **CTCP125-P** CTCP115-P / CTCP125-P	CTCP125-P	0,40–4,50	0,12–0,40	CN.. DN.. VN.. WN..

F

F

F

F

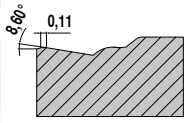
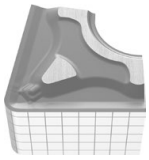
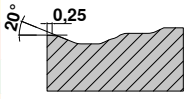
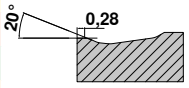
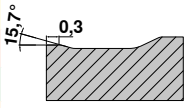
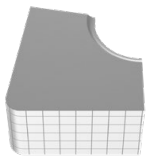
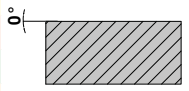
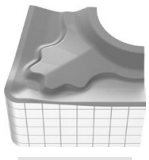
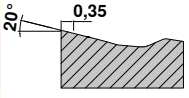
M

9

Standard chip breakers / application notes

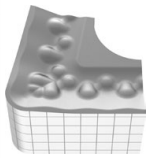
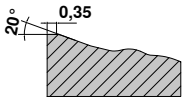
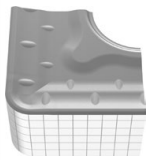
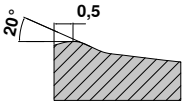
Main application steel and cast iron, secondary application stainless steels

Negative

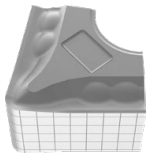
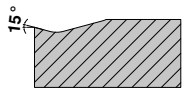
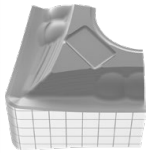
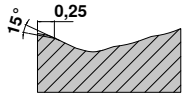
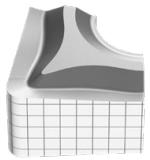
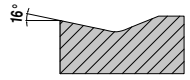
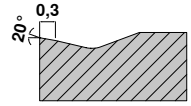
Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-M40 ▲ Stable geometry ▲ Medium feed rates ▲ Can be used for any application ▲ Good chip control	 **M**	**CTCP125-P** CTCP125-P	**CTCP125-P** CTCP125-P	 0,50–3,00	0,10–0,35	VN..
-M50 ▲ Medium machining ▲ First choice for steel machining ▲ Universal application ▲ Wide range of applications	 **M**	**CTCP115-P / CTCP125-P / CTCK110 / CTCK120** CTCP115-P CTCP115-P / CTCP125-P / **CTCK110 / CTCK120**	CTCP115-P / **CTCP125-P** CTCP125-P CTCP115-P / CTCP125-P / **CTCK110 / CTCK120**	CTCP125-P / **CTCP135-P** CTCP135-P CTCP125-P / **CTCK120**	 0,50–5,00	0,12–0,40	CN.. DN.. SN.. TN.. VN.. WN..
-TMQ ▲ Wiper geometry ▲ Light to medium rough machining ▲ Very high feeds ▲ High surface quality	 **M**	**CTCP115-P** CTCP125-P CTCP125-P	**CTCP125-P** CTCP125-P CTCP125-P	 0,80–6,00	0,20–0,85	CN.. DN.. WN..
-M70 ▲ Light to medium rough machining ▲ Cast crust and forging skin ▲ Stable cutting edge ▲ Interrupted cut ▲ Raw materials and forgings	 **M** **R**	**CTCK110 / CTCK120 / CTCP115-P** CTCP115-P **CTCK110 / CTCK120** / CTCP115-P / CTCP125-P	CTCP115-P / **CTCP125-P** CTCP125-P **CTCK120** / CTCP125-P	**CTCP125-P / CTCP135-P** CTCP135-P CTCP125-P / **CTCK120**	 1,50–4,50	0,20–0,80	CN.. DN.. SN.. TN.. WN..
-NMA ▲ Rough machining ▲ Stable cutting edge ▲ For short-chipping materials ▲ First choice for grey cast iron	 **R**	**CTCK110**	**CTCK110 / CTCK120**	**CTCK120**	 1,50–4,50	0,20–0,80	CN.. DN.. SN.. TN.. WN..
-R28 ▲ Single sided roughing geometry ▲ Longitudinal, face and copy turning ▲ Varying depths of cut ▲ Steels with low tensile strength (800 N / mm²) ▲ Good chip control	 **R**	**CTCP115-P** / CTCP125-P CTCP115-P / CTCP125-P CTCP115-P	**CTCP115-P / CTCP125-P / CTCP135-P** CTCP125-P / CTCP135-P CTCP125-P	**CTCP135-P** CTCP135-P CTCP135-P	 1,00–12,00	0,25–0,80	CN.. DN.. SN..

Standard chip breakers / application notes

Negative

Model	Smooth cut ○	Irregular cutting depth ○	Interrupted cut ○	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application steel and cast iron, secondary application stainless steels						
-R58 ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ Light interrupted cut ▲ Low cutting forces ▲ Unstable machines						
R	**CTCP115-P / CTCP125-P**	**CTCP115-P / CTCP125-P / CTCP135-P**	**CTCP135-P**			CN.. DN.. SN.. TN..
	CTCP115-P / CTCP125-P	CTCP125-P / CTCP135-P	CTCP135-P			
	CTCP115-P	CTCP115-P / CTCP125-P	CTCP125-P			
				1,50–12,00	0,30–1,20	
-R88 ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ High feedrate ▲ Large depths of cut ▲ Heavily interrupted cut						
R	**CTCP115-P / CTCP125-P**	**CTCP115-P / CTCP125-P / CTCP135-P**	**CTCP135-P**			SN..
	CTCP115-P / CTCP125-P	CTCP115-P / CTCP125-P	CTCP135-P			
	CTCP115-P	CTCP115-P / CTCP125-P	CTCP125-P			
				3,50–16,00	0,50–1,50	

Negative

Model	Smooth cut ○	Irregular cutting depth ○	Interrupted cut ○	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
Main application stainless steels, secondary application steel and super alloys						
-F30 ▲ Finishing of stainless steels ▲ Continous cut ▲ High surface quality ▲ Good swarf control						
F	CTCM120 / CTPM125	CTCM120 / CTPM125 / CTCM130	CTCM130			CN.. DN.. SN.. TN.. VN.. WN..
	CTCM120 / CTPM125	**CTCM120 / CTPM125 / CTCM130**	**CTCM130**			
				0,08–2,5	0,10–0,35	
-M30 ▲ Option for stainless steel machining ▲ Good swarf control ▲ Little edg build up ▲ Low cutting forces ▲ Little built-up edge ▲ Applicable on unstable machines						
F M	CTCM120 / CTPM125	CTCM120 / CTPM125 / CTCM130	CTCM130			CN.. DN.. SN.. TN.. VN.. WN..
	CTCM120 / CTPM125	**CTCM120 / CTPM125 / CTCM130**	**CTCM130**			
				1,00-4,50	0,15-0,40	
-42 ▲ Extremely soft-cutting chip breaker ▲ For small and medium widths of cut ▲ Suitable for thin-walled parts						
M			CTCM130			CN..
			CTCM130			
			CTCM130			
				0,50–4,50	0,05–0,35	
-M42 ▲ For medium machining on stainless steels ▲ As a secondary application for general steels and super alloys						
M			CTCM130			DN.. SN.. TN.. WN..
			CTCM130			
			CTCM130			
				1,00–3,50	0,15–0,40	

9

Standard chip breakers / application notes

Negative

Main application super alloys, secondary application stainless steels

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-M60 ▲ Light to medium roughing ▲ Stable cutting edge ▲ Interrupted cut ▲ Forged skin and cast crust	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	1,50–6,00	0,25–0,50	CN.. DN.. SN.. TN.. WN..
M **R**						
-F34 ▲ Stable, positive cutting edge ▲ Also for slightly interrupted cuts	CTPX710 **CTPX710**	CTPX710 **CTPX710**		0,50–2,50	0,08–0,25	CN.. WN..
F	CTPX710 **CTPX710**	CTPX710 **CTPX710**				
-M34 ▲ First choice for superalloys ▲ Light cutting geometry ▲ Little built-up edge ▲ Low cutting forces	**CTPX710** **CTPX710**	**CTPX710** **CTPX710**		0,80–3,0	0,10–0,30	CN.. DN.. SN.. VN.. WN..
M	CTPX710 **CTPX710**	CTPX710 **CTPX710**				
-M42 ▲ For medium machining on stainless steels ▲ As a secondary application for general steels and super alloys	**CTCM130**	**CTCM130**	**CTCM130**	1,0–3,50	0,15–0,40	CN.. DN..
M	**CTPX710**	**CTPX710**				

Positive

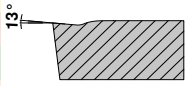
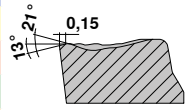
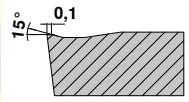
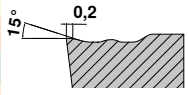
Main application steel and cast iron, secondary application stainless steels and super alloys

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-CF05 ▲ Fine finishing ▲ For all common steel materials, stainless steels and GGG ▲ Good swarf control ▲ High surface quality	**CTEP110 / TCM407** CTEP110	TCM10 / TCM407		0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..
F	CTEP110	TCM10 / TCM407				
-SF ▲ Finishing / contour turning ▲ Good swarf control ▲ High surface quality ▲ Low cutting forces	**CTCP115-P**	**CTCP125-P**	CTCP125-P / CTCP135-P CTCP125-P	0,05–2,50	0,05–0,25	CC.. DC.. SC.. TC.. VC.. WC..
F		CTCP125-P				
-CF55 ▲ Finishing to medium machining ▲ Suitable for general and stainless steels ▲ Low cutting forces ▲ Good swarf control ▲ High surface quality	**CTEP110** CTEP110	**TCM10** / CTEP110 CTEP110		0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..
F **M**	CTEP110	CTEP110				

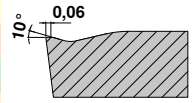
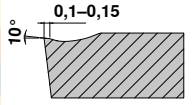
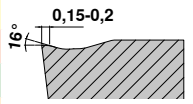
Standard chip breakers / application notes

Positive

Main application steel and cast iron, secondary application stainless steels and super alloys

Model	Smooth cut ○	Irregular cutting depth ○	Interrupted cut ○	Sectional illustration	a_p mm	f mm	Geometry
-SMF ▲ Finishing to medium machining ▲ Low cutting forces ▲ Good swarf control ▲ High surface quality	**CTEP110 / CTCP115-P** CTEP110 CTEP110	**TCM10 / CTCP125-P / CTCP115-P** CTCP135-P	**CTCP135-P** CTCP135-P		0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..
-M23 ▲ Soft cutting geometry with outstanding chip breaking behaviour at low cutting depths in finish machining	**CTCP115-P / CTCP125-P** CTCP115-P / CTCP125-P	**CTCP125-P** CTCP125-P	**CTCP125-P** CTCP125-P		0,30–4,0	1,0–0,45	RC..
-SM ▲ Medium machining ▲ Universal application ▲ Stable cutting edge ▲ Varying depths of cut ▲ Wide range of applications	**CTCP115-P / CTCP125-P** CTCP115-P / **CTCK110 / CTCK120**	**CTCP125-P / CTCP135-P / CTCP115-P** CTCP135-P CTCP125-P / **CTCK110 / CTCK120**	**CTCP125-P / CTCP135-P** CTCP135-P CTCK120		0,05–5,00	0,15–0,45	CC.. DC.. RC.. SC.. TC.. VC..
-SMQ ▲ Positive wiper geometry ▲ Finishing to medium machining ▲ Very high feeds ▲ High surface quality	**CTCP115-P** CTCP125-P / CTCP115-P	**CTCP125-P** CTCP125-P	**CTCP125-P** CTCP125-P		1,00–4,00	0,15–0,45	CC.. DC..

Positive

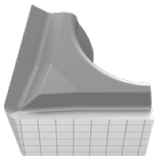
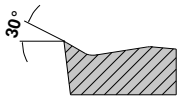
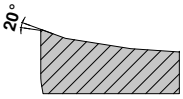
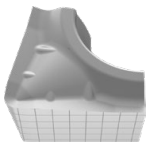
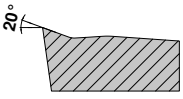
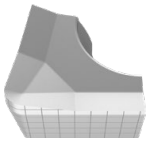
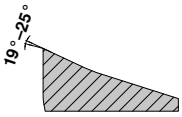
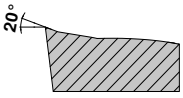
Model	Smooth cut ○	Irregular cutting depth ○	Interrupted cut ○	Sectional illustration	a_p mm	f mm	Geometry
-F43 ▲ For the light to medium machining of all stainless steels, general steels and superalloys			CTCM130 **CTCM130** CTCM130		0,50–2,50	0,05–0,25	CC.. DC.. TC..
-M25 ▲ First choice for medium machining of stainless steels ▲ High surface quality ▲ Little built-up edge	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**		0,40–3,20	0,10–0,30	CC.. DC.. TC.. VC..
-M55 ▲ First choice for medium machining to roughing of stainless steels ▲ Smooth to lightly interrupted cut ▲ Good swarf control ▲ Stable cutting edge	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**		0,40–4,80	0,06–0,35	CC.. DC.. SC.. TC.. VC..

9

Standard chip breakers / application notes

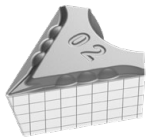
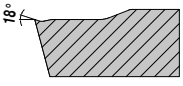
Positive

Main application non-ferrous metals, secondary application stainless steels, steels, super alloys, cast iron

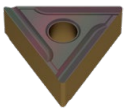
Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-23P ▲ Low adhesion ▲ Good chip control with soft aluminium alloys						
	H216T	H216T				CC.. DC..
	H216T	**H216T**	**H216T**			
F	H216T	H216T	H216T	0,2–4,0	0,05–0,3	
-25P ▲ Sharp cutting edge ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion	**CTPX710**	CTPX710				
	**CTPX710**	CTPX710				CC.. DC.. SC.. VC..
	CTPX710 / H216T	**CTPX710 / H216T**	**CTPX710 / H216T**			
F **M**	**CTPX710**	CTPX710		0,50–4,50	0,05–0,60	
	CTPX710	CTPX710				
-25Q ▲ Wiper geometry ▲ High feeds ▲ High surface quality ▲ Good chip control with softer aluminium alloys ▲ Low adhesion	**CTPX710**	CTPX710				
	**CTPX710**	CTPX710				CC.. DC.. VC..
	H210T	H210T				
	H210T / CTPX710	**H210T / CTPX710**	**H210T / CTPX710**			
M	H210T / **CTPX710**	H210T / CTPX710		0,05–6,50	0,05–0,60	
	H210T	H210T	H210T			
-27 ▲ The universal Alu geometry ▲ Sharp cutting edge ▲ Extremely positive rake angle ▲ Low adhesion ▲ High feed rates	**CTPX715**	CTPX715				
	**CTPX715**	CTPX715				CC.. DC.. RC.. SC.. TC.. VC..
	CTPX715 / H216T	CTPX715 / H216T				
	CTPX715 / H216T	**CTPX715 / H216T**	**CTPX715 / H216T**			
M **R**	**CTPX715**	CTPX715		1,00–10,00	0,10–0,75	
	CTPX715 / H216T	CTPX715 / H216T	CTPX715 / H216T			
-29 ▲ Direct sintered aluminium geometry ▲ Positive rake angle ▲ Good chip control ▲ For medium to rough machining	CTPX710	CTPX710				
	CTPX710	CTPX710				CC.. DC.. VC..
	CTPX710	**CTPX710**				
	H216T	**H216T**	**H216T**			
M **R**	CTPX710	CTPX710		1,00–6,00	0,25–0,60	

Positive

Main application super alloys and stainless steels, secondary application steels and non-ferrous metals

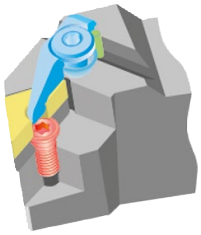
Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-F05 ▲ Maximum tolerance class ▲ Outstanding chip control, even with the smallest cutting depths ▲ Very low cutting forces	**CTPX710**	CTPX710				
	**CTPX710**	CTPX710				DC.. VC..
	CTPX710	CTPX710				
	CTPX710	**CTPX710**				
	CTPX710	**CTPX710**				
F	CTPX710	CTPX710		0,10–2,50	0,02–0,25	

Supplementary chip breakers / application notes

	Model	Smooth cut	Irregular cutting depth	Interrupted cut
-EN ▲ Universal chip breaker for general steels	 M	**CTCP115-P** CTCP125-P **CTCK110**	**CTCP125-P** CTCP135-P **CTCK120**	**CTCP135-P** CTCP135-P CTCP125-P
-ER | -EL ▲ A problem solver for unstable conditions ▲ Can be used on less powerful machines ▲ Can be used for general steels and on stainless materials as a secondary application	 M		**CTCP125-P**	**CTCP135-P**

Clamping systems

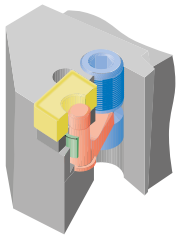
MaxiLock D



- Clamping element
- Inserts
- Insert seat
- Pin
- Screw

The first-choice tool for machining with negative centre-hole inserts. Secure and precise positioning of the indexable insert thanks to the double clamping effect of the clamping element.

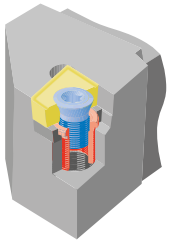
MaxiLock N



- Clamping element
- Inserts
- Insert seat
- Shim
- Lever

This clamping system is suitable for all centre-hole inserts with a negative basic shape. The clamping screw is easy to access from the top and bottom of the holder. When the clamping system is released, there are no loose spare parts.

MaxiLock S

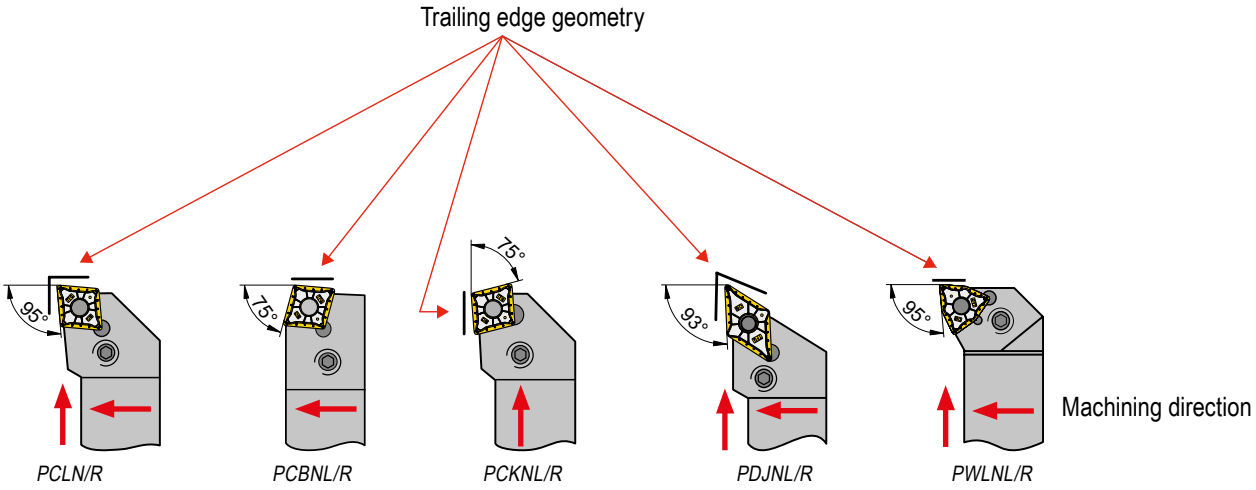


- Clamping element
- Inserts
- Insert seat
- Threaded sleeve

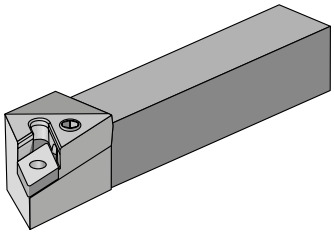
The positive screw clamping guarantees a secure connection between the indexable insert and the tool holder. The chip flow is not disrupted by protruding clamping elements. Thanks to the neutral insert position, the effective available rake angle is identical to the rake angle of the indexable insert.

Trailing edge geometry – information

High-quality surfaces can be produced inexpensively using indexable inserts with wiper geometry (-TFQ; -TMQ; -SMQ; -25Q).

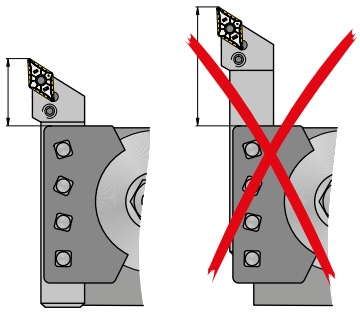


All turning inserts with trailing edge are clamped in standard ISO tool holders

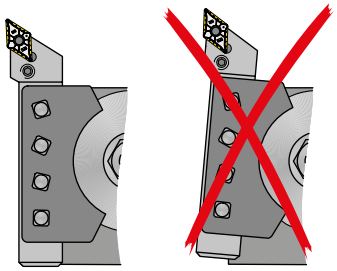


Check toolholder:

- ▲ Insert seat
- ▲ Shim
- ▲ Clamping Lever



Short tool overhang



Ensure correct tool alignment

Feed rate guide values for surface finish quality

Roughness range R_z in µm	R_{th}	Corresponds to R_a	Roughness index	ISO 1302	Corner radius r_ε in mm and feed rate f in mm/rev.						
					RE = 0,1	RE = 0,2	RE = 0,4	RE = 0,8	RE = 1,2	RE = 1,6	RE = 2,4
63–100	$R_{th}63$	12,5–25	N11	25	0,22*	0,32*	0,45*	0,63	0,78	0,9	1,1
40–63	$R_{th}40$	6,3–12,5	N10	12,5	0,18*	0,25*	0,36	0,51	0,62	0,72	0,88
31,5–40	$R_{th}31,5$	4,9–6,3	N9	6,3	0,16*	0,22*	0,32	0,45	0,55	0,63	0,78
25–31,5	$R_{th}25$	4,0–4,9			0,14*	0,2*	0,28	0,4	0,49	0,57	0,69
16–25	$R_{th}16$	2,5–4,0	N8	3,2	0,11*	0,16	0,23	0,32	0,39	0,45	0,55
10–16	$R_{th}10$	1,6–2,5			0,09	0,13	0,18	0,25	0,31	0,36	0,44
6,3–10	$R_{th}6,3$	1,0–1,6	N7	1,6	0,07	0,1	0,14	0,2	0,25	0,28	0,35
4–6,3	$R_{th}4$	0,8–1,0	N6	0,8	0,06	0,08	0,11	0,16	0,2	0,23	0,28
2,5–4	$R_{th}2,5$	0,4–0,8	N5	0,4	0,04	0,06	0,09	0,13	0,15	0,18	0,22
1,6–2,5	$R_{th}1,6$	0,2–0,4	N4	0,2	0,04	0,05	0,07	0,1	0,12	0,14	0,18
1–1,6	$R_{th}1$	0,1–0,2	N3	0,1	0,03	0,04	0,06	0,08	0,1	0,11	0,14

*Please ensure that the feed rate values used do not exceed the corner radius (RE).

Trailing edge geometry – operating principle

Relationship of feed rate to surface roughness

Improved Surface Quality

Given identical feed rates, the indexable insert with wiper geometry attains an R_t value that is many times better than a conventional indexable insert.



Shorter machining time

If the same R_t value is achieved as with a standard indexable insert, the indexable insert with the wiper geometry can be moved at twice the feed speed **(= lower cycle times!)**



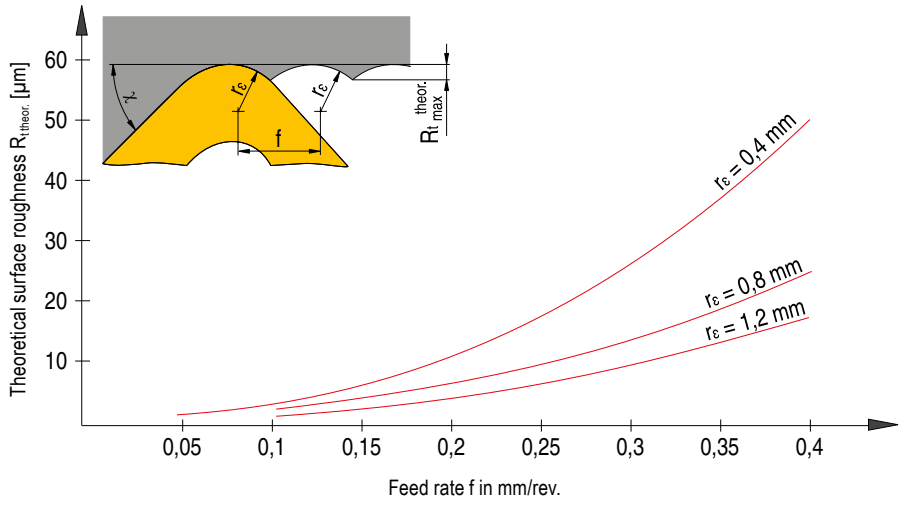
Theoretical Surface Quality

The maximum theoretical surface roughness with turning $Rt_{theor.}$ is the combination of feed rate and corner radius:

$$Rt_{theor.} = \left(r_\varepsilon - \sqrt{r_\varepsilon^2 - \frac{f^2}{4}}\right) \cdot 1000$$

or approximately:

$$Rt_{theor.} = \frac{125 \cdot f^2}{r\varepsilon} \quad [\mu m]$$



9

ISO designation system for inserts

Indexable inserts – metric

C	N	M	G	12	04	08	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts – inch

C	N	M	G	4	3	2	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts, CBN, ceramic – metric

C	N	G	A	12	04	08	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

Indexable inserts, CBN, ceramic – inch

C	N	G	A	4	3	2	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

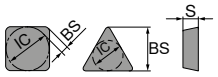
1 Insert shape

V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

2 Clearance angle

	α		α
A	3°	F	25°
B	5°	G	30°
C	7°	N	0°
D	15°	P	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		

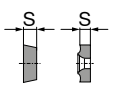
3 Tolerances



	IC±		BS		S	
	mm	inch	mm	inch	mm	inch
A	0,025	.0010	0,005	.0002	0,025	.001
F	0,013	.0005	0,005	.0002	0,025	.001
C	0,025	.0010	0,013	.0005	0,025	.001
H	0,013	.0005	0,013	.0005	0,025	.001
E	0,025	.0010	0,025	.0010	0,025	.001
G	0,025	.0010	0,025	.0010	0,13	.005
J	0,05-0,15*	.002-.006*	0,005	.0002	0,025	.001
K	0,05-0,15*	.002-.006*	0,013	.0005	0,025	.001
L	0,05-0,15*	.002-.006*	0,025	.0010	0,025	.001
M	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,13	.005
N	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,025	.001
U	0,08-0,25*	.003-.010*	0,13-0,38*	.005-.015*	0,13	.005

* Depends on insert size

6 Insert thickness



		Code	
mm	inch	mm	inch
1,59	1/16	01	1
2,38	3/32	02	1.5
3,18	1/8	03	2
3,97	5/32	T3	2.5
4,76	3/16	04	3
5,56	7/32	05	3.5
6,35	1/4	06	4
7,94	5/16	07	5
9,52	3/8	09	6

7 Corner radius

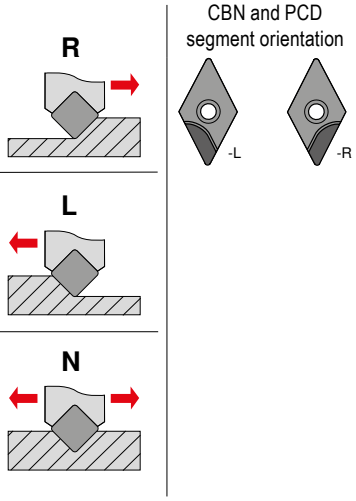


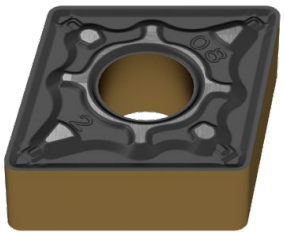
		Code		RN 00 RC MO
mm	inch	mm	inch	
≤ 0,05	.0015	00	X0	
0,1	.004	01	0	
0,2	.008	02	.5	
0,4	1/64	04	1	
0,8	1/32	08	2	
1,2	3/64	12	3	
1,6	1/16	16	4	
2,0	5/64	20	5	
2,4	3/32	24	6	
2,8	7/64	28	7	
3,2	1/8	32	8	

8 Cutting edge

F	Sharp
E	rounded
T	chamfered
S	Chamfered and honed
K	Double-chamfered
P	Double-chamfered and honed
R	Round chamfer

9 Direction of cut





4 Characteristics

N	
R	
F	
A	
M, P	
G, P	
W	
T	
Q	
U	
B	
H	
C	
J	
X	Special version

inch
Change at inscribed circle
IK < 1/4"

IK > 1/4"	IK < 1/4"
N / R / F	E
A / M / G	D
X	X

5 Cutting length

Type	ISO	ANSI	L mm	L inch	IC mm	IC inch
C	06	2	6,4	.250	6,35	.250
	09	3	9,7	.382	9,525	.375
	12	4	12,9	.508	12,70	.500
	16	5	16,1	.634	15,875	.625
	19	6	19,3	.760	19,05	.750
	25	8	25,8	1.016	25,4	1.000
	32	12	35,24	1.269	31,75	1.250
S	06	2	6,35	.250	6,35	.250
	09	3	9,525	.375	9,525	.375
	12	4	12,7	.500	12,7	.500
	15	5	15,875	.625	15,875	.625
	19	6	19,05	.750	19,05	.750
	25	8	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
D	07	2	7,7	.303	6,35	.250
	11	3	11,6	.457	9,525	.375
	15	4	15,5	.610	12,70	.500
V	11	2	11,1	.437	6,35	.250
	16	3	16,6	.653	9,525	.375
	22	4	22,10	.870	12,70	.500

Type	ISO	ANSI	L mm	L inch	IC mm	IC inch
T	06	1.2	6,9	.272	3,97	.156
	09	1.8	9,6	.378	5,56	.219
	11	2	11,0	.433	6,35	.250
	16	3	16,5	.650	9,525	.375
	22	4	22,	.079	12,70	.039
	27	5	27,5	1.083	15,875	.625
	33	6	33,0	1.299	19,05	.750
W	06	3	6,5	.256	9,525	.375
	08	4	8,7	.331	12,70	.039
	10	5	10,9	.429	15,875	.625
R	06	2	6,35	.250	6,35	.250
	08	-	8,0	.315	8,0	.315
	09	3	9,52	.375	9,52	.375
	10	-	10,0	.394	10,0	.394
	12*	-	12,0	.472	12,0	.472
	12	4	12,7	.488	12,70	.488
	15	5	15,875	.625	15,875	.625
	16	-	16,0	.630	16,0	.630
	19	6	19,05	.750	19,05	.750
	25	8	25,0	.984	25,0	.984
	25*	-	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
	32	-	32,0	1.260	32,0	1.260

* inch version

10 Chamfer type

T / S K / P [1)]

	mm	inch		
015	0,15	.006	A	05°
020	0,20	.008	B	10°
025	0,25	.010	C	15°
050	0,50	.020	D	20°
075	0,75	.030	E	25°
100	1,00	.040	F	30°
			G	35°

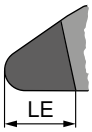
1) Two letters are assigned for double-chamfered cutting edges
e.g. BE =
chamfer angle 1 (y_1) = 10°
chamfer angle 2 (y_2) = 25°

11 Number of cutting edges

Single sided		Complete insert thickness	
A		T	
B		U	
C		V	
D		W	
G		X	
H		Y	

Double sided		Entire clamping flat	
K		S	
L		F	
M		E	
N			
P			
Q			

12 Segment length



Approx. specification in mm

13 Chip breaker designation

You can find a comprehensive chip breaker overview on
→ **page** 211–217

9

ISO designation system for tool holders

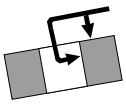
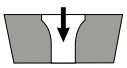
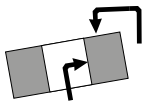
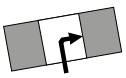
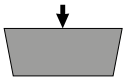
	P	C	L	N	R	20	20	K	12	-	T
	1	2	3	4	5	6	7	8	9		10
UT50	-	P	C	L	N	R			-12		
0		1	2	3	4	5	6	7	8	9	10
HSK-T63	-	D	C	L	N	R			-12		
0		1	2	3	4	5	6	7	8	9	10

0 System/size

UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
UT50 = UTS 50 mm
UT63 = UTS 63 mm

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

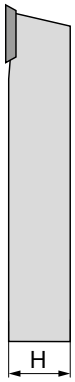
1 Tool holder

D  Retained from above and via bore	**S**  Retained via centre screw
M  Retained from above and via bore	**P**  Retained via the bore
C  Retained from above	**X** Special version

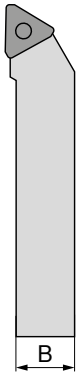
2 Insert shape

V	35°	Included angle	
D	55°		
E	75°		
C	80°		
M	86°		
K	55°	Included angle	
B	82°		
A	85°		
L	90°		Other shapes
P	108°		
H	120°		
O	135°		
R	-		
S	90°		
T	60°		
W	80°		

6 Shank height

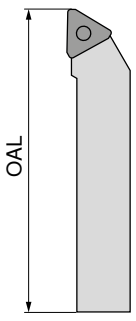


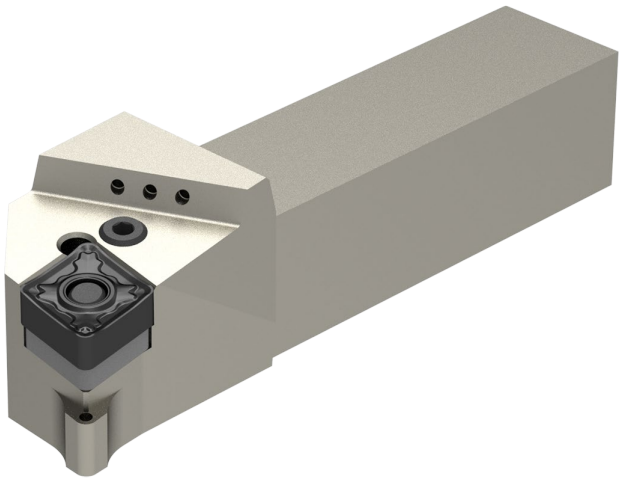
7 Shank width



8 Tool length

OAL mm	OAL inch		OAL mm	OAL inch	
32	4.000	**A**	160	4.500	**N**
40	4.500	**B**	170	5.500	**P**
50	5.000	**C**	180	–	**Q**
60	6.000	**D**	200	6.000	**R**
70	7.000	**E**	250	7.000	**S**
80	8.000	**F**	300	8.000	**T**
90	5.500	**G**	350	5.500	**U**
100	5.625	**H**	400	3.500	**V**
110	5.300	**J**	450	3.500	**W**
125	14.000	**K**	500	3.750	**Y**
140	6.800	**L**	Special version		**X**
150	4.400	**M**			





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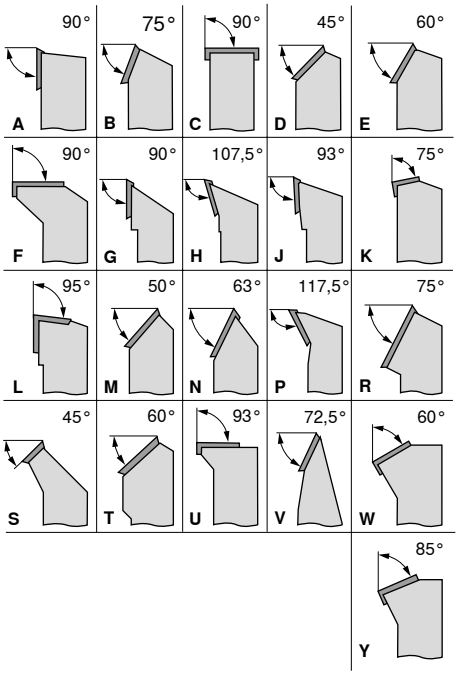
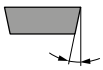
Style



4

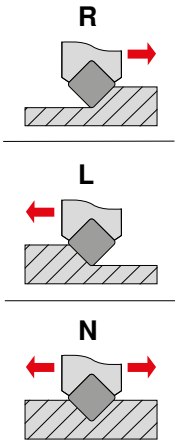
Clearance angle



	α		α
A	3°	F	25°
B	5°	G	30°
C	7°	N	0°
D	15°	P	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		

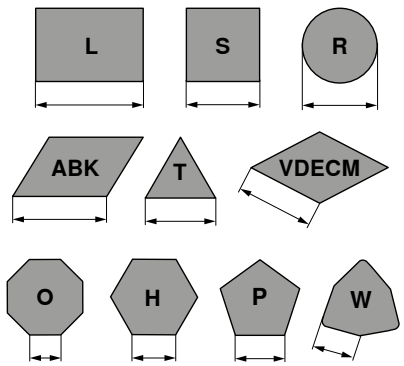
5

Direction of cut



9

Cutting length



10

Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)
DC = DirectCooling

ISO designation system for boring bars

		A	25	R		P	C	L	N	R	12	
		1	2	3		4	5	6	7	8	9	10
UT40	-		25	G	-	P	C	L	N	R	- 12	
0		1	2	3		4	5	6	7	8	9	10
HSK-T63	-		50	Q	-	D	C	L	N	R	- 12	
0		1	2	3		4	5	6	7	8	9	10

0 System/size

UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
UT50 = UTS 50 mm
UT63 = UTS 63 mm

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

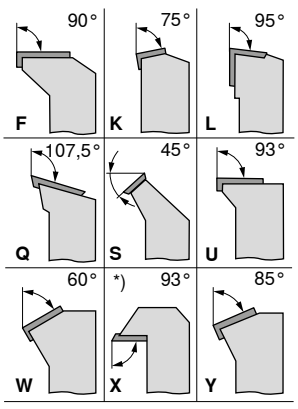
1 Shank type

S	Steel shank	**E**	As C with coolant hole
A	Steel shank with coolant hole	**F**	As C with antivibration system
B	Steel shank with antivibration system	**G**	As C with coolant hole and antivibration system
D	Steel shank with coolant hole and antivibration system	**H**	Heavy metal
C	Carbide shank with steel head	**J**	Heavy metal with coolant hole

5 Insert shape

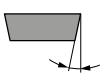
V	35°	Included angle	
D	55°		
E	75°		
C	80°		
M	86°		
K	55°	Included angle	
B	82°		
A	85°		
L	90°	Other shapes	
P	108°		
H	120°		
O	135°		
R	-		
S	90°		
T	60°		
W	80°		

6 Style



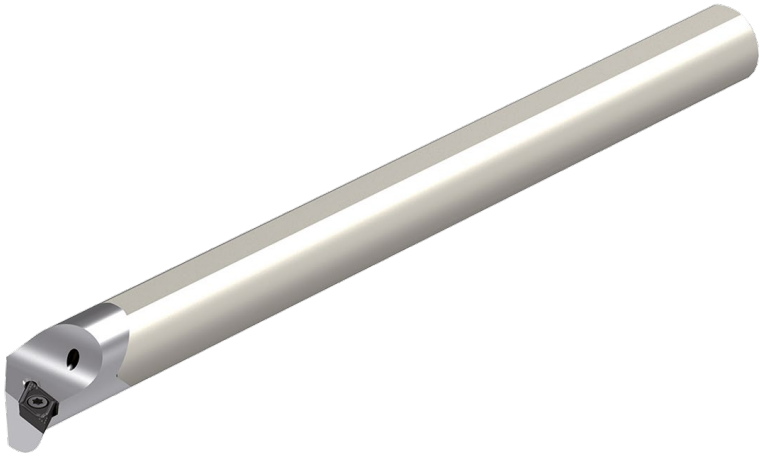
*) CERATIZIT factory standard

7 Clearance angle



	α		α
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		

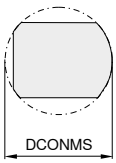
O Clearance angles not included within the standard for which particular information is necessary.



2

Shank type & size

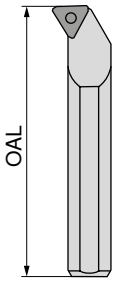
DCONMS mm	DCONMS inch
08	A two-digit figure indicating the boring bar diameter in 1/16 of an inch.
10	
12	
16	
20	
25	
32	
40	
50	
60	



3

Tool length

OAL mm	OAL inch	
80	3	F
100	3,5	H
110	4	J
125	4,5	K
140	5	L
150	5,5	M
160	6	N
170	6,5	P
180	6,75	Q
200	7	R
250	8	S
300	10	T
350	12	U
400	14	V
450	16	W
500	18	Y
	20	
Special version		X



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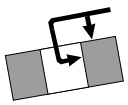
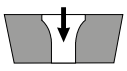
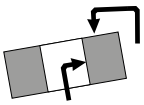
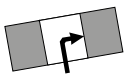
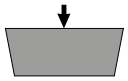
Clamping method

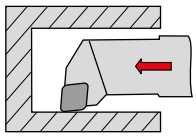
D  Retained from above and via bore	S  Retained via centre screw
M  Retained from above and via bore	P  Retained via the bore
C  Retained from above	X Special version

9

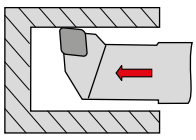
8

Direction of cut

R



L



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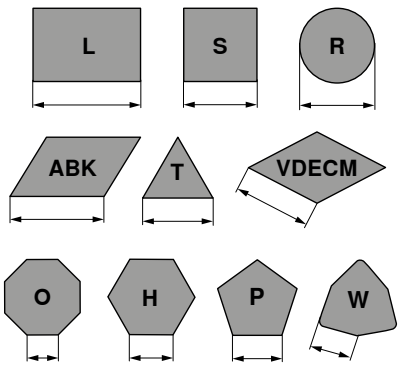
Cutting length



10

Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)

Types of wear

Wear on clearance face



Abrasion on flank: normal wear after a certain machining time

Cause
- Too high cutting speed
- Carbide grade with too low wear resistance
- Feed rate not adapted

Remedy
- Reduce cutting speed
- Use grade with higher wear resistance
- Adapt feed rate to cutting speed and cutting depth

Edge chipping



Through excessive mechanical stress at the cutting edge fracture and chipping can occur.

Cause
- Grade with too high wear resistance
- Vibration
- Too high cutting speed and / or feed rate
- Interrupted cut
- Swarf damage

Remedy
- Use tougher grade
- Use negative cutting edge geometry with chip groove
- Improve stability (tool, work piece)

Cratering



The hot chip which is being evacuated causes cratering at the rake face of the cutting edge.

Cause
- Too high cutting speed and / or feed rate
- Rake angle too shallow
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy
- Reduce cutting speed and / or feed rate
- Use grade with higher wear resistance
- Increase coolant quantity and / or pressure, optimise coolant supply
- Use grade which is more resistant to cratering

Plastic deformation

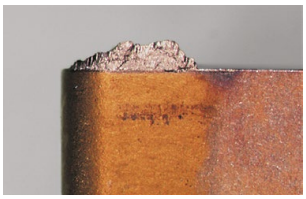


High machining temperature and simultaneous mechanical stress can lead to plastic deformation.

Cause
- Too high machining temperature resulting in softening of substrate
- Damage of coating
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy
- Reduce cutting speed
- Use grade with higher wear resistance
- Provide cooling

Built-up edge



Built-up material / edges occur when the chip is not evacuated properly due to insufficient cutting temperature.

Cause
- Insufficient cutting speed
- Rake angle too shallow
- Wrong cutting material
- Lack of cooling / lubrication

Remedy
- Increase cutting speed
- Increase rake angle
- Apply TiN coating
- Use emulsion with higher concentration

Insert breakage

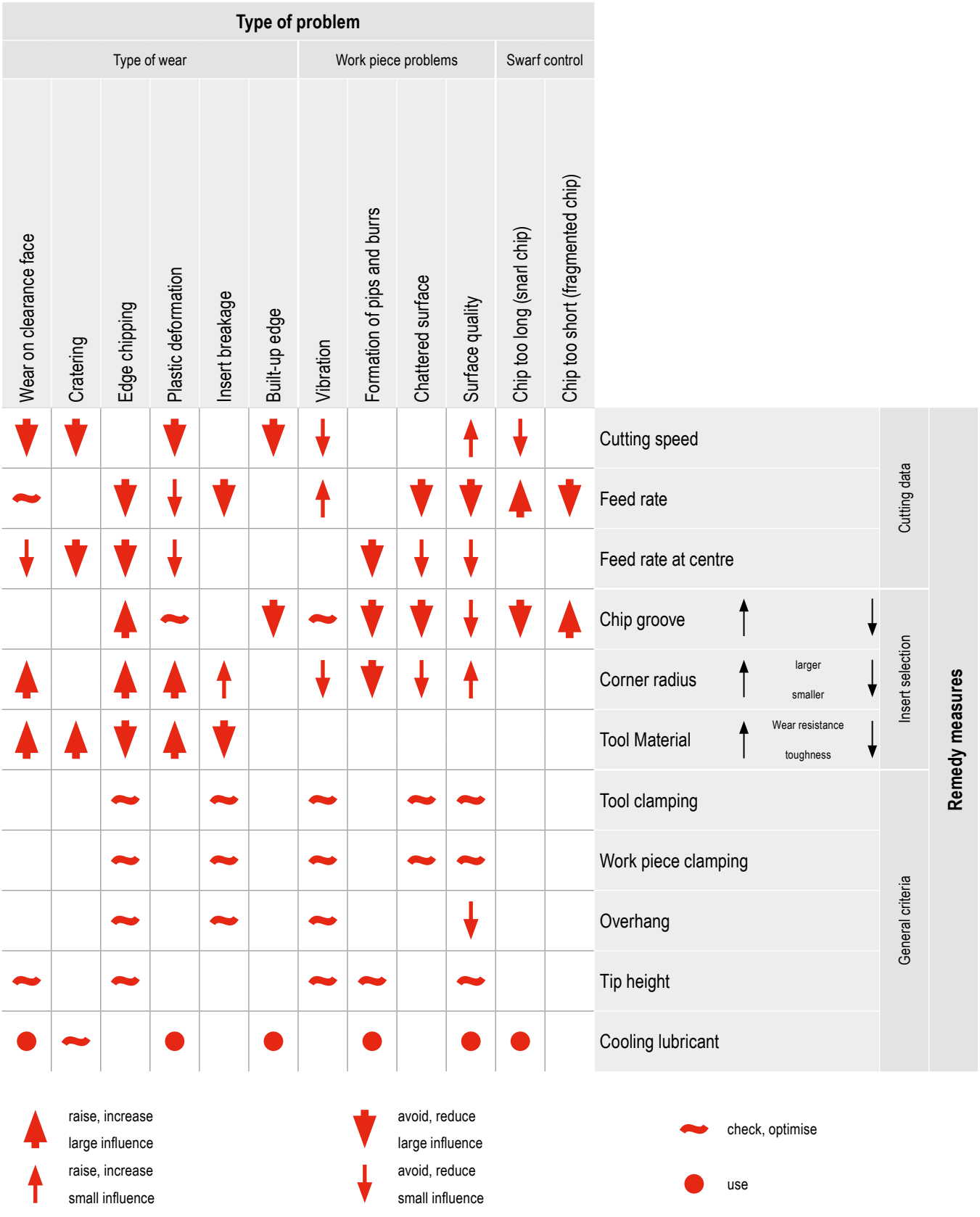


Excessive stress of the insert causes breakage.

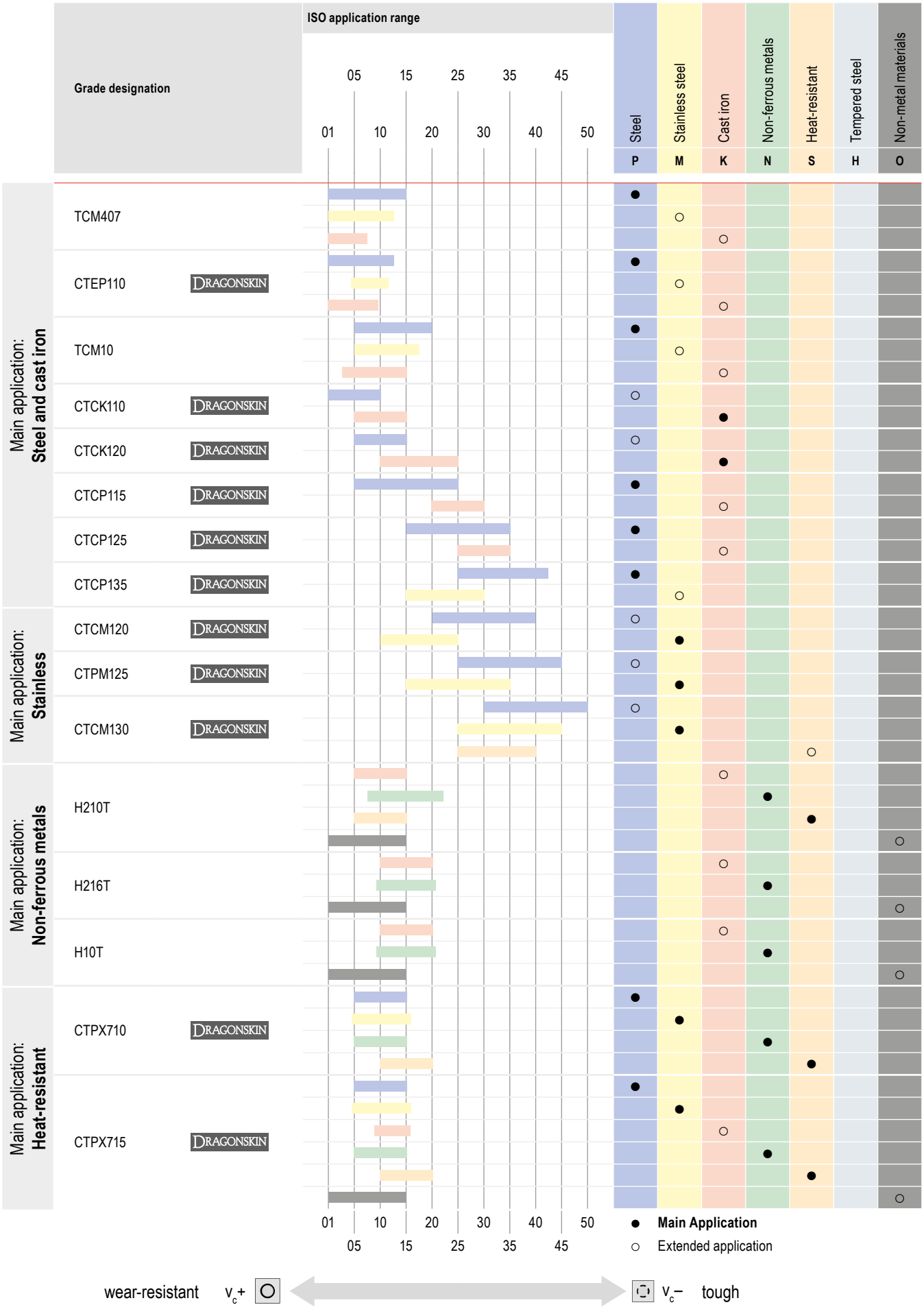
Cause
- Excessive stress of cutting material
- Lack of stability
- Clearance angle too small

Remedy
- Use tougher grade
- Use protective edge chamfer
- Increase edge hone
- Use geometry with higher stability

Recommendation for Optimum Results



Grades Overview



Grade description

TCM407

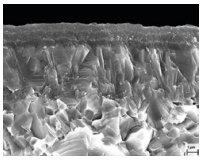


ISO | **P10** | M05 | K05

Specification:
Composition: Co 8.0%; WC 16.0%; TaNbC 10.0%; TiCN balance | Grain size: 2-3 µm | Hardness: HV30 1760

Usage recommendation:
The uncoated cermet grade for fine finishing steel materials.

CTEP110



ISO | **P10** | M10 | K05

Specification:
Composition: Co/Ni 12.2%; WC 15.0%; TaNbC 10.0%; TiCN balance | Grain size: 2-3 µm | Hardness: HV30 1650 | Layer system: CVD TiCN-Al2O3 Multilayer

Usage recommendation:
The cermet grade with toughness reserves for finish machining at high cutting speeds.

TCM10

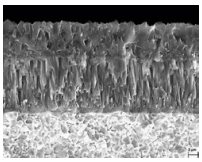


P15 | K10

Specification:
Composition: Cermet Co/Ni 12,2%; WC 15,0%; TaNbC 10,0%; TiCN balance | Grain size: 2-3 µm | Hardness: HV_{30} 1650

Usage recommendation:
The uncoated cermet grade for finishing steel, stainless steel and tempered steel.

CTCK110

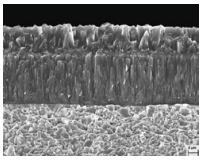


ISO | P10 | **K10**

Specification:
Composition: Co 5.0%, mixed carbides 2.0%, WC balance | Grain size: 1-2 µm | Hardness: HV30 1730 | Layer system: CVD TiCN-Al2O3

Usage recommendation:
The wear-resistant grade for machining cast iron materials and steels at high cutting speeds with a continuous cut.

CTCK120

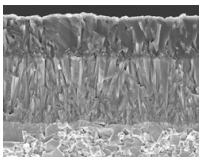


ISO | P20 | **K20**

Specification:
Composition: Co 6.0%, mixed carbides 2.0%, WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630 | Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
The grade for cast iron machining with high toughness reserves for difficult conditions and interrupted cuts.

CTCP115-P

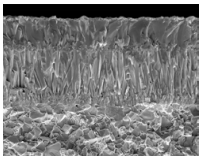


ISO | **P15** | K25

Specification:
Composition: Co 5.5%; mixed carbides 6.4%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1530 | Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
The wear-resistant high-performance grade for steel machining with stable conditions and a continuous cut.

CTCP125-P

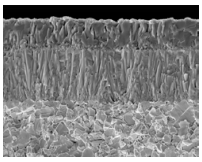


ISO | **P25** | K30

Specification:
Composition: Co 7.0%, mixed carbides 6.0%, WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1500 | Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
The first choice for the universal machining of steels.

CTCP135-P



ISO | **P35** | M25

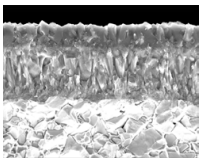
Specification:
Composition: Co 9.6%, mixed carbides 7.8%, WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1460 | Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
The tough alternative for extremely interrupted cutting conditions.

9

Grade description

CTCM120

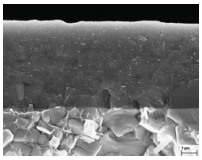


ISO | P15 | **M20**

Specification:
Composition: Co 7%, mixed carbides 6%, WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1500 | Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
Wear-resistant carbide grade for austenitic, stainless steel with the best levels of performance with a smooth cut.

CTPM125

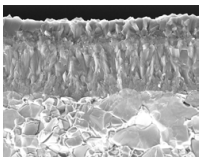


ISO | P35 | **M25**

Specification:
Composition: Co 9.6%; mixed carbides 7.8%; others 0.4%; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1460 | Coating specification: PVD TiAlTaN

Recommended application:
The first choice for the machining of austenitic steels

CTCM130

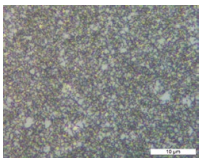


ISO | P25 | **M30** | S30

Specification:
Composition: Co 9.6%, mixed carbides 7.8%, WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1460 | Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
Robust turning grade for austenitic stainless steel with interrupted cuts.

H210T



ISO | K10 | **N10 | S10** | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV_{30} 1850

Recommended application:
The wear-resistant uncoated carbide grade for the machining of aluminium and other non-ferrous metals.

H10T

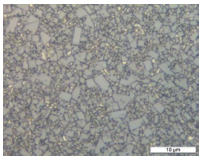


ISO | K15 | **N15** | S15 | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

H216T

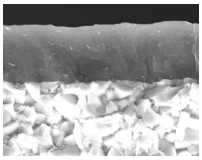


ISO | K15 | **N15** | S15 | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

CTPX710

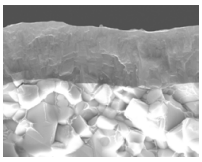


ISO | **P10 | M10** | K10 | **N10 | S15**

Specification:
Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV_{30} 1820 | Layer system: PVD AlTiN

Usage recommendation:
The universal carbide grade for the most demanding machining requirements on multiple materials.

CTPX715

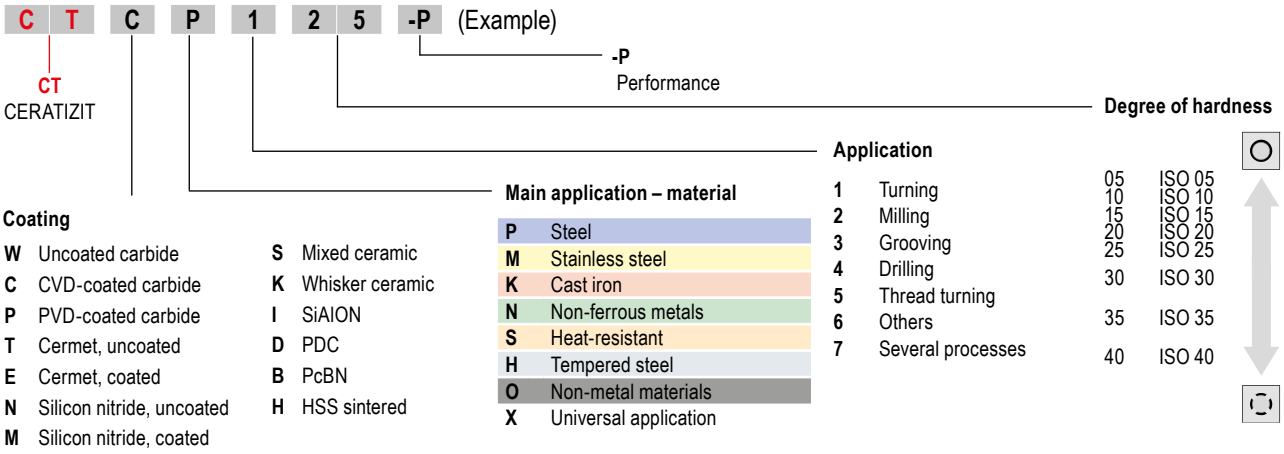


ISO | **P15 | M15** | K15 | **N15 | S20** | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1650 | Layer system: PVD AlTiN

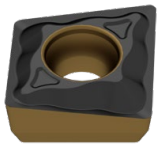
Usage recommendation:
The universal carbide grade for the most demanding machining requirements on multiple materials.

Grade description



New products for machining technicians

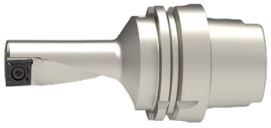
NEW ISO-P indexable inserts



Update of the reliable CVD EcoCut grades CTCP425 / CTCP435. With the update, the grades are more wear-resistant and have a wear-detection coating layer.

→ Page 11

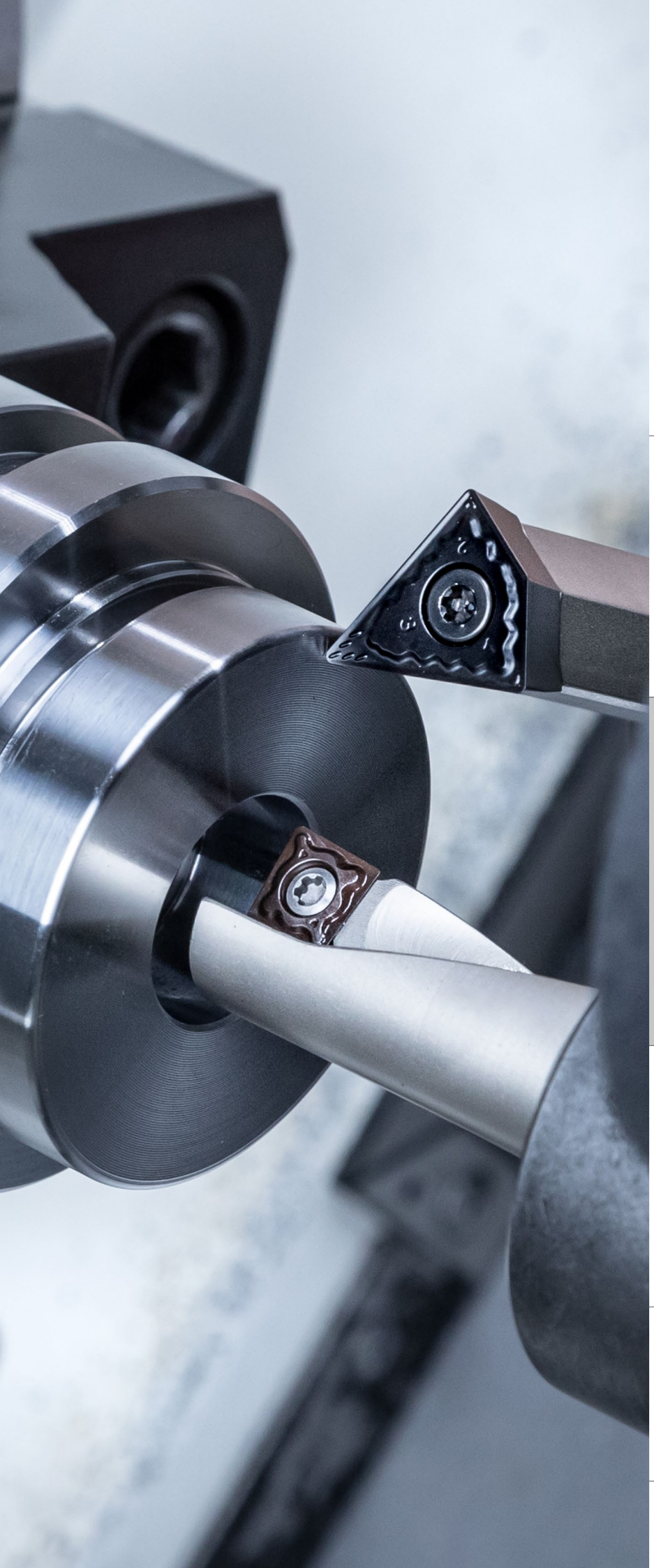
NEW EcoCut Classic with direct machine interface





The new EcoCut Classic product range with direct machine interface performs the same application functions as all other EcoCut Classic tools, but the new monotools impress when it comes to stability – and therefore run quietly and very reliably. Furthermore, chip removal has been optimised thanks to the updated chip space, guaranteeing process security.

→ Page 15+16



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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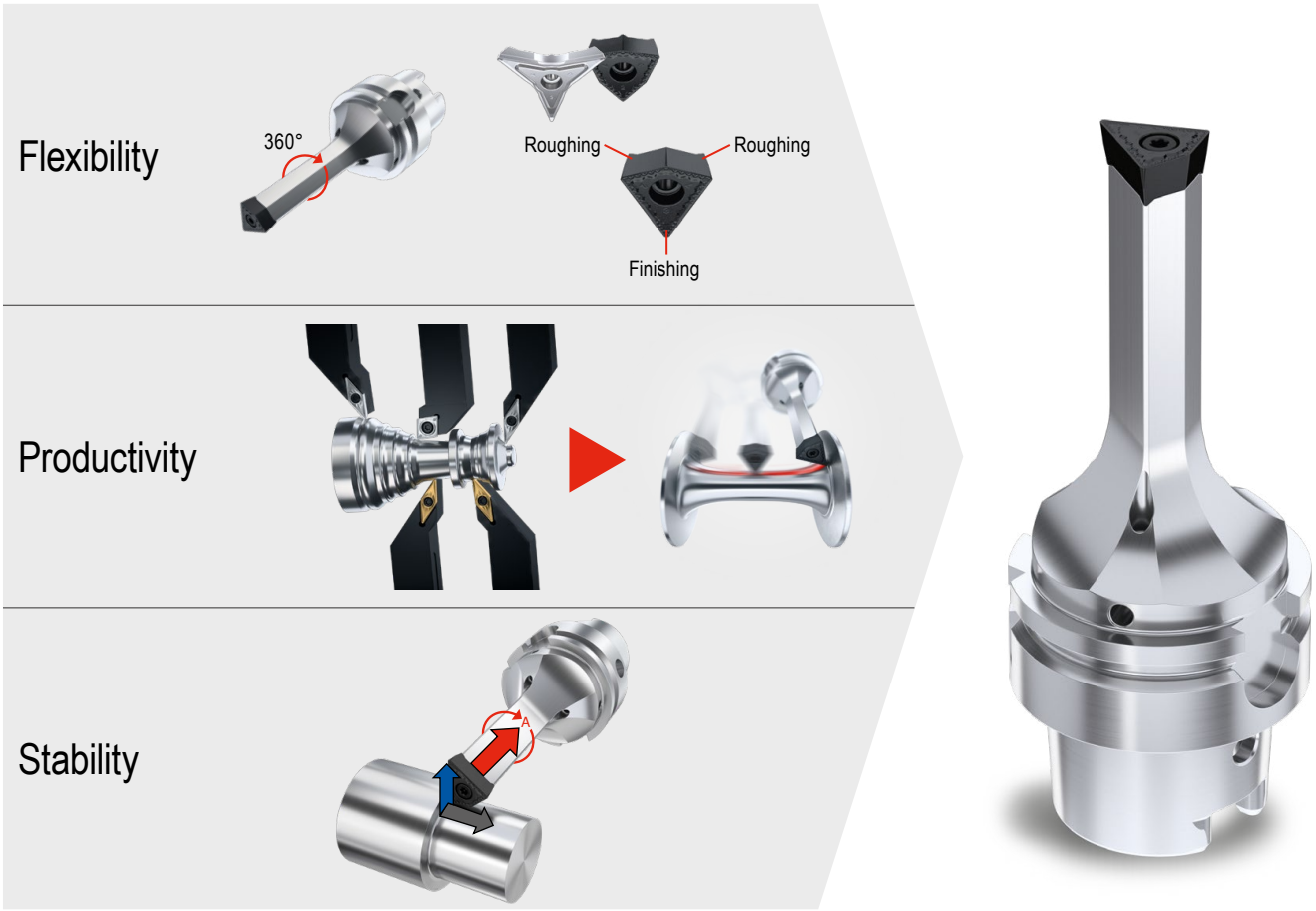
CERATIZIT \ Performance

Premium quality tools for high performance.

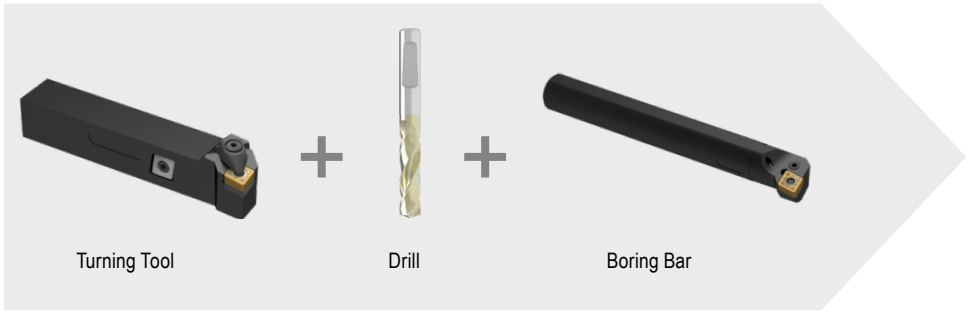
The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Advantages of FreeTurn



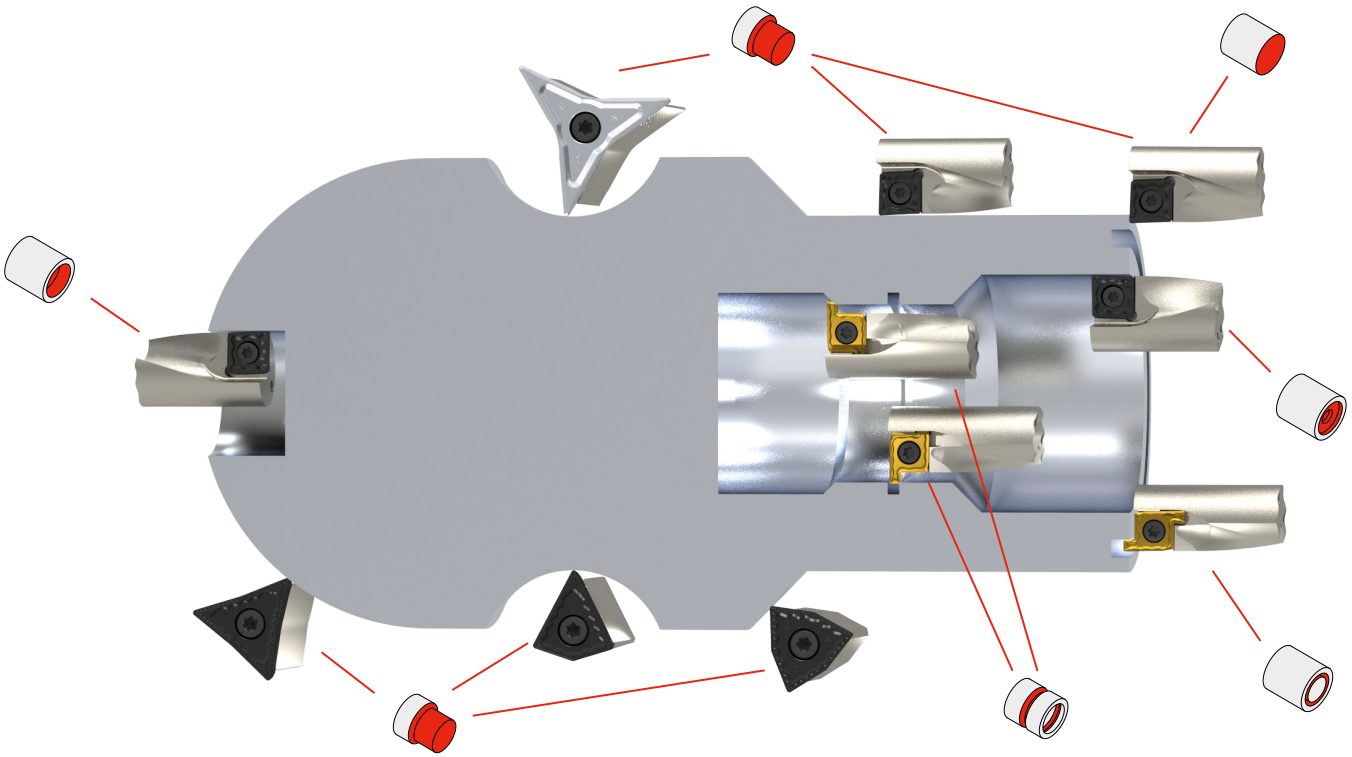
Advantages of EcoCut

- ▲ reduced machining time
- ▲ reduced need for tool positions
- ▲ generates flat bottom of hole
- ▲ less programming
- ▲ lower set-up costs / reduced setting time
- ▲ time savings due to fewer tool changes





Application examples



Symbol explanation


Turning outside profiles


Face turning


Drilling into full material


Turning internal profiles


External / internal radial grooving


Axial grooving


Int. coolant supply

-28P — Polished chip breaker
H216T — Carbide Grade

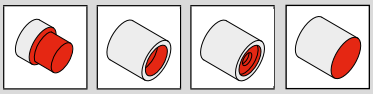
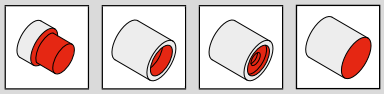
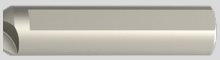
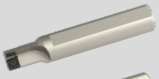
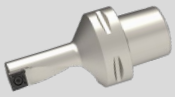
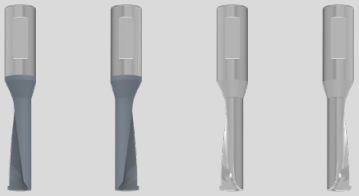
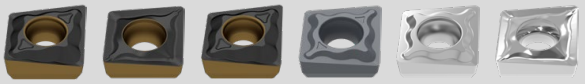
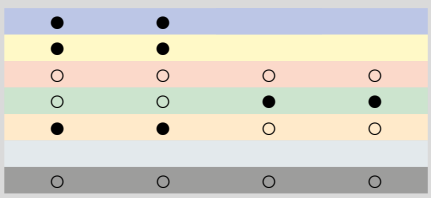
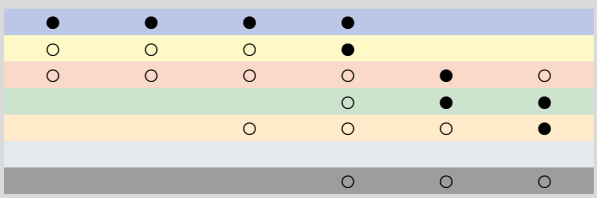
F	Fine Machining
M	Medium Machining
R	Rough Machining





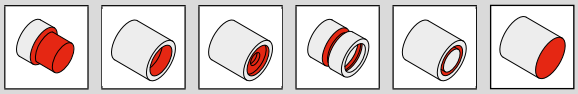
Smooth cut
Irregular cutting depth
Interrupted cut

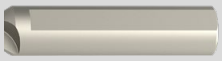
Toolfinder

Tool system	EcoCut Mini	EcoCut Classic
Application		
Machine interface	  → 9+10 Adapter for EcoCut Mini	  HSK-T 63  PSC 50 PSC 63
Lengths and diameters Versions	2,25xD Ø 2–8  → 8 4,0xD Ø 2–8  → 8	1,5xD Ø 8–32  → 12 2,25xD Ø 8–32  → 13 3,0xD Ø 8–32  → 14 2,25xD Ø 16–32  HSK-T → 15 2,25xD Ø 16–32  PSC → 16
Cutting material designation	CTPP435 | CTPP435 | CTWN425 | CTWN425	CTCP425-P | -M50Q CTCP425-P | CTCP435-P | CTPP430 | -27P H216T | -27Q H210T
Cutting conditions	DRAGONSKIN	DRAGONSKIN
		
	Solid carbide Left-hand | Solid carbide Right-hand | Solid carbide Left-hand | Solid carbide Right-hand	M XCNT | M XCNT | M XCNT | M XCNT | M XCET | M XCET
Application range		
Page No.	→ 8 | → 8 | → 8 | → 8	→ 11 | → 11 | → 11 | → 11 | → 11 | → 11
	→ v_c Page 28	→ v_c Page 28

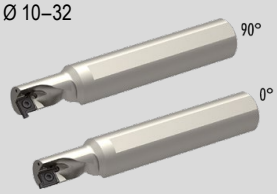
→ **Page 39**
EcoCut tools are suitable for off-centre drilling. This permits certain deviations from the nominal tool diameter to be achieved.

EcoCut ProfileMaster



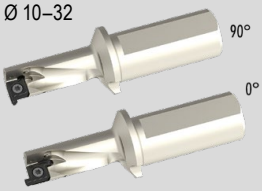


1,5xD
Ø 10–32



→ 18

2,25xD
Ø 10–32



→ 19

-M20 CTPP430	-M20 CTPP430
DRAGONSKIN	DRAGONSKIN



M	M
PM-R	PM-L
●	●
●	●
○	○
○	○
●	●
○	○

→ 17 → 17

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FreeTurn





HSK-T 63



PSC 63

HSK-T

LPR = 100
LPR = 125



→ 23+26

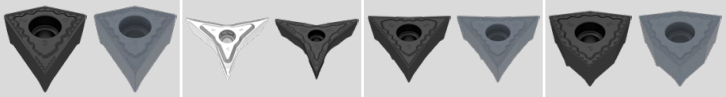
PSC

LPR = 100
LPR = 125



→ 24+26

CTCP125	CTPM125	-28P H216T	-F CTCP125	CTCP125	CTPM125	CTCP125	CTPM125
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



M	M	F	F	F	F	F	F	M	M	M
FT15 . 808055...			FT15 . 353535...			FT15 . 555555...			FT17 . 808080...		
●	○			●		●	○		●	○	
	●						●			●	
○			○	○		○			○		
			●								
			○								
			○								

→ 20 → 20 → 21 → 21 → 22 → 22 → 25 → 25

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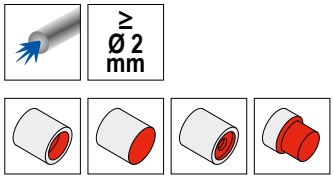
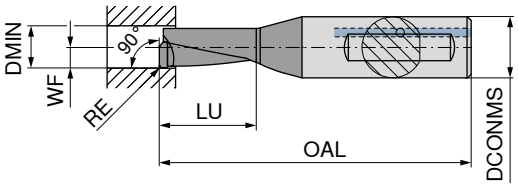
10

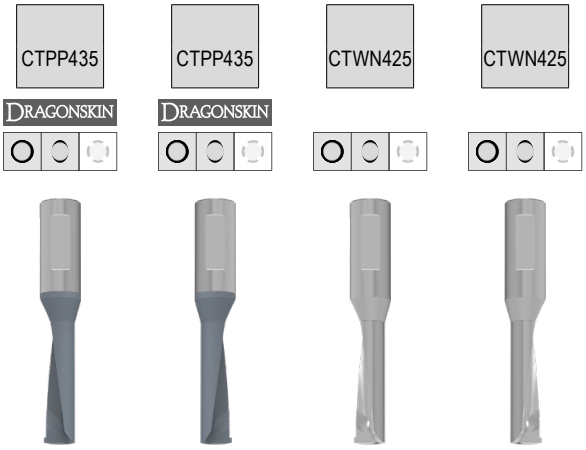
EcoCut – Mini

▲ Drilling and turning tool for small diameters





Illustrations show right-hand versions



ISO designation	DMIN mm	DCONMS mm	OAL mm	LU mm	WF mm	RE mm	Solid carbide Left-hand 70 805 ... £ 2B/20		Solid carbide Right-hand 70 804 ... £ 2B/20		Solid carbide Left-hand 70 805 ... £ 2B/20		Solid carbide Right-hand 70 804 ... £ 2B/20	
ECM 02 R/L 2,25D	2.0	4	28	4.50	1.00	0.1	61.71	320	61.71	320				
ECM 02 R/L 2,25D AL	2.0	4	28	4.50	1.00	0.1					54.41	420	54.41	420
ECM 02 R/L 4,00D	2.0	4	31	8.00	1.00	0.1	64.74	321	64.74	321				
ECM 02 R/L 4,00D AL	2.0	4	31	8.00	1.00	0.1					57.04	421	57.04	421
ECM 02,5 R/L 2,25D	2.5	4	29	5.63	1.25	0.1	63.61	325	63.61	325				
ECM 02,5 R/L 2,25D AL	2.5	4	29	5.63	1.25	0.1					56.04	425	56.04	425
ECM 02,5 R/L 4,00D	2.5	4	33	10.00	1.25	0.1	66.76	326	66.76	326				
ECM 02,5 R/L 4,00D AL	2.5	4	33	10.00	1.25	0.1					58.82	426	58.82	426
ECM 03 R/L 2,25D	3.0	4	31	6.75	1.50	0.1	65.60	330	65.60	330				
ECM 03 R/L 2,25D AL	3.0	4	31	6.75	1.50	0.1					57.81	430	57.81	430
ECM 03 R/L 4,00D	3.0	4	35	12.00	1.50	0.1	68.90	331	68.90	331				
ECM 03 R/L 4,00D AL	3.0	4	35	12.00	1.50	0.1					60.70	431	60.70	431
ECM 03,5 R/L 2,25D	3.5	4	32	7.88	1.75	0.1	68.14	335	68.14	335				
ECM 03,5 R/L 2,25D AL	3.5	4	32	7.88	1.75	0.1					60.09	435	60.09	435
ECM 03,5 R/L 4,00D	3.5	4	37	14.00	1.75	0.1	71.54	336	71.54	336				
ECM 03,5 R/L 4,00D AL	3.5	4	37	14.00	1.75	0.1					63.10	436	63.10	436
ECM 04 R/L 2,25D	4.0	6	35	9.00	2.00	0.2	72.36	300	72.36	300				
ECM 04 R/L 2,25D AL	4.0	6	35	9.00	2.00	0.2					63.73	450	63.73	450
ECM 04 R/L 4,00D	4.0	6	41	16.00	2.00	0.2	75.95	301	75.95	301				
ECM 04 R/L 4,00D AL	4.0	6	41	16.00	2.00	0.2					66.93	451	66.93	451
ECM 05 R/L 2,25D	5.0	6	37	11.25	2.50	0.2	74.87	302	74.87	302				
ECM 05 R/L 2,25D AL	5.0	6	37	11.25	2.50	0.2					65.54	452	65.54	452
ECM 05 R/L 4,00D	5.0	6	45	20.00	2.50	0.2	78.33	303	78.33	303				
ECM 05 R/L 4,00D AL	5.0	6	45	20.00	2.50	0.2					68.74	453	68.74	453
ECM 06 R/L 2,25D	6.0	8	38	13.50	3.00	0.2	76.79	306	76.79	306				
ECM 06 R/L 2,25D AL	6.0	8	38	13.50	3.00	0.2					67.77	456	67.77	456
ECM 06 R/L 4,00D	6.0	8	49	24.00	3.00	0.2	80.67	312	80.67	312				
ECM 06 R/L 4,00D AL	6.0	8	49	24.00	3.00	0.2					70.83	462	70.83	462
ECM 07 R/L 2,25D	7.0	8	42	15.75	3.50	0.2	79.17	308	79.17	308				
ECM 07 R/L 2,25D AL	7.0	8	42	15.75	3.50	0.2					69.84	458	69.84	458
ECM 07 R/L 4,00D	7.0	8	53	28.00	3.50	0.2	83.32	314	83.32	314				
ECM 07 R/L 4,00D AL	7.0	8	53	28.00	3.50	0.2					73.05	464	73.05	464
ECM 08 R/L 2,25D	8.0	8	45	18.00	4.00	0.2	81.79	310	81.79	310				
ECM 08 R/L 2,25D AL	8.0	8	45	18.00	4.00	0.2					71.80	460	71.80	460
ECM 08 R/L 4,00D	8.0	8	57	32.00	4.00	0.2	85.69	316	85.69	316				
ECM 08 R/L 4,00D AL	8.0	8	57	32.00	4.00	0.2					75.27	466	75.27	466

P	●	●		
M	●	●		
K	○	○	○	○
N	○	○	●	●
S	●	●	○	○
H				
O	○	○	○	○

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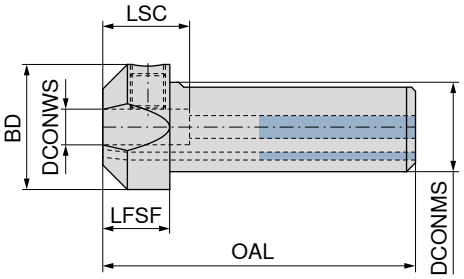
EcoCut – Adapter Mini

Scope of supply:

Toolholder with one clamping screw and one screwdriver







Designation	DCONWS mm	DCONMS mm	BD mm	OAL mm	LFSF mm	LSC mm		70 800 ... £ 2B/20	
EC-ADX16-04	4	16	22	59	14	18		228.63	**716**
EC-ADX20-04	4	20	25	64	14	18		228.63	**720**
EC-ADX16-06	6	16	22	59	14	18		228.63	**976**
EC-ADX20-06	6	20	25	64	14	18		228.63	**996**
EC-ADX16-08	8	16	22	59	14	18		228.63	**978**
EC-ADX20-08	8	20	25	64	14	18		228.63	**998**



Clamping screw

Spare parts DCONWS		70 950 ... £ 2A/28	
4	M5x10 ISO 4026	3.79	**867**
6	M8x1x8 - SW4	3.79	**123**
8	M8x1x8 - SW4	3.79	**123**

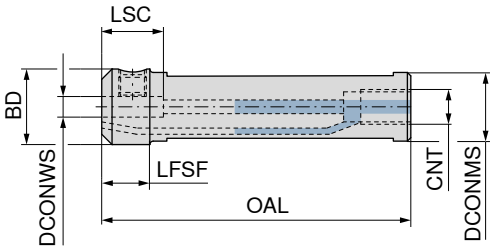
10

EcoCut – Mini adapter with coolant connection thread

Scope of supply:

Toolholder with one clamping screw and one screwdriver







Designation	DCONWS mm	DCONMS mm	BD mm	OAL mm	LFSF mm	LSC mm	CNT	70 801 ... £ 2B/20	
ECA 16-04	4	16	20.0	75	14	18	G 1/8	122.07	**716**
ECA 20-04	4	20	19.6	90	14	18	G 1/8	124.61	**720**
ECA 22-04	4	22	21.6	110	14	18	G 1/8	128.37	**722**
ECA 16-06	6	16	22.0	75	14	18	G 1/8	122.07	**816**
ECA 20-06	6	20	22.0	90	14	18	G 1/8	124.61	**820**
ECA 22-06	6	22	21.6	110	14	18	G 1/8	128.37	**822**
ECA 16-08	8	16	22.0	75	14	18	G 1/8	122.07	**916**
ECA 20-08	8	20	22.0	90	14	18	G 1/8	124.61	**920**
ECA 22-08	8	22	21.6	110	14	18	G 1/8	128.37	**922**

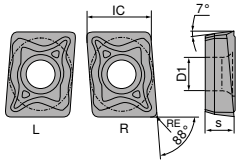


Clamping screw

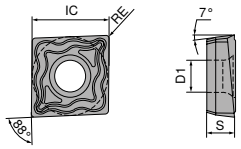
Spare parts DCONWS		70 950 ... £ 2A/28	
4	M5X8 - DIN 913	1.80	**13200**
6	M8x1x8 - SW4	3.79	**123**
8	M8x1x8 - SW4	3.79	**123**

XCNT / XCET

Designation	S	D1	IC
	mm	mm	mm
XC.T 0401..	1.80	2.10	4.5
XC.T 0502..	2.10	2.25	5.8
XC.T 0602..	2.38	2.50	6.5
XC.T 0703..	3.18	2.80	7.6
XC.T 0803..	3.18	3.40	8.5
XC.T 09T3..	3.97	3.40	9.6
XC.T 10T3..	3.97	4.40	10.6
XC.T 1304..	4.76	5.30	13.5
XC.T 1705..	5.56	5.30	17.5

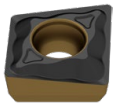
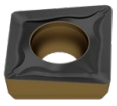
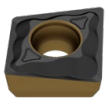
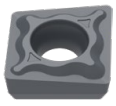
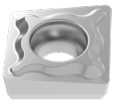


XC. T 04..



XC. T 05../06../07../08../09../10../13../17..

XCNT / XCET

	NEW	NEW	NEW			
	-EN CTCP425-P	-M50Q CTCP425-P	-EN CTCP435-P	-EN CTPP430	-27P H216T	-27Q H210T
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
						
	M XCNT	M XCNT	M XCNT	M XCNT	M XCET	M XCET
	70 386 ...	70 386 ...	70 386 ...	70 386 ...	70 286 ...	70 286 ...
ISO / RE mm	£ 1D/19	£ 1D/19	£ 1D/19	£ 1D/19	£ 1D/19	£ 1D/19
040102EL 0.2	19.30 72001		19.30 82001	18.74 920		
040102ER 0.2	19.30 72201		19.30 82201	18.74 922		
040102FL 0.2					20.99 620	21.81 120
040102FR 0.2					20.99 622	21.81 122
040104EL 0.4	19.30 70001	20.14 75001	19.30 80001	18.74 900		
040104ER 0.4	19.30 70201	20.14 75201	19.30 80201	18.74 902		
040104FL 0.4					20.99 600	21.81 100
040104FR 0.4					20.99 602	21.81 102
050202EN 0.2	19.30 72301		19.30 82301	18.74 923		
050202FN 0.2					20.99 623	21.81 123
050204EN 0.4	19.30 70301	20.14 75301	19.30 80301	18.74 903		
050204FN 0.4					20.99 603	21.81 103
060202EN 0.2	19.30 72401		19.30 82401	18.74 924		
060202FN 0.2					20.99 624	21.81 124
060204EN 0.4	19.30 70401	20.14 75401	19.30 80401	18.74 904		
060204FN 0.4					20.99 604	21.81 104
070304EN 0.4	19.30 70501	20.14 75501	19.30 80501	18.74 905		
070304FN 0.4					20.99 605	21.81 105
080304EN 0.4	19.61 70601	20.46 75601	19.61 80601	19.02 906		
080304FN 0.4					21.26 606	22.08 106
09T304EN 0.4	19.89 70701	20.90 75701	19.89 80701	19.29 907		
09T304FN 0.4					21.38 607	22.22 107
10T304EN 0.4	20.90 70801	21.75 75801	20.90 80801	20.27 908		
10T304FN 0.4					21.81 608	22.92 108
10T308EN 0.8	20.90 73801	21.75 78801	20.90 83801	20.27 938		
10T308FN 0.8					21.81 628	22.92 128
130404EN 0.4	23.89 71001	25.03 76001	23.89 81001	23.18 910		
130404FN 0.4					26.68 610	27.77 110
130408EN 0.8	23.89 74001	25.03 79001	23.89 84001	23.18 940		
130408FN 0.8					26.68 611	27.77 111
170508EN 0.8	25.19 71201	26.47 76201	25.19 81201	24.44 912		
170508FN 0.8					27.07 612	28.45 112
P	●	●	●	●		
M	○	○	○	●		
K	○	○	○	○	●	○
N				○	●	●
S			○	○	○	●
H						
O				○	○	○

→ v_c Page 28

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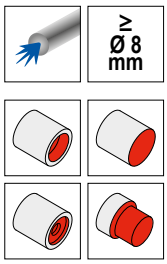
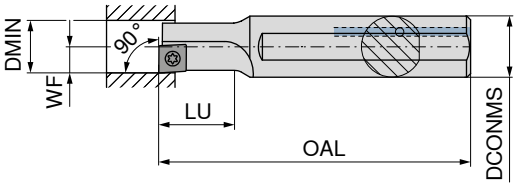
EcoCut – Classic 1.5xD

▲ Drilling and turning tool

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver





Illustrations show right-hand versions



Left-hand



Right-hand

ISO designation	DMIN mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert	70 805 ... £ 2B/20		70 804 ... £ 2B/20	
ECC 08 L 1,5D 04	8	12	80	12.0	4.0	0,4	XC.T 0401..EL	192.66	**008** [2]		
ECC 08 R 1,5D 04	8	12	80	12.0	4.0	0,4	XC.T 0401..ER			192.66	**008** [1]
ECC 10 R/L 1,5D 05	10	12	90	15.0	5.0	0,7	XC.T 0502..	192.66	**010**	192.66	**010**
ECC 12 R/L 1,5D 06	12	16	100	18.0	6.0	1,0	XC.T 0602..	195.82	**012**	195.82	**012**
ECC 14 R/L 1,5D 07	14	16	110	21.0	7.0	1,2	XC.T 0703..	200.54	**014**	200.54	**014**
ECC 16 R/L 1,5D 08	16	20	125	24.0	8.0	2,2	XC.T 0803..	203.69	**016**	203.69	**016**
ECC 18 R/L 1,5D 09	18	25	135	27.0	9.0	2,2	XC.T 09T3..	234.93	**018**	234.93	**018**
ECC 20 R/L 1,5D 10	20	25	150	30.0	10.0	3,2	XC.T 10T3..	264.84	**020**	264.84	**020**
ECC 25 R/L 1,5D 13	25	32	180	37.5	12.5	5,0	XC.T 1304..	305.42	**025**	305.42	**025**
ECC 32 R/L 1,5D 17	32	40	200	48.0	16.0	5,0	XC.T 1705..	346.23	**032**	346.23	**032**

1) Note! Right-hand insert on right-hand tool
2) Note! Left-hand insert on left-hand tool



Key D



Clamping screw

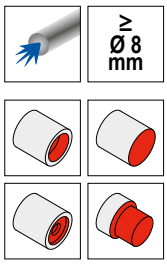
Spare parts Insert		80 950 ... £ Y7			70 950 ... £ 2A/28	
XC.T 0401..EL	T06 - IP	18.22	**123**	M1,8x3,6 - IP	4.47	**862**
XC.T 0401..ER	T06 - IP	18.22	**123**	M1,8x3,6 - IP	4.47	**862**
XC.T 0502..	T06 - IP	18.22	**123**	M2x4,3 - IP	3.98	**863**
XC.T 0602..	T07 - IP	17.97	**124**	M2,2x5 - IP	3.85	**856**
XC.T 0703..	T08 - IP	17.97	**125**	M2,5x6 - IP	4.96	**857**
XC.T 0803..	T09 - IP	19.68	**126**	M3x7 - IP	3.79	**819**
XC.T 09T3..	T09 - IP	19.68	**126**	M3x7 - IP	3.79	**819**
XC.T 10T3..	T15 - IP	21.01	**128**	M3,5x8,6 - IP	3.79	**859**
XC.T 1304..	T20 - IP	22.06	**129**	M4,5x10,5 - IP	3.79	**864**
XC.T 1705..	T20 - IP	22.06	**129**	M4,5x10,5 - IP	3.79	**864**

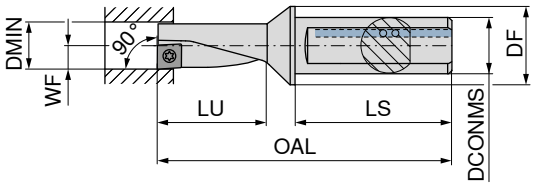
EcoCut – Classic 2.25xD

▲ Drilling and turning tool

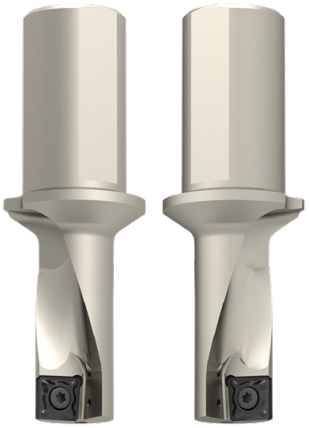
Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver





Illustrations show right-hand versions



Left-hand | Right-hand

ISO designation	DMIN mm	DCONMS mm	DF mm	OAL mm	LU mm	LS mm	WF mm	torque moment Nm	Insert	70 805 ... £ 2B/20		70 804 ... £ 2B/20	
ECC 08 L 2,25D 04	8	10	15	60.0	18.0	38	4.0	0,4	XC.T 0401..EL	286.64	**108** [2]		
ECC 08 R 2,25D 04	8	10	15	60.0	18.0	38	4.0	0,4	XC.T 0401..ER			286.64	**108** [1]
ECC 10 R/L 2,25D 05	10	12	18	69.5	22.5	42	5.0	0,7	XC.T 0502..	286.64	**110**	286.64	**110**
ECC 12 R/L 2,25D 06	12	16	22	78.0	27.0	45	6.0	1,0	XC.T 0602..	294.51	**112**	294.51	**112**
ECC 14 R/L 2,25D 07	14	16	23	83.5	31.5	45	7.0	1,2	XC.T 0703..	300.93	**114**	300.93	**114**
ECC 16 R/L 2,25D 08	16	20	28	94.0	36.0	50	8.0	2,2	XC.T 0803..	307.23	**116**	307.23	**116**
ECC 18 R/L 2,25D 09	18	25	36	109.5	40.5	56	9.0	2,2	XC.T 09T3..	338.47	**118**	338.47	**118**
ECC 20 R/L 2,25D 10	20	25	35	111.0	45.0	56	10.0	3,2	XC.T 10T3..	368.39	**120**	368.39	**120**
ECC 25 R/L 2,25D 13	25	32	44	129.0	56.5	60	12.5	5,0	XC.T 1304..	427.72	**125**	427.72	**125**
ECC 32 R/L 2,25D 17	32	40	54	158.0	72.0	70	16.0	5,0	XC.T 1705..	480.88	**132**	480.88	**132**

1) Note! Right-hand insert on right-hand tool
2) Note! Left-hand insert on left-hand tool

10



Key D



Clamping screw

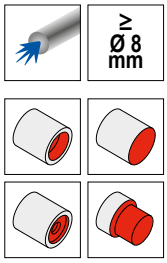
Spare parts Insert		80 950 ... £ Y7		70 950 ... £ 2A/28	
XC.T 0401..EL	T06 - IP	18.22	**123**	M1,8x3,6 - IP	4.47	**862**
XC.T 0401..ER	T06 - IP	18.22	**123**	M1,8x3,6 - IP	4.47	**862**
XC.T 0502..	T06 - IP	18.22	**123**	M2x4,3 - IP	3.98	**863**
XC.T 0602..	T07 - IP	17.97	**124**	M2,2x5 - IP	3.85	**856**
XC.T 0703..	T08 - IP	17.97	**125**	M2,5x6 - IP	4.96	**857**
XC.T 0803..	T09 - IP	19.68	**126**	M3x7 - IP	3.79	**819**
XC.T 09T3..	T09 - IP	19.68	**126**	M3x7 - IP	3.79	**819**
XC.T 10T3..	T15 - IP	21.01	**128**	M3,5x8,6 - IP	3.79	**859**
XC.T 1304..	T20 - IP	22.06	**129**	M4,5x10,5 - IP	3.79	**864**
XC.T 1705..	T20 - IP	22.06	**129**	M4,5x10,5 - IP	3.79	**864**

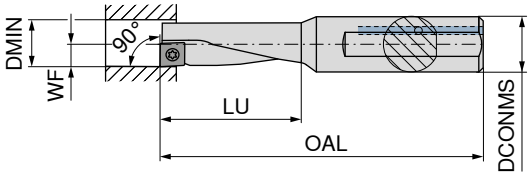
EcoCut – Classic 3xD – Heavy metal

▲ Drilling and turning tool
▲ vibration-damped

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver





Illustrations show right-hand versions



Left-hand



Right-hand

ISO designation	DMIN mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert	70 805 ... £ 2B/20		70 804 ... £ 2B/20	
ECC 08 L 3,00D 04 H	8	12	80	24	4.0	0,4	XC.T 0401..EL	706.86	**608** [2]		
ECC 08 R 3,00D 04 H	8	12	80	24	4.0	0,4	XC.T 0401..ER			706.86	**608** [1]
ECC 10 R/L 3,00D 05 H	10	12	85	30	5.0	0,7	XC.T 0502..	709.99	**610**	709.99	**610**
ECC 12 R/L 3,00D 06 H	12	16	95	36	6.0	1,0	XC.T 0602..	766.30	**612**	766.30	**612**
ECC 14 R/L 3,00D 07 H	14	16	100	42	7.0	1,2	XC.T 0703..	784.12	**614**	784.12	**614**
ECC 16 R/L 3,00D 08 H	16	20	110	48	8.0	2,2	XC.T 0803..	859.80	**616**	859.80	**616**
ECC 18 R/L 3,00D 09 H	18	25	125	54	9.0	2,2	XC.T 09T3..	1,040.84	**618**	1,040.84	**618**
ECC 20 R/L 3,00D 10 H	20	25	130	60	10.0	3,2	XC.T 10T3..	1,061.91	**620**	1,061.91	**620**
ECC 25 R/L 3,00D 13 H	25	32	150	75	12.5	5,0	XC.T 1304..	1,352.66	**625**	1,352.66	**625**
ECC 32 R/L 3,00D 17 H	32	40	185	96	16.0	5,0	XC.T 1705..	1,770.46	**632**	1,770.46	**632**

1) Note! Right-hand insert on right-hand tool
2) Note! Left-hand insert on left-hand tool



Key D



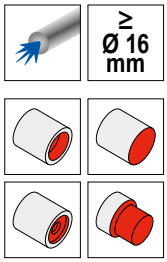
Clamping screw

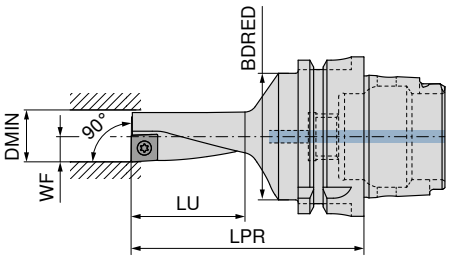
Spare parts Insert		80 950 ... £ Y7			70 950 ... £ 2A/28	
XC.T 0401..EL	T06 - IP	18.22	**123**	M1,8x3,6 - IP	4.47	**862**
XC.T 0401..ER	T06 - IP	18.22	**123**	M1,8x3,6 - IP	4.47	**862**
XC.T 0502..	T06 - IP	18.22	**123**	M2x4,3 - IP	3.98	**863**
XC.T 0602..	T07 - IP	17.97	**124**	M2,2x5 - IP	3.85	**856**
XC.T 0703..	T08 - IP	17.97	**125**	M2,5x6 - IP	4.96	**857**
XC.T 0803..	T09 - IP	19.68	**126**	M3x7 - IP	3.79	**819**
XC.T 09T3..	T09 - IP	19.68	**126**	M3x7 - IP	3.79	**819**
XC.T 10T3..	T15 - IP	21.01	**128**	M3,5x8,6 - IP	3.79	**859**
XC.T 1304..	T20 - IP	22.06	**129**	M4,5x10,5 - IP	3.79	**864**
XC.T 1705..	T20 - IP	22.06	**129**	M4,5x10,5 - IP	3.79	**864**

EcoCut – HSK-T 2.25xD

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver





Illustrations show right-hand versions

NEW NEW



ISO designation	Adapter	LPR mm	LU mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 591 ... £ 2D/80		Right-hand 74 590 ... £ 2D/80	
HSK-T 63 ECC 16 R/L 2,25D 08	HSK-T 63	84	36.00	50	8.0	16	2,2	XC.T 0803..	379.77	**51637**	379.77	**51637**
HSK-T 63 ECC 20 R/L 2,25D 10	HSK-T 63	92	45.00	50	10.0	20	3,2	XC.T 10T3..	455.33	**52037**	455.33	**52037**
HSK-T 63 ECC 25 R/L 2,25D 13	HSK-T 63	104	56.25	50	12.5	25	5,0	XC.T 1304..	528.75	**52537**	528.75	**52537**
HSK-T 63 ECC 32 R/L 2,25D 17	HSK-T 63	120	72.00	50	16.0	32	5,0	XC.T 1705..	594.48	**53237**	594.48	**53237**


Key D

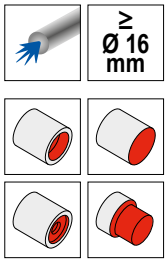

Clamping screw

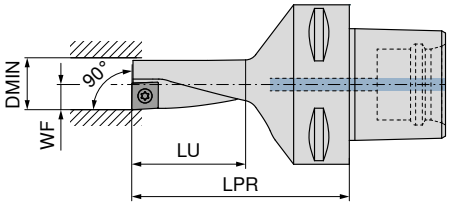
Spare parts Insert		80 950 ... £ Y7			70 950 ... £ 2A/28	
XC.T 0803..	T09 - IP	19.68	**126**	M3x7 - IP	3.79	**819**
XC.T 10T3..	T15 - IP	21.01	**128**	M3,5x8,6 - IP	3.79	**859**
XC.T 1304..	T20 - IP	22.06	**129**	M4,5x10,5 - IP	3.79	**864**
XC.T 1705..	T20 - IP	22.06	**129**	M4,5x10,5 - IP	3.79	**864**

EcoCut – Classic PSC 2,25xD

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver





Illustrations show right-hand versions

NEW NEW



ISO designation	Adapter	LPR mm	LU mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 591 ... £ 2D/80		Right-hand 74 590 ... £ 2D/80	
PSC 50 ECC 16 R/L 2,25D 08	PSC 50	70	36.00	8.0	16	2,2	XC.T 0803..	379.77	**51694**	379.77	**51694**
PSC 50 ECC 20 R/L 2,25D 10	PSC 50	81	45.00	10.0	20	3,2	XC.T 10T3..	455.33	**52094**	455.33	**52094**
PSC 50 ECC 25 R/L 2,25D 13	PSC 50	93	56.25	12.5	25	5,0	XC.T 1304..	528.75	**52594**	528.75	**52594**
PSC 50 ECC 32 R/L 2,25D 17	PSC 50	110	72.00	16.0	32	5,0	XC.T 1705..	594.48	**53294**	594.48	**53294**
PSC 63 ECC 16 R/L 2,25D 08	PSC 63	75	36.00	8.0	16	2,2	XC.T 0803..	379.77	**51693**	379.77	**51693**
PSC 63 ECC 20 R/L 2,25D 10	PSC 63	86	45.00	10.0	20	3,2	XC.T 10T3..	455.33	**52093**	455.33	**52093**
PSC 63 ECC 25 R/L 2,25D 13	PSC 63	97	56.25	12.5	25	5,0	XC.T 1304..	528.75	**52593**	528.75	**52593**
PSC 63 ECC 32 R/L 2,25D 17	PSC 63	114	72.00	16.0	32	5,0	XC.T 1705..	594.48	**53293**	594.48	**53293**



Key D

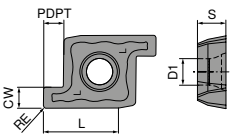


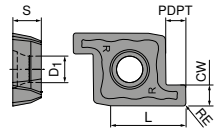
Clamping screw

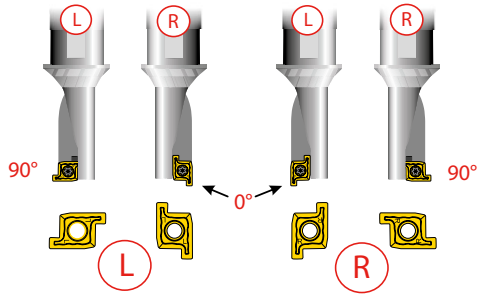
Spare parts **Insert**		80 950 ... £ Y7			70 950 ... £ 2A/28	
XC.T 0803..	T09 - IP	19.68	**126**	M3x7 - IP	3.79	**819**
XC.T 10T3..	T15 - IP	21.01	**128**	M3,5x8,6 - IP	3.79	**859**
XC.T 1304..	T20 - IP	22.06	**129**	M4,5x10,5 - IP	3.79	**864**
XC.T 1705..	T20 - IP	22.06	**129**	M4,5x10,5 - IP	3.79	**864**

PM-R / PM-L

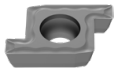
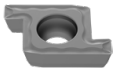
Designation	CW	PDPT	L	S	D1
	mm	mm	mm	mm	mm
PM 10 G 201504	2.0	1.5	5.0	2.10	2.1
PM 12 G 201804	2.0	1.8	6.0	2.30	2.5
PM 16 G 252004	2.5	2.0	8.0	2.80	3.4
PM 20 G 302504	3.0	2.5	10.0	3.70	4.0
PM 25 G 353004	3.5	3.0	12.5	4.50	4.4
PM 32 G 404004	4.0	4.0	16.0	5.60	6.0







PM-L / PM-R

	-M20 CTPP430 DRAGONSKIN		-M20 CTPP430 DRAGONSKIN	
				
	M PM-L		M PM-R	
	70 289 ...		70 289 ...	
ISO / RE mm	£ 1F/P2		£ 1F/P2	
PM 10 G 201504 / 0.4	20.19	510	20.19	511
PM 12 G 201804 / 0.4	20.33	515	20.33	516
PM 16 G 252004 / 0.4	20.57	520	20.57	521
PM 20 G 302504 / 0.4	21.54	525	21.54	526
PM 25 G 353004 / 0.4	23.98	530	23.98	531
PM 32 G 404004 / 0.4	25.88	535	25.88	536
P	●		●	
M	●		●	
K	○		○	
N	○		○	
S	●		●	
H				
O	○		○	

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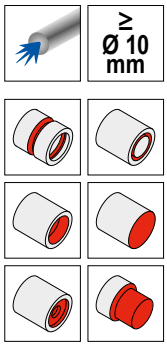
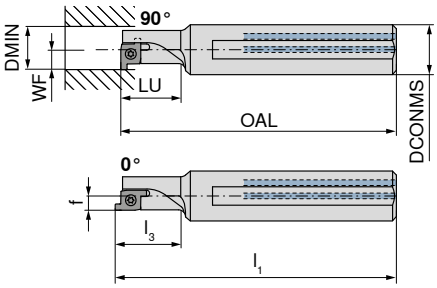
EcoCut – ProfileMaster 1.5xD

▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver





Illustrations show right-hand versions



											Left-hand		Right-hand	
											70 821 ...		**70 820 ...**	
ISO designation	DMIN	DCONMS	OAL	LU	WF	l_1	l_3	f	torque moment	Insert	£		£	
	mm	mm	mm	mm	mm	mm	mm	mm	Nm		2G/P1		2G/P1	
PMC 10 R/L 1,5D	10	12	80	15	5.0				0,4	PM 10R/L	207.69	**010** 1)	207.69	**010** 1)
PMC 12 R/L 1,5D	12	16	90	18	6.0				1,0	PM 12R/L	215.32	**012** 1)	215.32	**012** 1)
PMC 16 R/L 1,5D	16	20	125	24	8.0	127.3	26.3	5.7	2,2	PM 16R/L	227.79	**016**	227.79	**016**
PMC 20 R/L 1,5D	20	25	150	30	10.0	152.8	32.8	7.2	2,2	PM 20R/L	281.07	**020**	281.07	**020**
PMC 25 R/L 1,5D	25	32	180	38	12.5	183.3	40.8	9.2	3,2	PM 25R/L	319.46	**025**	319.46	**025**
PMC 32 R/L 1,5D	32	40	200	48	16.0	204.3	52.3	11.7	5,0	PM 32R/L	365.36	**032**	365.36	**032**

1) only usable as 90° version



Key D



Clamping screw

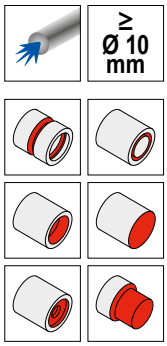
		80 950 ...			**70 950 ...**	
Spare parts		£			£	
Insert		Y7			2A/28	
PM 10R/L	T06 - IP	18.22	**123**	M1,8x3,6 - IP	4.47	**862**
PM 12R/L	T07 - IP	17.97	**124**	M2,2x4,2 - IP	3.85	**137**
PM 16R/L	T09 - IP	19.68	**126**	M3x5,7 - IP	3.79	**008**
PM 20R/L	T15 - IP	21.01	**128**	M3x5,7 - IP	3.79	**009**
PM 25R/L	T15 - IP	21.01	**128**	M3,5x8,6 - IP	3.79	**859**
PM 32R/L	T20 - IP	22.06	**129**	M5x10,8 - IP	9.88	**010**

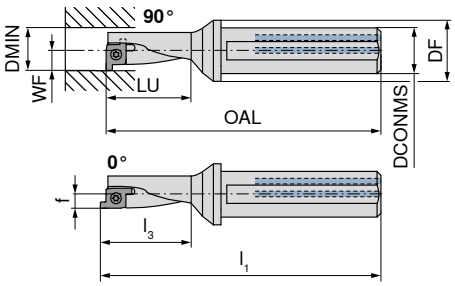
EcoCut – ProfileMaster 2.25xD

▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver





Illustrations show right-hand versions



												Left-hand		Right-hand	
												70 821 ...		**70 820 ...**	
ISO designation	DMIN	DCONMS	DF	OAL	LU	WF	l_1	l_3	f	torque moment	Insert	£		£	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Nm		2G/P1		2G/P1	
PMC 10 R/L 2,25D	10	12	18	72.4	22.50	5.0				0,4	PM 10R/L	305.53	**110** [1]	305.53	**110** [1]
PMC 12 R/L 2,25D	12	16	22	78.0	27.00	6.0				1,0	PM 12R/L	311.94	**112** [1]	311.94	**112** [1]
PMC 16 R/L 2,25D	16	20	28	96.5	36.00	8.0	98.8	38.3	5.7	2,2	PM 16R/L	328.66	**116**	328.66	**116**
PMC 20 R/L 2,25D	20	25	32	111.0	45.00	10.0	113.8	47.8	7.2	2,2	PM 20R/L	392.74	**120**	392.74	**120**
PMC 25 R/L 2,25D	25	32	44	132.6	56.25	12.5	135.9	59.6	9.2	3,2	PM 25R/L	450.98	**125**	450.98	**125**
PMC 32 R/L 2,25D	32	40	54	158.0	72.00	16.0	162.3	76.3	11.7	5,0	PM 32R/L	505.95	**132**	505.95	**132**

1) only usable as 90° version



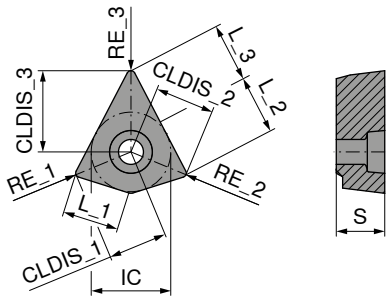
Key D



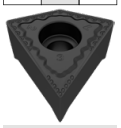
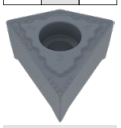
Clamping screw

		80 950 ...			**70 950 ...**	
Spare parts		£			£	
Insert		Y7			2A/28	
PM 10R/L	T06 - IP	18.22	**123**	M1,8x3,6 - IP	4.47	**862**
PM 12R/L	T07 - IP	17.97	**124**	M2,2x4,2 - IP	3.85	**137**
PM 16R/L	T09 - IP	19.68	**126**	M3x5,7 - IP	3.79	**008**
PM 20R/L	T15 - IP	21.01	**128**	M3x5,7 - IP	3.79	**009**
PM 25R/L	T15 - IP	21.01	**128**	M3,5x8,6 - IP	3.79	**859**
PM 32R/L	T20 - IP	22.06	**129**	M5x10,8 - IP	9.88	**010**

FT15 . 808055...



Designation	IC	CLDIS_1	L_1	CLDIS_2	L_2	CLDIS_3	L_3	S
	mm	mm	mm	mm	mm	mm	mm	mm
FT15 M 808055R080804-MMF	15	11.22	10.8	11.22	11.4	15.78	11.4	9.14
FT15 M 808055R08-MMF	15	11.22	10.8	11.22	11.2	15.31	11.2	9.14
FT15 M 808055R121208-MMF	15	11.00	10.7	11.00	11.2	15.31	11.2	9.14

ISO	RE_1	RE_2	RE_3	CTCP125		CTPM125	
	mm	mm	mm	DRAGONSKIN		DRAGONSKIN	
							
				M M F		M M F	
				FT15 . 808055...		FT15 . 808055...	
				74 003 ...		74 003 ...	
				£ FW		£ FW	
FT15 M 808055R080804-MMF	0.8	0.8	0.4	26.08	**00400**		
FT15 M 808055R08-MMF	0.8	0.8	0.8	26.08	**00200**	26.08	**10200**
FT15 M 808055R121208-MMF	1.2	1.2	0.8	26.08	**00600**		
P				●		○	
M						●	
K				○			
N							
S							
H							
O							

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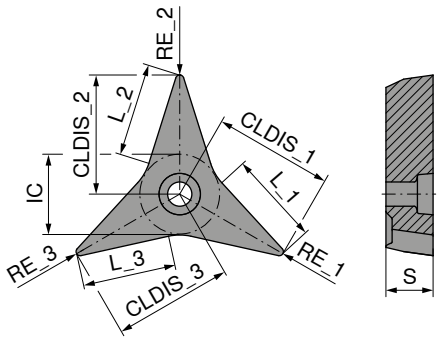
FT15 . 353535...



Designation	IC	CLDIS_1	L_1	CLDIS_2	L_2	CLDIS_3	L_3	S
	mm	mm	mm	mm	mm	mm	mm	mm
FT15 G 353535R04-28P	15	24.01	16.10	24.01	16.10	24.01	16.10	9.14
FT15 G 353535R08-28P	15	23.08	15.20	23.08	15.20	23.08	15.20	9.14
FT15 G 353535R08-F	15	23.08	14.96	23.08	14.96	23.08	14.96	9.14

ISO	RE_1	RE_2	RE_3	-F CTCP125		-28P H216T	
	mm	mm	mm				
				DRAGONSKIN		DRAGONSKIN	
							
				F F F		F F F	
				FT15 . 353535...		FT15 . 353535...	
				74 077 ...		74 001 ...	
				£ FW		£ FW	
FT15 G 353535R04-28P	0.4	0.4	0.4			43.59	20200
FT15 G 353535R08-28P	0.8	0.8	0.8			43.59	20400
FT15 G 353535R08-F	0.8	0.8	0.8	43.59	00400		
P				●			
M							
K				○		○	
N						●	
S						○	
H							
O						○	

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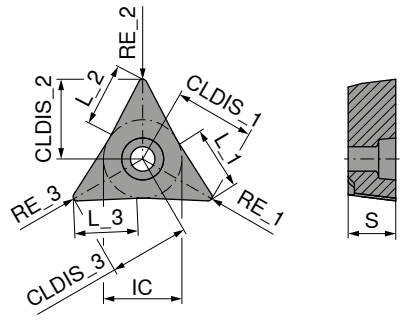
FT15 . 555555...



Designation	IC	CLDIS_1	L_1	CLDIS_2	L_2	CLDIS_3	L_3	S
	mm	mm	mm	mm	mm	mm	mm	mm
FT15 M 555555R04-FFF	15	15.78	12.6	15.78	12.6	15.78	12.6	9.14
FT15 M 555555R08-FFF	15	15.31	12.3	15.31	12.3	15.31	12.3	9.14

ISO	RE_1	RE_2	RE_3	CTCP125		CTPM125	
	mm	mm	mm	DRAGONSKIN		DRAGONSKIN	
				F F F		F F F	
				FT15 . 555555...		FT15 . 555555...	
				74 002 ...		74 002 ...	
				£ FW		£ FW	
FT15 M 555555R04-FFF	0.4	0.4	0.4	22.43	**00200**		
FT15 M 555555R08-FFF	0.8	0.8	0.8	22.43	**00400**	22.43	**10400**
P				●		○	
M						●	
K				○			
N							
S							
H							
O							

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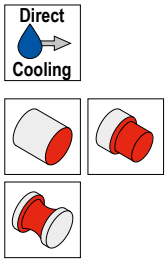
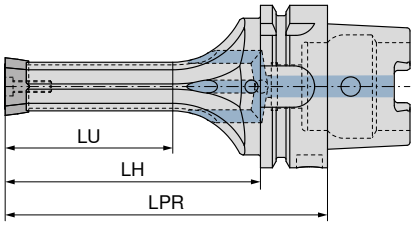
FreeTurn – HSK-T tool holder FT15

▲ Tool holder for FreeTurn indexable insert
▲ DirectCooling coolant supply

Scope of supply:

Toolholder with one clamping screw and one screwdriver







Figures show version FT15 . 808055...

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	DirectCooling 74 700 ... £ FT	
HSK-T63-100-FT15 353535	HSK-T 63	100	74	40	FT15 . 353535...	709.18	**00137**
HSK-T63-100-FT15 808055	HSK-T 63	100	74	40	FT15 . 808055...	709.18	**00537**
HSK-T63-100-FT15 555555	HSK-T 63	100	74	40	FT15 . 555555...	709.18	**00337**
HSK-T63-125-FT15 353535	HSK-T 63	125	99	65	FT15 . 353535...	721.87	**00237**
HSK-T63-125-FT15 808055	HSK-T 63	125	99	65	FT15 . 808055...	721.87	**00637**
HSK-T63-125-FT15 555555	HSK-T 63	125	99	65	FT15 . 555555...	721.87	**00437**



Key D



Clamping screw

Spare parts		80 950 ... £ Y7			70 950 ... £ 2A/28	
Adapter						
HSK-T 63	T20 - IP	17.19	**121**	M4,5x18 - IP	10.40	**25900**

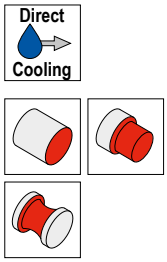
10

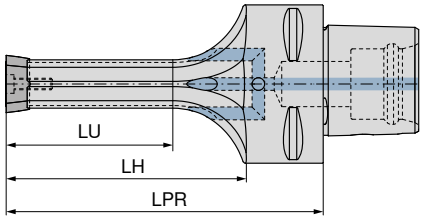
FreeTurn – PSC tool holder FT15

▲ Tool holder for FreeTurn indexable insert
▲ DirectCooling coolant supply

Scope of supply:

Toolholder with one clamping screw and one screwdriver







Figures show version FT15 . 808055...

DirectCooling

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	74 700 ... £ FT	
PSC-63-100-FT15 353535	PSC 63	100	69.4	40	FT15 . 353535...	823.37	**00193**
PSC-63-100-FT15 808055	PSC 63	100	69.3	40	FT15 . 808055...	823.37	**00593**
PSC-63-100-FT15 555555	PSC 63	100	69.6	40	FT15 . 555555...	823.37	**00393**
PSC-63-125-FT15 353535	PSC 63	125	94.4	65	FT15 . 353535...	836.04	**00293**
PSC-63-125-FT15 808055	PSC 63	125	94.3	65	FT15 . 808055...	836.04	**00693**
PSC-63-125-FT15 555555	PSC 63	125	94.6	65	FT15 . 555555...	836.04	**00493**



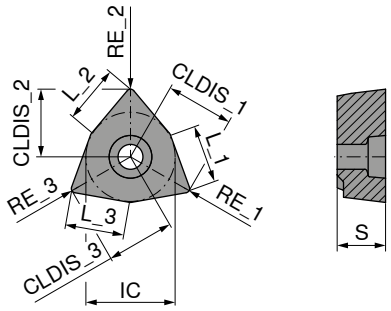
Key D



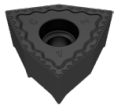
Clamping screw

Spare parts	80 950 ...		70 950 ...	
Adapter	£ Y7		£ 2A/28	
PSC 63	T20 - IP	17.19 **121**	M4,5x18 - IP	10.40 **25900**

FT17 . 808080...



Designation	IC	CLDIS_1	L_1	CLDIS_2	L_2	CLDIS_3	L_3	S
	mm	mm	mm	mm	mm	mm	mm	mm
FT17 M 808080R04-MMM	17	13.00	11.3	13.00	11.3	13.00	11.3	9.14
FT17 M 808080R08-MMM	17	12.78	11.3	12.78	11.3	12.78	11.3	9.14
FT17 M 808080R12-MMM	17	12.56	11.2	12.56	11.2	12.56	11.2	9.14

ISO	RE_1	RE_2	RE_3	CTCP125		CTPM125	
	mm	mm	mm	DRAGONSKIN		DRAGONSKIN	
							
				M M M		M M M	
				FT17 . 808080...		FT17 . 808080...	
				74 000 ...		74 000 ...	
				£ FW		£ FW	
FT17 M 808080R04-MMM	0.4	0.4	0.4	30.10	**00200**		
FT17 M 808080R08-MMM	0.8	0.8	0.8	30.10	**00400**	30.10	**10400**
FT17 M 808080R12-MMM	1.2	1.2	1.2	30.10	**00600**		
P				●		○	
M						●	
K				○			
N							
S							
H							
O							

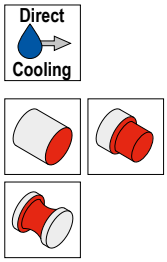
→ v_c Page 29

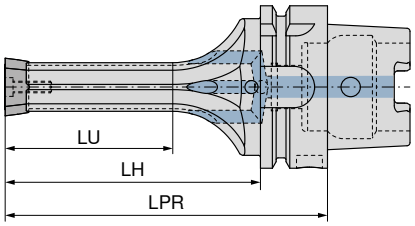
FreeTurn – HSK-T tool holder FT17

▲ Tool holder for FreeTurn indexable insert
▲ DirectCooling coolant supply

Scope of supply:

Toolholder with one clamping screw and one screwdriver







ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	DirectCooling 74 701 ... £ FT	
HSK-T63-100-FT17 808080	HSK-T 63	100	74	40	FT17 . 808080...	709.18	**00737**
HSK-T63-125-FT17 808080	HSK-T 63	125	99	65	FT17 . 808080...	721.87	**00837**





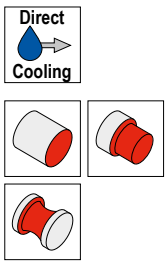
Spare parts		80 950 ... £ Y7			70 950 ... £ 2A/28	
Adapter						
HSK-T 63	T20 - IP	17.19	**121**	M4,5x18 - IP	10.40	**25900**

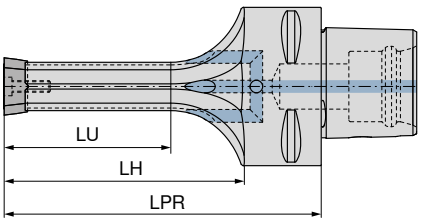
FreeTurn – PSC tool holder FT17

▲ Tool holder for FreeTurn indexable insert
▲ DirectCooling coolant supply

Scope of supply:

Toolholder with one clamping screw and one screwdriver







ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	DirectCooling 74 701 ... £ FT	
PSC-63-100-FT17 808080	PSC 63	100	69.3	40	FT17 . 808080...	823.37	**00793**
PSC-63-125-FT17 808080	PSC 63	125	94.3	65	FT17 . 808080...	836.04	**00893**





Spare parts		80 950 ... £ Y7			70 950 ... £ 2A/28	
Adapter						
PSC 63	T20 - IP	17.19	**121**	M4,5x18 - IP	10.40	**25900**

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

* Tensile strength

Cutting data standard values for EcoCut

Index	EcoCut Mini CTWN425	DRAGONSKIN EcoCut Mini CTPP435	DRAGONSKIN EcoCut Classic CTCP425-P	DRAGONSKIN EcoCut Classic CTCP435-P	DRAGONSKIN EcoCut Classic CTPP430	EcoCut Classic H210T	EcoCut Classic H216T	DRAGONSKIN EcoCut ProfileMaster CTPP430
	v_c in m/min							
P.1.1		145	270	230	180			170
P.1.2		125	235	200	155			140
P.1.3		105	200	165	130			115
P.1.4		100	190	155	125			105
P.1.5		90	175	140	110			95
P.2.1		130	240	200	160			145
P.2.2		100	185	155	120			105
P.2.3		90	175	140	110			95
P.2.4		70	130	105	80			60
P.3.1		105	185	160	115			110
P.3.2		70	135	110	85			75
P.3.3		30	80	60	55			40
P.4.1		105	185	160	115			110
P.4.2		85	160	130	100			95
M.1.1		105	160	160	115			110
M.2.1		65			85			75
M.3.1		95			110			100
K.1.1	140	140	205	185	160	110	170	180
K.1.2	115	120	205	185	140	90	130	260
K.2.1	150	140	200	180	160	120	180	160
K.2.2	110	120	200	180	140	85	130	250
K.3.1	170	150	195	175	125	140	190	130
K.3.2	140	125	195	175	110	110	160	230
N.1.1	300	40			40	40	60	300
N.1.2	50	290			290	290	310	200
N.2.1	300	290			290	290	60	300
N.2.2	300	190			190	190	460	200
N.2.3	450	340			340	340	60	150
N.3.1	350	240			240	240	460	300
N.3.2	350	240			240	240	460	300
N.3.3	250	190			190	190	360	200
N.4.1	200	140			140	140	260	200
S.1.1	40	35		35	55	35	45	35
S.1.2	30	30		30	55	25	35	30
S.2.1	30	20		20	55	25	35	20
S.2.2	25	15		15	55	20	25	15
S.2.3	20	15		15	55	20	20	15
S.3.1	90	85		85	70	65	110	85
S.3.2	55	40		40	60	45	70	40
S.3.3	40	30		30	40	30	50	30
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	130	110			110	110	155	130
O.1.2								
O.2.1	105	95			95	95	140	105
O.2.2								
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for FreeTurn

Index	F		M		-28P
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
	CTCP125	CTPM125	CTCP125	CTPM125	H216T
	v_c in m/min				
P.1.1	**295**	205	**295**	205	
P.1.2	**255**	170	**255**	170	
P.1.3	**215**	140	**215**	140	
P.1.4	**200**	130	**200**	130	
P.1.5	**180**	120	**180**	120	
P.2.1	**260**	175	**260**	175	
P.2.2	**195**	130	**195**	130	
P.2.3	**180**	120	**180**	120	
P.2.4	**130**	80	**130**	80	
P.3.1	**170**	140	**170**	140	
P.3.2	**105**	95	**105**	95	
P.3.3	**45**	50	**45**	50	
P.4.1	**170**	140	**170**	140	
P.4.2	**140**	120	**140**	120	
M.1.1		**140**		**140**	
M.2.1		**100**		**100**	
M.3.1		**130**		**130**	
K.1.1	170		170		170
K.1.2	160		160		130
K.2.1	180		180		180
K.2.2	160		160		130
K.3.1	200		200		190
K.3.2	160		160		160
N.1.1					**1650**
N.1.2					**1350**
N.2.1					**1200**
N.2.2					**1100**
N.2.3					**600**
N.3.1					**525**
N.3.2					**500**
N.3.3					**375**
N.4.1					**275**
S.1.1					45
S.1.2					35
S.2.1					35
S.2.2					25
S.2.3					20
S.3.1					110
S.3.2					70
S.3.3					50
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					160
O.1.2					
O.2.1					140
O.2.2					
O.3.1					

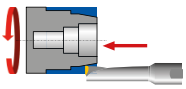
10

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Depth of Cut and Feedrate for EcoCut Mini

Turning

2.25xD

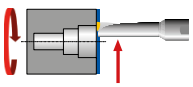


EcoCut Mini Size	Depth of Cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02–0,07	0,02–0,07								
ECM 02,5..	0,02–0,07	0,02–0,07	0,02–0,05							
ECM 03..	0,02–0,07	0,02–0,07	0,02–0,05	0,02–0,05						
ECM 03,5..	0,02–0,07	0,02–0,07	0,02–0,05	0,02–0,05	0,02–0,05					
ECM 04..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,07	0,01–0,05				
ECM 05..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 06..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04		
ECM 07..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04	
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04

4xD

EcoCut Mini Size	Depth of Cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02–0,05	0,01–0,05								
ECM 02,5..	0,02–0,05	0,01–0,05								
ECM 03..	0,02–0,05	0,02–0,05	0,01–0,05							
ECM 03,5..	0,02–0,05	0,02–0,05	0,02–0,05	0,01–0,05						
ECM 04..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,01–0,05					
ECM 05..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 06..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 07..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,095	0,03–0,08	0,02–0,06	0,01–0,04		

Face turning

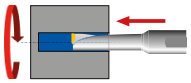


EcoCut Mini Size	2,25xD		4xD	
	$a_{p\,max.}$ in mm	f in mm/rev.	$a_{p\,max.}$ in mm	f in mm/rev.
ECM 02..	0,30	0,01–0,05	0,30	0,01–0,03
ECM 02,5..	0,30	0,01–0,05	0,30	0,01–0,03
ECM 03..	0,50	0,01–0,06	0,50	0,01–0,04
ECM 03,5..	0,50	0,01–0,06	0,50	0,01–0,04
ECM 04..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 05..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 06..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 07..	1,00	0,04–0,08	1,00	0,03–0,06
ECM 08..	1,00	0,04–0,08	1,00	0,03–0,06

Depth of Cut and Feedrate for EcoCut Mini

Drilling

Feed rate



EcoCut Mini Size	2,25xD	4xD
	f in mm/rev.	f in mm/rev.
ECM 02..	0,0025–0,0075	0,0025–0,005
ECM 02,5..	0,0025–0,010	0,0025–0,005
ECM 03..	0,0025–0,0125	0,0025–0,010
ECM 03,5..	0,0025–0,0150	0,0025–0,010
ECM 04..	0,005–0,030	0,005–0,0125
ECM 05..	0,005–0,030	0,005–0,015
ECM 06..	0,005–0,030	0,005–0,020
ECM 07..	0,005–0,035	0,005–0,025
ECM 08..	0,005–0,040	0,005–0,030

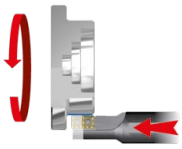
max. bore depth

EcoCut Mini Size	2,25xD	4xD
	Max. hole depth in mm	Max. hole depth in mm
ECM 02..	4,50	8,0
ECM 02,5..	5,63	10,0
ECM 03..	6,75	12,0
ECM 03,5..	7,88	14,0
ECM 04..	9,0	16,0
ECM 05..	11,25	20,0
ECM 06..	13,5	24,0
ECM 07..	15,75	28,0
ECM 08..	18,0	32,0

Depth of Cut and Feedrate for EcoCut Classic

Turning

1.5xD



EcoCut Classic Size	Depth of Cut a_p in mm											
	1	2	3	4	5	6	7	8	9	10	12	14
	Feed rate f in mm/rev.											
ECC 08	0,06–0,12	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,07–0,15	0,05–0,13	0,04–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,10–0,20	0,10–0,20	0,08–0,18	0,06–0,16	0,04–0,14	0,02–0,12				
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,13			
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,11–0,23	0,09–0,21	0,07–0,19	0,05–0,17	0,03–0,15		
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,11–0,24	0,09–0,22	0,07–0,20	0,03–0,16	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,30	0,15–0,30	0,15–0,30	0,13–0,28	0,11–0,26	0,07–0,22	0,03–0,18

Feed f may be increased by 50–75 % when using -M50Q and -27Q.

2.25xD

EcoCut Classic Size	Depth of Cut a_p in mm										
	1,0	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	7,0
	Feed rate f in mm/rev.										
ECC 08	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,05–0,13	0,03–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,04–0,13	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,09–0,19	0,07–0,17	0,05–0,15	0,03–0,13					
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,14				
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,10–0,22	0,08–0,20	0,06–0,18	0,04–0,16			
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,12–0,25	0,10–0,23	0,08–0,21	0,06–0,19	0,04–0,17	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,29	0,12–0,27	0,10–0,25	0,08–0,23	0,05–0,20

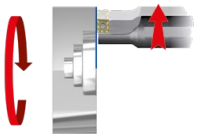
Feed f may be increased by 50–75 % when using -M50Q and -27Q.

3xD

EcoCut Classic Size	Depth of Cut a_p in mm								
	1,0	2,0	2,5	3,0	3,5	4,0	5,0	6,0	7,0
	Feed rate f in mm/rev.								
ECC 08	0,05–0,10	0,02–0,06							
ECC 10	0,06–0,11	0,03–0,07							
ECC 12	0,06–0,12	0,04–0,10	0,02–0,08						
ECC 14	0,07–0,13	0,05–0,11	0,02–0,09						
ECC 16	0,07–0,15	0,06–0,14	0,04–0,12	0,02–0,09					
ECC 18	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12					
ECC 20	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,03–0,12			
ECC 25	0,10–0,19	0,10–0,19	0,10–0,19	0,08–0,17	0,06–0,15	0,03–0,13			
ECC 32	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,03–0,14		

Depth of Cut and Feedrate for EcoCut Classic

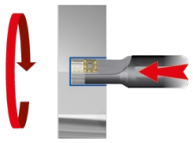
Face turning



EcoCut Classic Size	1,5xD		2,25xD		3xD	
	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.
ECC 08	2,00	0,05–0,10	1,90	0,04–0,09	1,10	0,04–0,07
ECC 10	2,50	0,06–0,12	2,20	0,05–0,10	1,20	0,04–0,09
ECC 12	3,00	0,07–0,14	2,60	0,06–0,12	1,40	0,05–0,11
ECC 14	3,50	0,08–0,16	3,00	0,07–0,14	1,60	0,06–0,12
ECC 16	4,00	0,09–0,18	3,40	0,08–0,16	1,90	0,06–0,13
ECC 18	4,50	0,10–0,20	3,80	0,09–0,18	2,00	0,07–0,14
ECC 20	5,00	0,11–0,22	4,20	0,10–0,20	2,20	0,08–0,15
ECC 25	6,00	0,12–0,24	5,00	0,11–0,22	2,60	0,09–0,18
ECC 32	8,00	0,13–0,27	6,00	0,12–0,25	3,00	0,10–0,20

Drilling

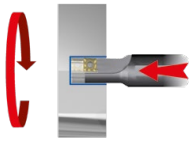
Feed rate



EcoCut Classic Size	1,5xD	2,25xD	3xD
	f in mm/rev.	f in mm/rev.	f in mm/rev.
ECC 08	0,01–0,04	0,01–0,04	0,01–0,02
ECC 10	0,01–0,05	0,01–0,05	0,01–0,03
ECC 12	0,01–0,05	0,01–0,05	0,01–0,04
ECC 14	0,01–0,07	0,01–0,07	0,01–0,05
ECC 16	0,02–0,08	0,02–0,08	0,02–0,06
ECC 18	0,03–0,09	0,03–0,09	0,03–0,07
ECC 20	0,03–0,10	0,03–0,10	0,03–0,08
ECC 25	0,03–0,12	0,03–0,12	0,04–0,09
ECC 32	0,05–0,15	0,05–0,15	0,05–0,11

10

max. bore depth

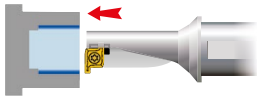


EcoCut Classic Size	1,5xD	2,25xD	3xD
	Max. hole depth in mm	Max. hole depth in mm	Max. hole depth in mm
ECC 08	12,0	18,0	24,0
ECC 10	15,0	22,5	30,0
ECC 12	18,0	27,0	36,0
ECC 14	21,0	31,5	42,0
ECC 16	24,0	36,0	48,0
ECC 18	27,0	40,5	54,0
ECC 20	30,0	45,0	60,0
ECC 25	37,5	56,5	75,0
ECC 32	48,0	72,0	96,0

Depth of Cut and Feedrate for EcoCut ProfileMaster 90°

Turning

1,5xD



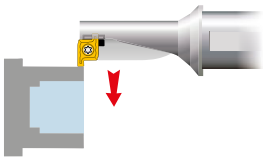
EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC PM 10	0,07–0,20	0,05–0,17	0,02–0,12					
EC PM 12	0,07–0,20	0,05–0,17	0,02–0,12					
EC PM 16	0,10–0,25	0,07–0,23	0,05–0,21	0,02–0,17				
EC PM 20	0,12–0,27	0,10–0,26	0,007–0,24	0,05–0,20	0,02–0,14			
EC PM 25	0,15–0,30	0,15–0,30	0,13–0,28	0,10–0,26	0,05–0,22	0,02–0,18		
EC PM 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,10–0,27	0,07–0,24	0,05–0,21	0,02–0,15

2,25xD

EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC PM 10	0,07–0,19	0,02–0,13						
EC PM 12	0,07–0,19	0,02–0,13						
EC PM 16	0,10–0,25	0,07–0,21	0,02–0,13					
EC PM 20	0,12–0,27	0,07–0,24	0,05–0,19					
EC PM 25	0,15–0,30	0,10–0,27	0,07–0,23	0,02–0,15				
EC PM 32	0,15–0,30	0,15–0,30	0,10–0,27	0,07–0,23	0,02–0,15			

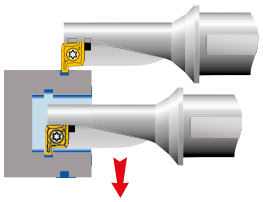
Face turning

1.5xD and 2.25xD



EcoCut ProfileMaster Size	Depth of Cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 10	0,02–0,15	0,02–0,15				
EC PM 12	0,02–0,15	0,02–0,15				
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 20	0,08–0,22	0,08–0,22	0,08–0,22	0,08–0,22		
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

Internal + external – radial grooving

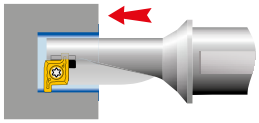


EcoCut ProfileMaster Size	1,5xD
	f in mm/rev.
EC PM 10	0,01–0,08
EC PM 12	0,02–0,10
EC PM 16	0,04–0,15
EC PM 20	0,04–0,16
EC PM 25	0,07–0,20
EC PM 32	0,08–0,22

EcoCut ProfileMaster Size	2,25xD
	f in mm/rev.
EC PM 10	0,01–0,08
EC PM 12	0,02–0,10
EC PM 16	0,04–0,15
EC PM 20	0,04–0,16
EC PM 25	0,07–0,20
EC PM 32	0,08–0,22

Drilling

Feed and max. hole depth



EcoCut ProfileMaster Size	1,5xD	
	f in mm/rev.	Max. hole depth in mm
EC PM 10	0,01–0,05	15,0
EC PM 12	0,01–0,06	18,0
EC PM 16	0,02–0,09	24,0
EC PM 20	0,03–0,10	30,0
EC PM 25	0,04–0,12	37,5
EC PM 32	0,04–0,14	48,0

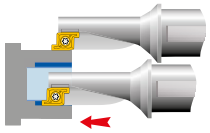
EcoCut ProfileMaster Size	2,25xD	
	f in mm/rev.	Max. hole depth in mm
EC PM 10	0,01–0,05	22,5
EC PM 12	0,01–0,06	27,0
EC PM 16	0,02–0,09	36,0
EC PM 20	0,03–0,10	45,0
EC PM 25	0,04–0,12	56,3
EC PM 32	0,04–0,14	72,0

Depth of Cut and Feedrate for EcoCut ProfileMaster 0°

EcoCut ProfileMaster Sizes 10 and 12 can not be used as 0° version.

Turning

1,5xD



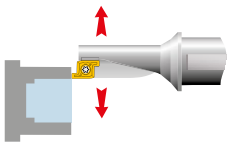
EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 16	0,04–0,20	0,04–0,20	0,04–0,20			
EC PM 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
EC PM 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
EC PM 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 16	0,04–0,20	0,04–0,20	0,04–0,20			
EC PM 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
EC PM 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
EC PM 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28

Face turning

1,5xD

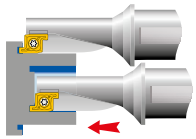


EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20				
EC PM 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20				
EC PM 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

Axial grooving external + internal



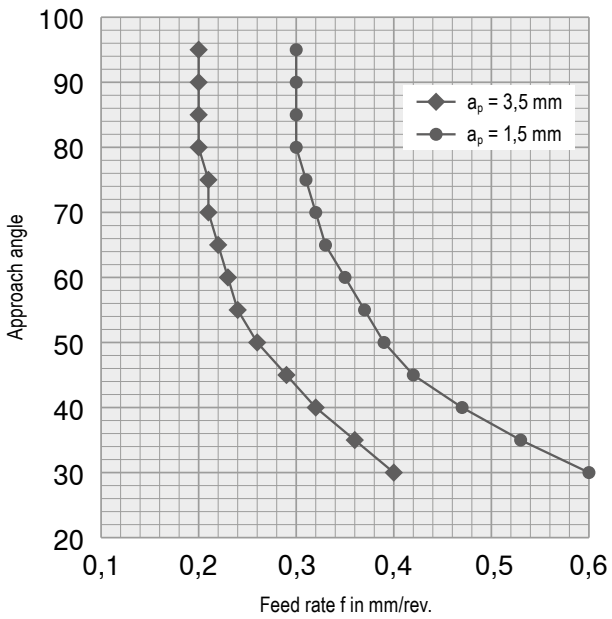
EcoCut ProfileMaster Size	1,5xD
	Feed rate f in mm/rev.
EC PM 16	0,02–0,12
EC PM 20	0,04–0,14
EC PM 25	0,06–0,18
EC PM 32	0,08–0,20

EcoCut ProfileMaster Size	2,25xD
	Feed rate f in mm/rev.
EC PM 16	0,02–0,12
EC PM 20	0,04–0,14
EC PM 25	0,06–0,18
EC PM 32	0,08–0,20

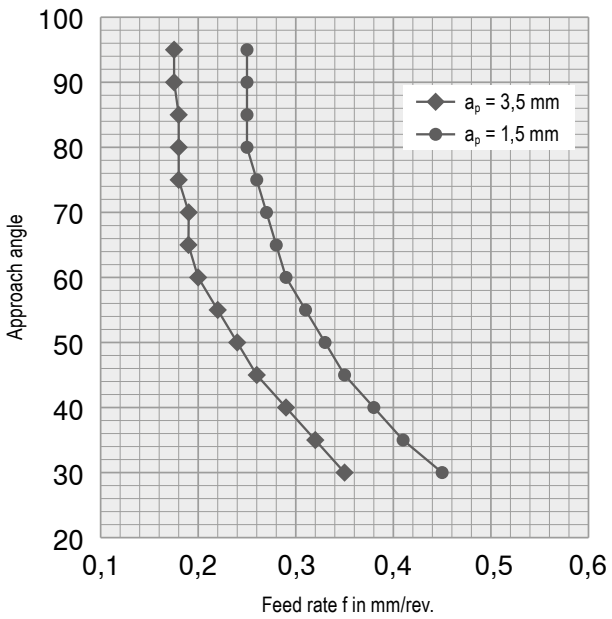
Initial curves for FreeTurn

	Material				Inserts		v_c in m/min	Cooling
Steel	1.7225	42CrMo4	1010 N/mm²	P.2.3	FT1x M 80xxxxR08 -M	CTCP125	200	Emulsion
Stainless steel	1.4301	X5CrNi18-10	610 N/mm²	M.1.1	FT1x M 80xxxxR08 -M	CTPM125	140	Emulsion
Non-ferrous metals	3.2341	G-AlSi 5 Mg	200 N/mm²	N2.2	FT1x G 35xxxxR08-28P	H210T	1100	Emulsion

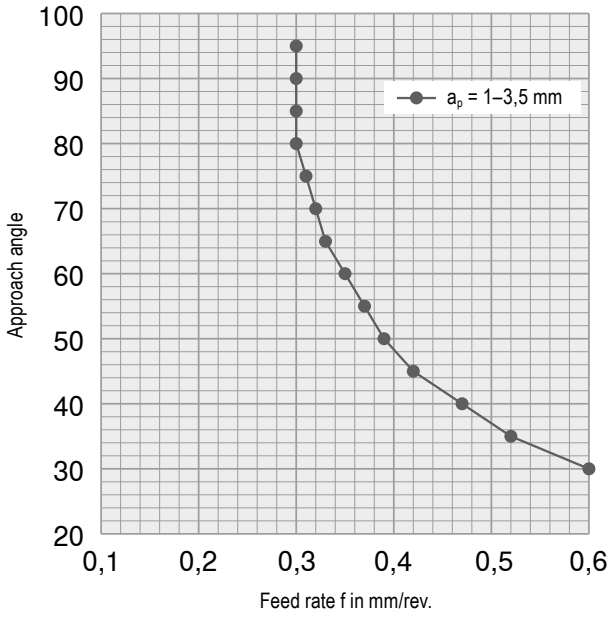
Steel



Stainless steel

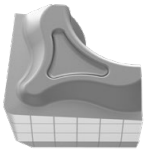
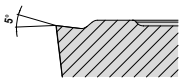
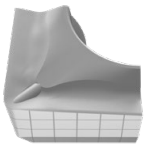
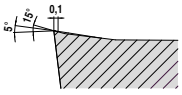
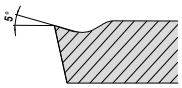
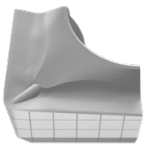
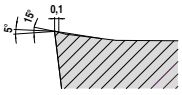


Non-ferrous metals

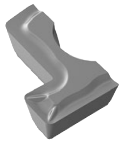
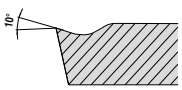


Chip Breakers Overview

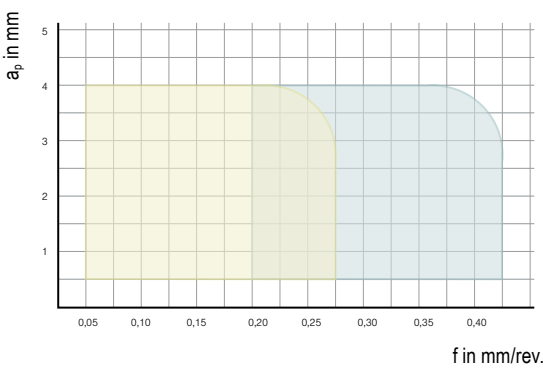
EcoCut Classic

	Model	Smooth cut ○	Irregular cutting depth ◔	Interrupted cut ◌	Sectional illustration f mm
-EN ▲ Universal geometry ▲ Excellent chip breakage ▲ Positive cutting edge ▲ Low to medium feeds		**CTCP425-P** **CTCP425-P / CTPP430** CTCP425-P CTPP430 CTCP435-P / CTPP430 CTCP435-P / CTPP430	**CTCP435-P / CTPP430** **CTPP430** CTCP435-P / CTPP430 CTPP430 CTCP435-P / CTPP430 CTCP435-P / CTPP430	**CTPP430 / CTCP435-P** **CTPP430** CTCP435-P CTPP430 CTCP435-P CTCP435-P	 0,05–0,275
-M50Q ▲ With wiper geometry ▲ Excellent surface qualities ▲ Good chip formation ▲ Medium to high feeds		**CTCP425-P** CTCP425-P CTCP425-P	**CTCP425-P** CTCP425-P		 0,2–0,425
-27P ▲ Positive cutting edge ▲ Periphery ground ▲ Polished rake face ▲ First choice for non-ferrous metals		**H216T** **H216T** H216T H216T	**H216T** **H216T** H216T H216T	**H216T** **H216T** 	 0,1–0,4
-27Q ▲ With wiper geometry ▲ Extremely positive geometry ▲ Periphery ground ▲ Low adhesion		H210T **H210T** **H210T** H210T	H210T **H210T** **H210T** H210T		 0,2–0,5

EcoCut ProfileMaster

	Model				
-M20 ▲ Positive geometry ▲ Universal application ▲ Low to medium feeds		**CTPP430** **CTPP430** CTPP430 CTPP430 **CTPP430** CTPP430	**CTPP430** **CTPP430** CTPP430 CTPP430 **CTPP430** CTPP430	**CTPP40** **CTPP430** CTPP430 CTPP430 CTPP430	 0,05–0,25

Application area of -EN and -M50Q chip breakers



EcoCut Classic 2.25xD – ECC16 – XCNT 080304

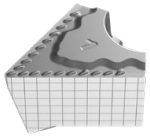
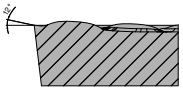
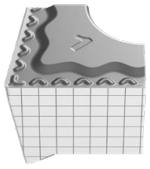
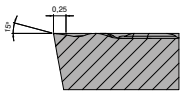
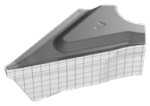
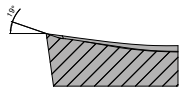
= -M50Q

= Standard

10

Chip Breakers Overview

FreeTurn

	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration
					f mm
-F ▲ Traditional finishing geometry ▲ High surface quality ▲ First choice for finishing steel		**CTCP125** CTCP125 	**CTCP125** CTCP125 	 	 0–6
-M ▲ Average to rough machining ▲ Aggressive chip breaker		CTPM125 **CTPM125** 	CTPM125 **CTPM125** 	 	 0–6
-28P ▲ Traditional finishing geometry ▲ Sharp cutting edge ▲ First choice for aluminium		 H216T **H216T** H216T H216T	 H216T **H216T** H216T H216T	 H216T **H216T** 	 0–1,8

EcoCut Classic – Application as the most stable boring tool

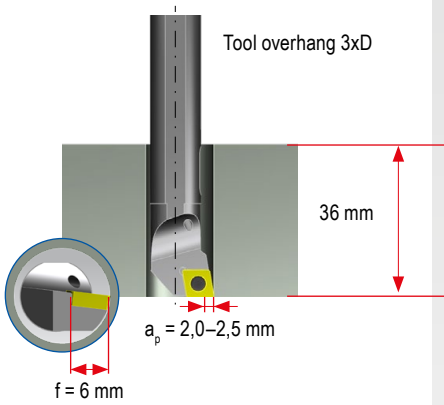
EcoCut can be used not only as a multifunctional tool. In comparison with a boring bar EcoCut used as a pure boring tool gives the user enormous benefits.

Example: machining bores, 16 mm diameter by 36 mm depth

Differences in the tool

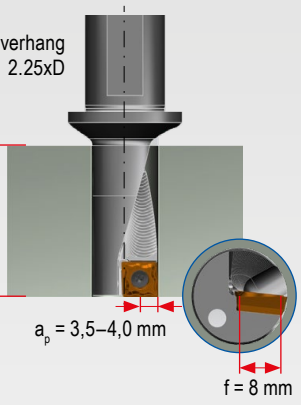
Boring Bar

A12K SCFCR 06



EcoCut Classic

ECC 16R-2.25D 08



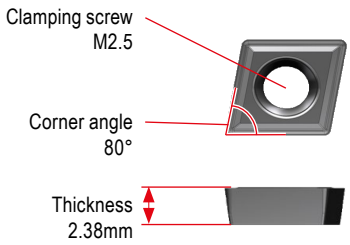
Your Advantages

Large, stable toolholder
- Absorption of high cutting forces
- Low vibration
- Chip Booster for perfect cooling and chip evacuation

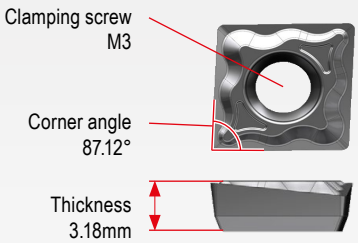
Benefits
- High surface quality
- Perfect chip control
- Max. process security

Differences in the insert

CCMT 060204



XCNT 080304

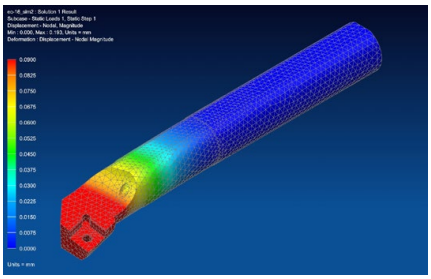


Large and stable insert
- Increased process security
- Enables large depths of cut
- Higher cutting data
- Higher tool life

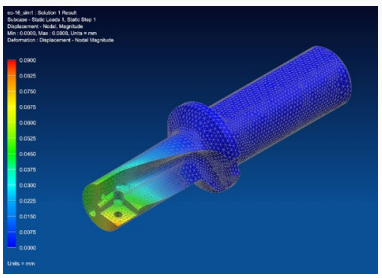
Benefits
- Reduction in machining time
- Increased productivity
- Reduced tooling costs

Stability Comparison

Calculation using FEM
A load of 1000 N on the insert seat corresponds to an approx. a_p of 2.0 mm and f 0.2 mm



Deflection 0.19mm

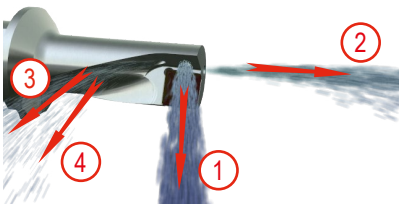


Deflection 0.08mm

Practical experience shows:

- Reduced machining time by up to **75 %**
- Increase in tool life by **400 %** possible

Innovative chip removal – Chip-Booster



EcoCut tools are equipped with a unique coolant and chip removal system.

1. Cooling of the indexable insert
2. General coolant stream
3. Chip booster for improved chip transport
4. Chip booster prevents chips from getting stuck between tool and workpiece

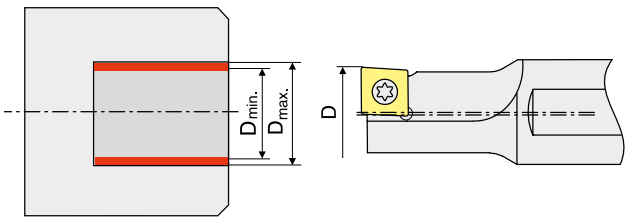
For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

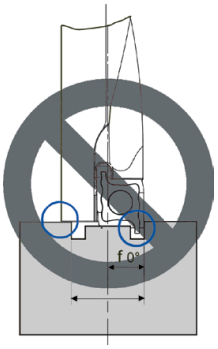
10

Application Tips

Drilling Off centre

Due to the special construction of the EcoCut tool and insert, off-centre drilling is possible.
Deviations from the tool nominal Ø, can be achieved (see adjacent table).





ProfileMaster 0°
Not suitable for drilling!

EcoCut Mini	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECM 02 L/R - ...D	2	1,95	2,1
ECM 02,5 L/R - ...D	2,5	2,45	2,6
ECM 03 L/R - ...D	3	2,95	3,15
ECM 03,5 L/R - ...D	3,5	3,45	3,65
ECM 04 R/L - ...D	4	3,90	4,20
ECM 05 R/L - ...D	5	4,90	5,20
ECM 06 R/L - ...D	6	5,90	6,20
ECM 07 R/L - ...D	7	6,90	7,20
ECM 08 R/L - ...D	8	7,90	8,20

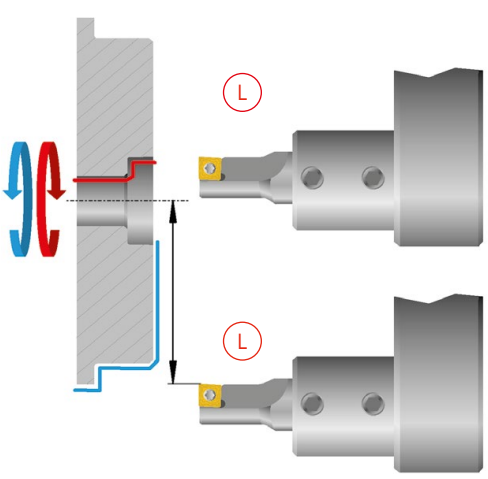
EcoCut Classic	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECC 08 R/L - ... 04	8	7,85	8,30
ECC 10 R/L - ... 05	10	9,85	10,50
ECC 12 R/L - ... 06	12	11,85	12,50
ECC 14 R/L - ... 07	14	13,85	14,50
ECC 16 R/L - ... 08	16	15,85	16,50
ECC 18 R/L - ... 09	18	17,85	18,50
ECC 20 R/L - ... 10	20	19,80	20,50
ECC 25 R/L - ... 13	25	24,80	25,80
ECC 32 R/L - ... 17	32	31,80	33,00

EcoCut ProfileMaster	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
PM 10R/L ...	10	9,85	12
PM 12R/L ...	12	11,85	15
PM 16R/L ...	16	15,85	19
PM 20R/L ...	20	19,80	24
PM 25R/L ...	25	24,80	29
PM 32R/L ...	32	31,80	38

Machining over centre

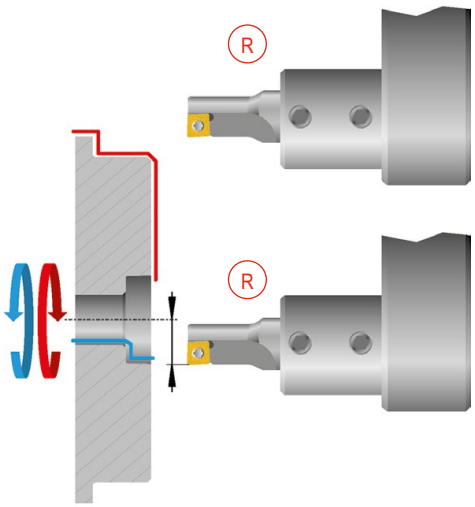
Problem

In case of insufficient movement of the machine across the centre line, the external diameter can not be machined with the same tool.



Solution

Use a right hand EcoCut tool.

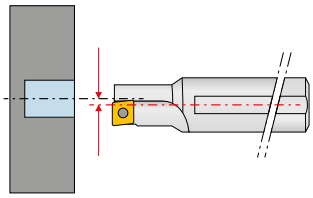


Application Tips

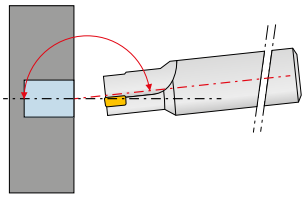
With axial displacement there is the danger of collision!

Problems

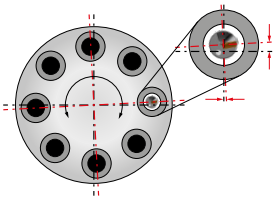
Displacement in x-direction:



Angular error:



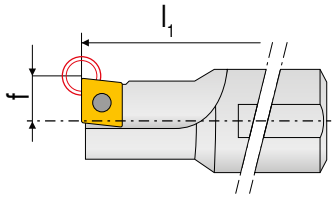
Turret position error:



Remedy

When pre-setting the tool:

▲ Definition as an internal turning tool for programming

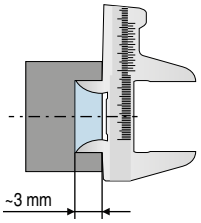


▲ Enter the tool nominal Ø as bore target Ø

At the machine:

▲ Make measuring cut, approx. 3 mm deep

▲ Measure drilled diameter produced

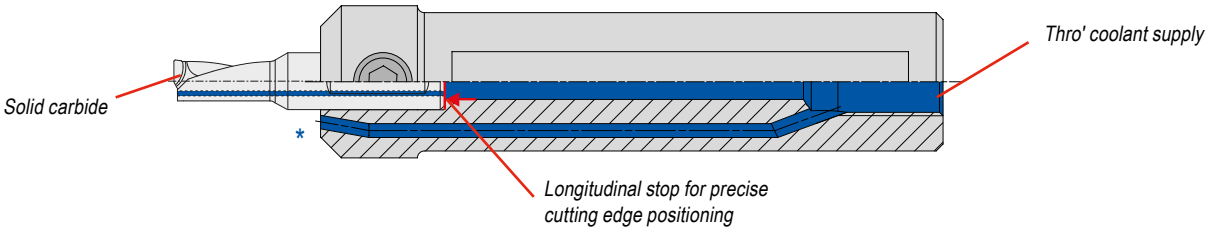


▲ If necessary correct drilling Ø

▲ Start machining

10

EcoCut Mini adapter – Design



* Cross-section rotated by 90° for clarity

Mounting of the insert for EcoCut Classic

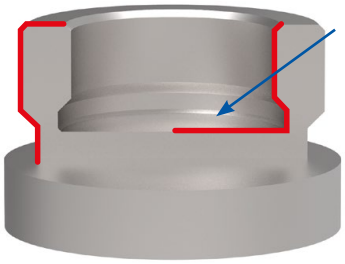
For tools up to Ø 8 mm right and left handed inserts are required.
From Ø 10-32 mm neutral inserts are used.

Note!
Ensure correct installation position.





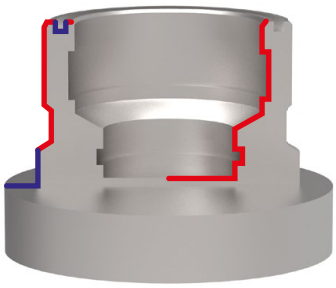
EcoCut ProfileMaster – the highlight with regard to efficiency



Right hand tool



right hand insert



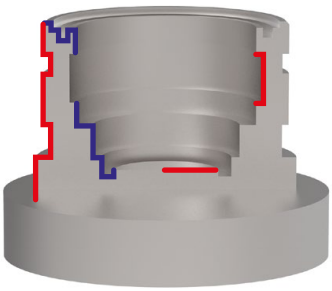
Right hand tool



left hand insert



right hand insert



Left hand tool

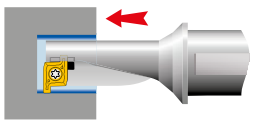


Right hand tool



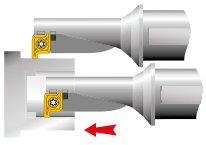
right hand insert

Version 90°



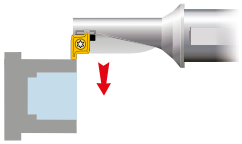
Drilling into solid material with flat bottom hole

Boring

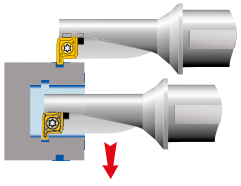


Turning External Diameters

Turning Internal Diameters



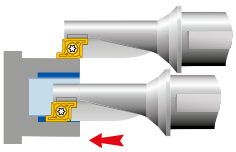
Turning Profiles



External radial grooving

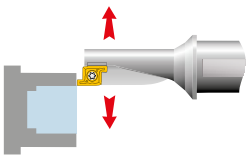
Internal radial grooving

Version 0°



Turning External Diameters

Turning Internal Diameters



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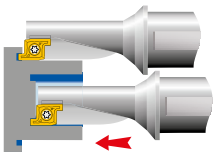


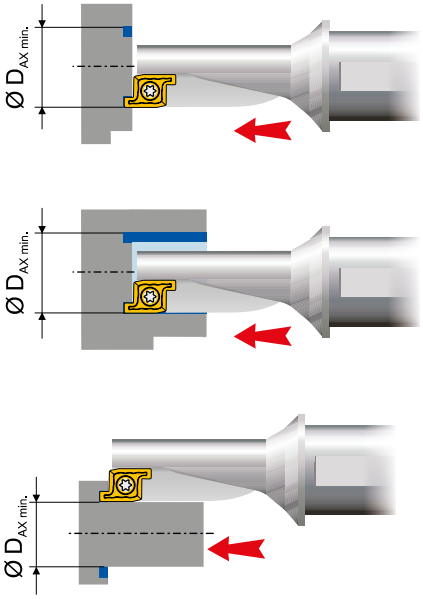
Axial grooving external

Axial grooving internal

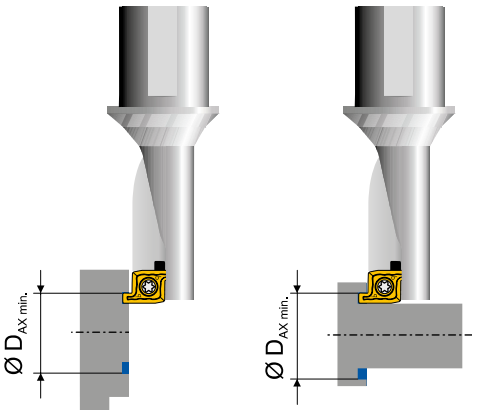
For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

EcoCut ProfileMaster – Axial Grooving

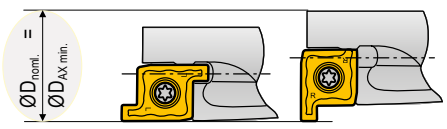
0° (from Ø 16 mm)



90°



EcoCut ProfileMaster	$ØD_{noml.}$ mm	$ØD_{AX\ min.}$ mm	$ØD_{AX\ max.}$ mm
PM 10R/L 1,5D	10	10	> 10
PM 10R/L 2,25D	10	10	> 10
PM 12R/L 1,5D	12	12	> 12
PM 12R/L 2,25D	12	12	> 12
PM 16R/L 1,5D	16	16	> 16
PM 16R/L 2,25D	16	16	> 16
PM 20R/L 1,5D	20	20	> 20
PM 20R/L 2,25D	20	20	> 20
PM 25R/L 1,5D	25	25	> 25
PM 25R/L 2,25D	25	25	> 25
PM 32R/L 1,5D	32	32	> 32
PM 32R/L 2,25D	32	32	> 32

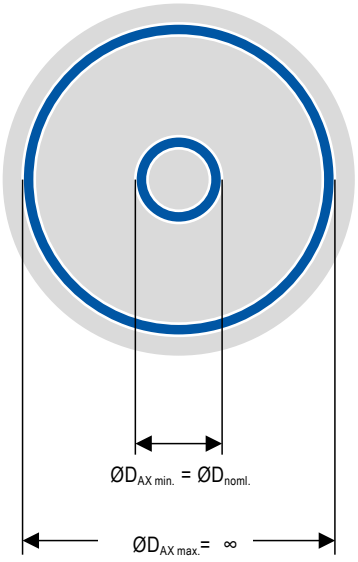


$ØD_{noml.}$ = Nominal tool diameter

$ØD_{AX\ min.}$ = smallest diameter for axial grooving

$ØD_{AX\ max.}$ = largest diameter for axial grooving

$ØD_{AX\ min.} = ØD_{noml.}$



10

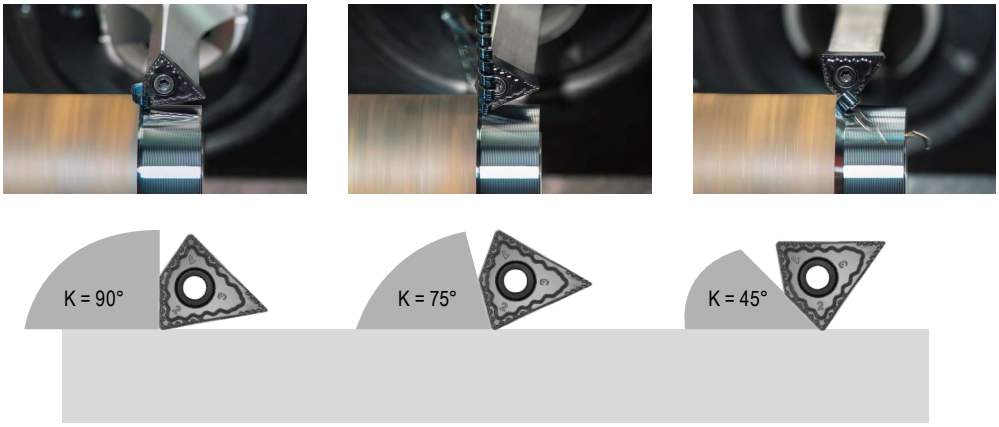
Application Tips

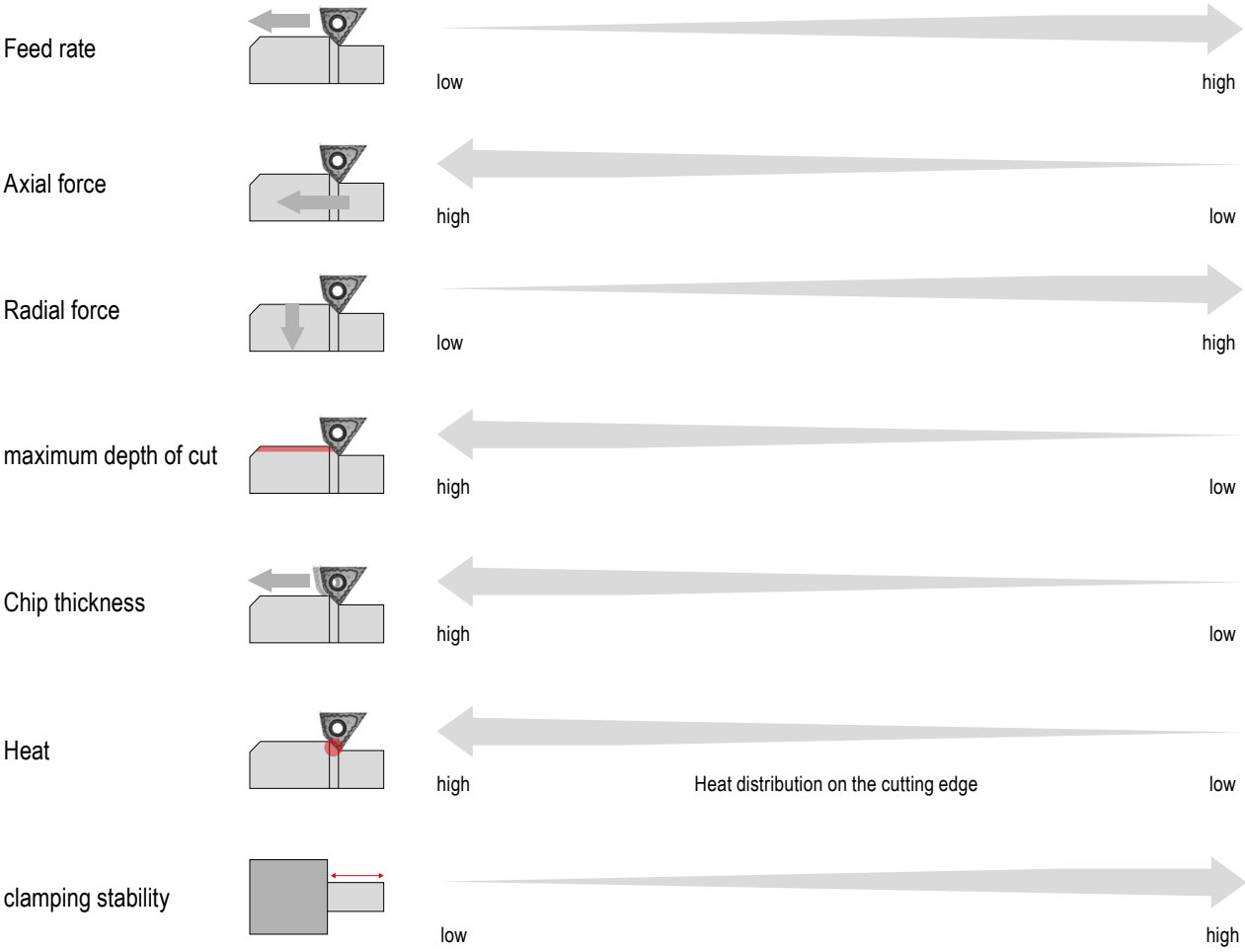
Recommendation for Optimum Results

Type of problem										
Type of wear				Work piece problems		Swarf control				
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)	Remedy measures		
	↑	↓	↓	↓	↑	↓		Cutting data	Cutting speed	
↓		~	↓	↑	↓	↑	↓		Feed rate	
↑		↑	↑	↓	↑			Insert selection	Corner radius	larger ↑ ↓ smaller
↓		↑	↑						Tool Material	Wear resistance ↑ ↓ toughness
~				~	~			General criteria	Tool clamping	
~				~	~				Work piece clamping	
~				~	↓				Overhang	
~		~		~	~				Tip height	
	●	●	●		●	●			Cooling lubricant	

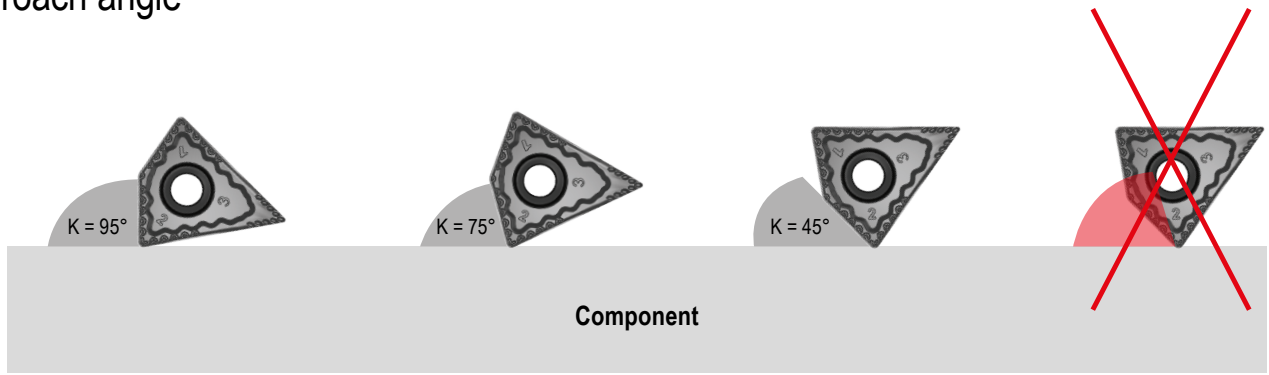
↑ raise, increase large influence
↑ raise, increase small influence
↓ avoid, reduce large influence
↓ avoid, reduce small influence
~ control, optimize
● use

Factors influencing the selection of the correct cutting angle





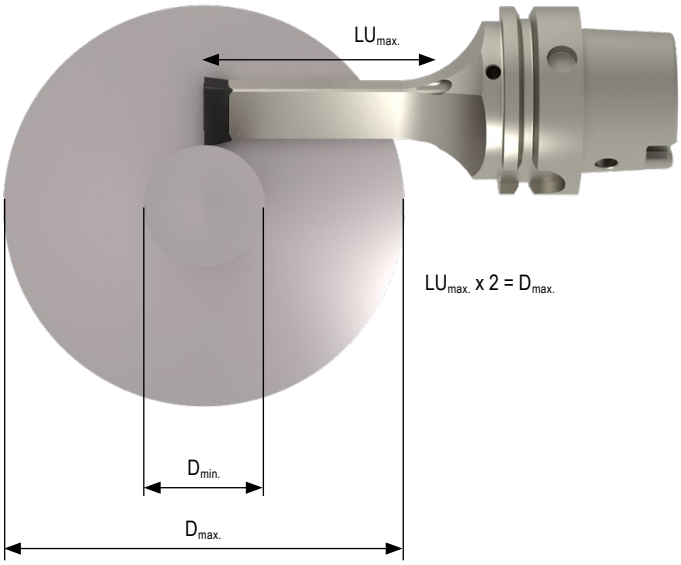
Approach angle



The approach angle always works from the edge of the component to the main cutting edge (tool).

Tool / workpiece length ratio

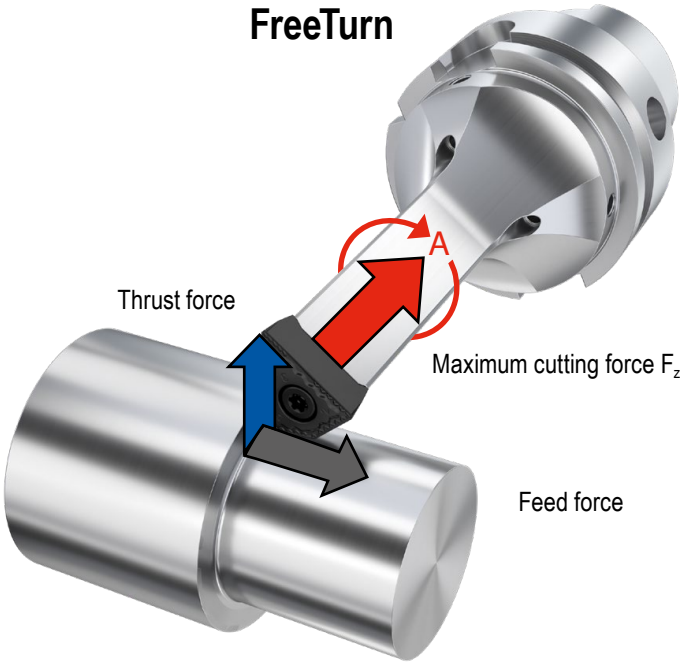


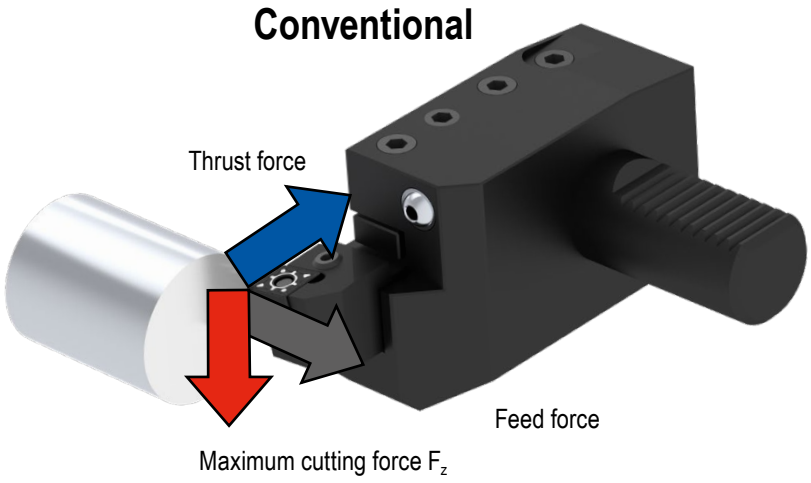


This table shows the diameter ranges you can work in with the different tool lengths.

Tool	$D_{max.}$ in mm	200	190	180	170	160	150	140	130	120	110	100	90	80
PSC-63-**100**-FT 808055	$D_{min.}$ in mm					127	115	102	88	73	56	34	0	0
PSC-63-**125**-FT 808055	$D_{min.}$ in mm	138	125	110	90	70	42	0	0	0	0	0	0	0

Force data from the process





Practical test	
Steel machining shaft Ø 60 mm 1.7227 / 42CrMoS4 R_m 850 Nm	Cutting data: v_c = 175 m/min. f = 0.3 mm/rev. a_p = 3.0 mm K = 95°

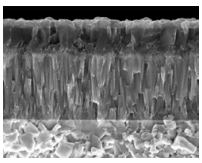
FreeTurn		Conventional
2136 N	F XYZ	2206 N
920 N	F XY (feed force)	2143 N
1928 N	Maximum cutting force F_z	526 N

10

Grade description

EcoCut Classic

CTCP425-P

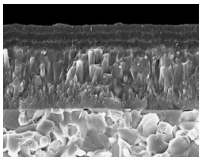


ISO **P25** | M20 | K30

Specification:
Composition: Co 7.0%; mixed carbides 8.1%; WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1470 |
Coating specification: CVD Ti(CN) + Al_2O_3 multi-layer

Recommended application:
The wear-resistant solution for steel and cast iron under stable conditions and with high cutting speed

CTCP435-P

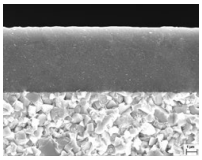


ISO **P35** | M30 | K40 | S25

Specification:
Composition: Co 9.6%; mixed carbides 7.8%; others 0.4%; WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1400 |
Coating specification: CVD Ti(C,N) + Al_2O_3 multi-layer

Recommended application:
The reliable choice when machining steel and cast iron under unstable conditions.

CTPP430

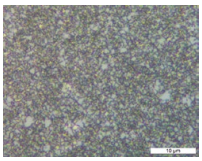


ISO | **P30** | **M25** | K30 | N25 | S25 | O25

Specification:
Composition: Co 9.0%; others 0.75%; WC balance | Grain size: 0.85 µm | Hardness: HV_{30} 1590 | Coating specification: PVD TiAlN

Recommended application:
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

H210T

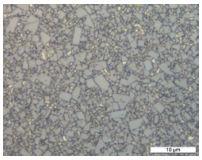


ISO | K10 | **N10** | **S10** | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV_{30} 1850

Recommended application:
The wear-resistant uncoated carbide grade for the machining of aluminium and other non-ferrous metals.

H216T



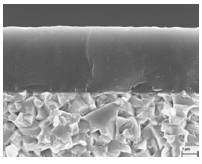
ISO | K15 | **N15** | S15 | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

EcoCut Mini

CTPP435

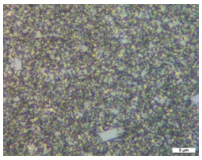


ISO **P35** | **M30** | K30 | N30 | **S30** | O30

Specification:
Composition: Co 10.3%; others 1.2%; WC balance | Grain size: 0.7 µm | Hardness: HV_{30} 1600 | Coating specification: PVD TiN / TiAlN

Recommended application:
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

CTWN425



ISO K20 | **N25** | S25 | O25

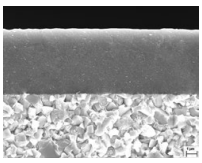
Specification:
Composition: Co 10.3%; others 1.2%; WC balance | Grain size: 0.7 µm (submicron grade) | Hardness: HV_{30} 1600

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals.

Grade description

EcoCut ProfileMaster

CTPP430



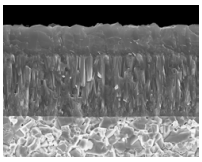
ISO | **P30** | **M25** | K30 | N25 | S25 | O25

Specification:
Composition: Co 9.0%; others 0.75%; WC balance | Grain size: 0.85 µm | Hardness: HV_{30} 1590 | Coating specification: PVD TiAlN

Recommended application:
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

FreeTurn

CTCP125

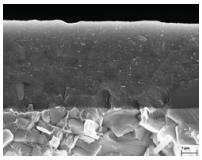


ISO | **P25** | K25

Specification:
Composition: Co 7.0%; mixed carbides 8.0%; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1450 |
Coating specification: CVD TiCN-Al_2O_3

Recommended application:
The first choice for the universal machining of steel

CTPM125

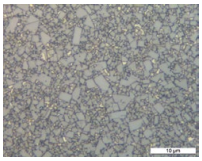


ISO | P35 | **M25**

Specification:
Composition: Co 9.6%; mixed carbides 7.8%; others 0.4%; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1460 |
Coating specification: PVD TiAlTaN

Recommended application:
The first choice for the machining of austenitic steels

H216T



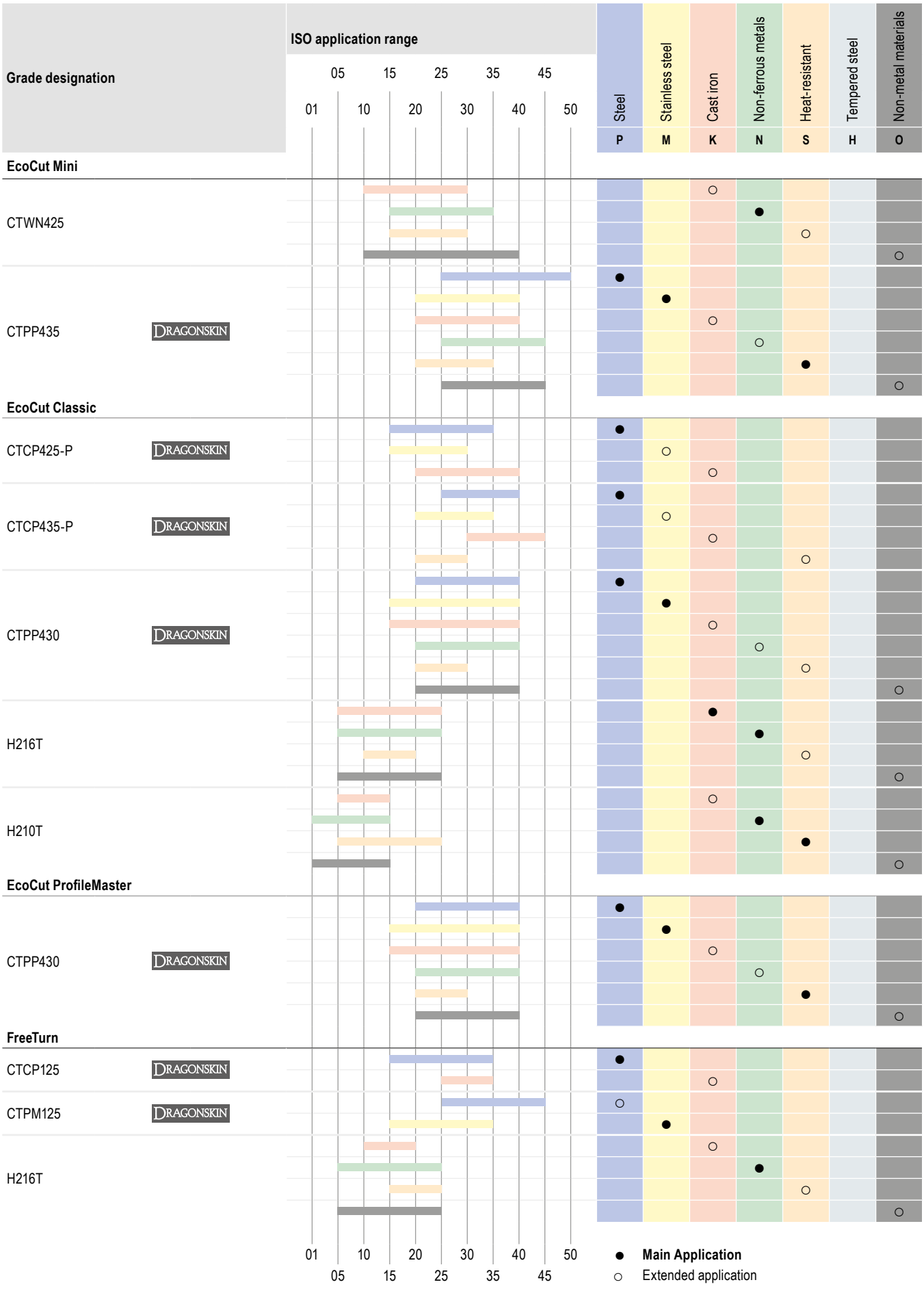
ISO | K15 | **N15** | S15 | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

10

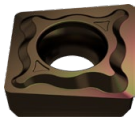
Application



Designation System

EcoCut – indexable insert designation

X	C	E	T		17	05	08	F	N	-	27P
1	2	3	4		5	6	7	8	9		10



1 Insert shape
2 Clearance angle
3 Tolerances
4 Characteristics
5 Cutting length
6 Insert thickness
7 Corner radius
8 Cutting edge
9 Direction of cut
10 Chip groove

EcoCut – holder designation

ECC	32	R	-	3.0D	17	H
1	2	3		4	5	6

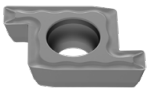


1 System
2 Nominal diameter in mm
3 Direction of cut
4 maximum hole depth
5 insert size
6 Tool holder version in Densimet

10

EcoCut ProfileMaster – indexable insert designation

PM	25	R	G	35	30	04	-	M20
1	2	3	4	5	6	7		8



1 ProfileMaster
2 Nominal diameter in mm
3 Direction of cut
4 Version
5 Groove width in mm/10
6 Groove depth in mm/10
7 Corner radius
8 Chip groove

EcoCut ProfileMaster – holder designation

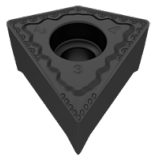
PMC	25	R	-	2.25D
1	2	3		4



1 ProfileMaster
2 Nominal diameter in mm
3 Direction of cut
4 maximum hole depth

Designation System

FreeTurn – indexable insert designation



FT15	M/G	808055	R	080804	Q	MMF	CTCP125
1	2	3	4	5	6	7	8	9	10	11	12

1. FreeTurn
2. Nominal diameter in mm
3. ISO tolerance (M = sintered, G = polished)
4. Cutter angle 1 in degrees
5. Cutter angle 2 in degrees
6. Cutter angle 3 in degrees
7. Corner radius 1 in mm
8. Corner radius 2 in mm
9. Corner radius 3 in mm
10. Wiper geometry
11. Chip breaker (M = medium, F = fine)
12. Carbide Grade

FreeTurn – holder designation



HSK	-	T63	-	100	-	FT15	808055
1	2	3	4	5	6	7	8

1. System
2. Size
3. Overhang length
4. FreeTurn
5. Nominal diameter in mm
6. Cutter angle 1 in degrees
7. Cutter angle 2 in degrees
8. Cutter angle 3 in degrees



New products for machining technicians

NEW -M7



The new M7 geometry is designed for grooving and parting off.
With medium-high feed rates, its best performance is achieved in steel.

→ Page 18

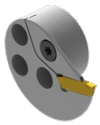
NEW -M8

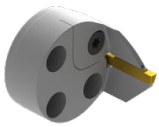


The ground M8 geometry will become the first choice for the machining of stainless steel. This geometry can only be used for grooving and parting off.

→ Page 19

NEW **MaxiChange** – Exchangeable head system





As the MaxiChange exchangeable head system is modular, it is extremely flexible and can be used for a variety of applications thanks to the wide selection of exchangeable heads. On top of these advantages, the MaxiChange GX also includes a grooving function for internal and external machining as well as axial and radial machining.

For radial grooving GX 16 → Page 51
For axial grooving GX 24 → Page 70



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools 11

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Advantages of the trochoidal turning strategy	99
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CERATIZIT \ Performance

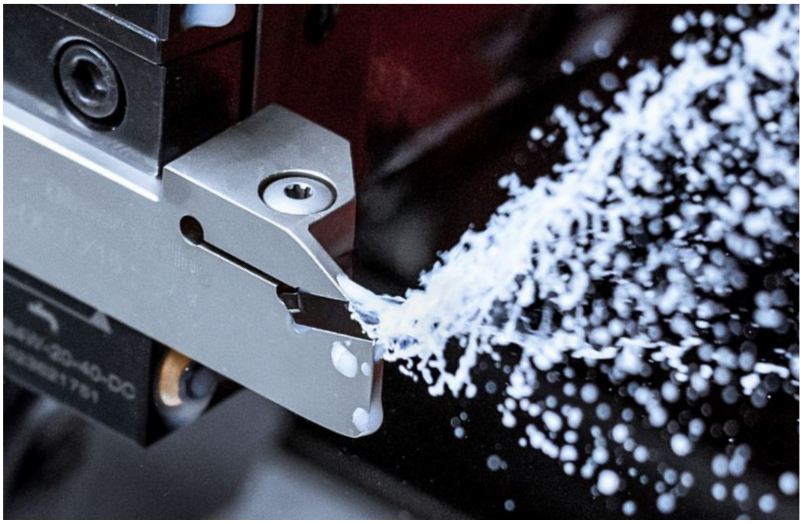
Premium quality tools for high performance.

The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Advantages due to DirectCooling

Direct Cooling

- ▲ Improved chip control
- ▲ Longer service life of the indexable insert
- ▲ Greater process security
- ▲ Application of higher cutting data
- ▲ Reduced wear
- ▲ Universal application



cutting.tools/gb/en/direct-cooling

Symbol explanation

 Grooving

 Parting

 Grooving and Turning

 Copy Turning

 Axial Grooving and Turning

 Circlip Grooves

 Internal machining

 Internal thread

 External thread

F Fine Machining

M Medium Machining

R Rough Machining

 Main Application / Extended application



DirectCooling

 Int. coolant supply

 Repeatability

-F2 CTPP345 Chip groove / Carbide Grade

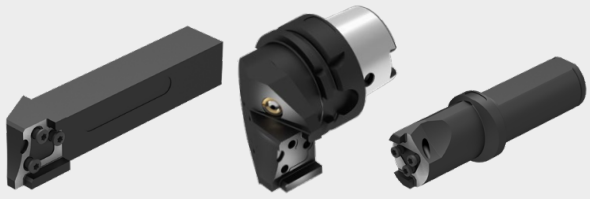
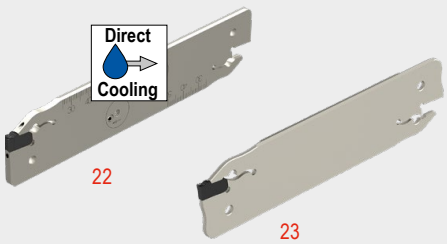
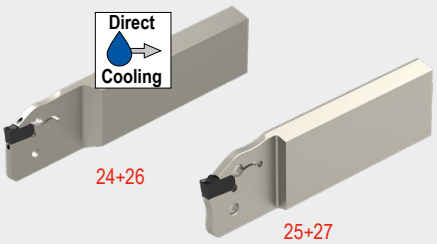
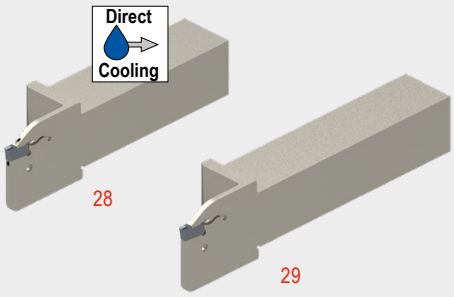
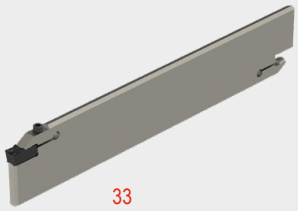
 Smooth cut / Irregular cutting depth / Interrupted cut

System overview

No. of cutting edges	System	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Internal machining	External machining CW (mm)	External machining CDX max. (mm)	Internal machining DMIN (mm)	Internal machining CDX max. (mm)	Axial machining DAXN (mm)	Axial machining CDX max. (mm)	Page No.
1	SX	●	●	●	●				2–6	60					14–29
	LX	●	●	●	●	●			8–10	80	200	34	500	39	30–33
2	GX 09	●	●	●	●		●	●	2–3,5	7	16	6			34–51
	GX 16	●	●	●	●		●	●	2–6	12	20,5	11			34–51
	GX 24	●	●	●	●	●		●	2–6	21	42	19	45	25	52–70
3	TX	●	●	●	●	●	●	●	0,5–5,15	8	46	2	20	3	71–79

11

Toolfinder

System	ModularClamp	MonoClamp
	 0° / 90° 80+81 · 0° 82 · 1,5xD / 2,5xD 83	 84–86 · → Chapter 16
SX	  21	  Direct Cooling 22 · 23
		  Direct Cooling 24+26 · 25+27
		  Direct Cooling 28 · 29
LX	  32	  33

System		Chip groove	Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Fine Machining F	Medium Machining M	Rough Machining R	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Page No.
SX		-F2	2–4										●	●	●	○	●		○	14
		-M1	2–6										●	●	●	○	●		○	15
		-M2	2–6										●	●	●	○	●		○	16
		-M3	CRE 1,5–3,0										●	●	●	○	●		○	17
		NEW -M7	2–6										●	●	●	○	●		○	18
		NEW -M8	2–6										●	●	●	○	●		○	19
		-27P	2–4												●	●	○		○	20
LX		-M2	8–10										●	●	●	○	●		○	30
		-M3	CRE 4,0										●	●	●	○	●		○	31

11

Toolfinder

System

ModularClamp



0° / 90°
80+81

0°
82

1,5xD / 2,5xD
83

MonoClamp



→ Chapter 16

GX 09





42



43



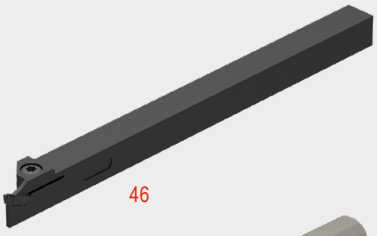


44



45





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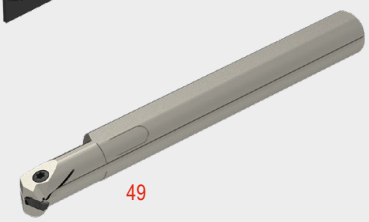


49

GX 16





42



43



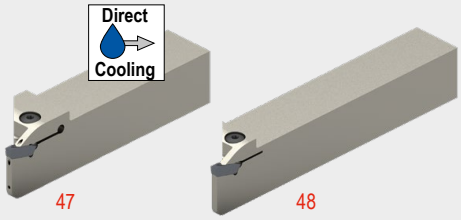


44



45





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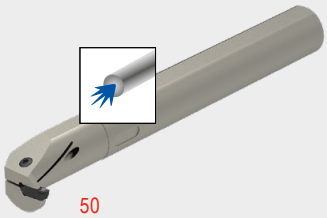
48





50

MaxiChange

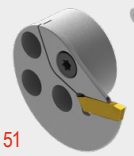
→ Page 12+13
Here you will find a detailed system overview.





NEW





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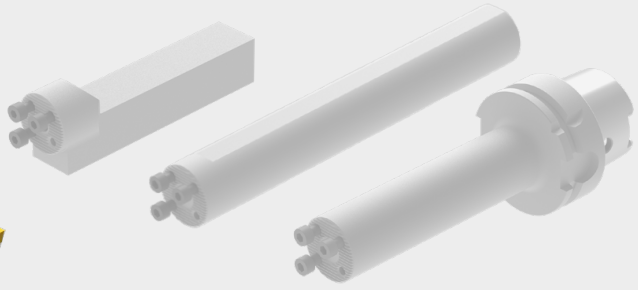
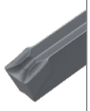
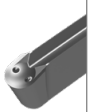


→ Chapter 9 – Turning Tools
Here you will find the suitable base adaptors.

System		Chip groove	Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Fine Machining F	Medium Machining M	Rough Machining R	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Page No.
GX 09 GX 16		-F2	2–5										●	●	●	○	●		○	34
		Standard	2–6										●	●	●	○	●		○	35
		-M40	2–6										●	●	●	○	●		○	36
		Standard	CRE 0,8–3,0										●	●	●	○	●		○	40
		Standard	1–4,25										●	●	●	○	●		○	39
GX 16		-M1	2–4										●	●	●	○	●		○	37
		-27P	2–6												●	●	○		○	38
		-27P	CRE 1,5–2,5												●	●	○		○	41

11

Toolfinder

System

ModularClamp



0° / 90°
80+81

0°
82

1,5xD / 2,5xD
83

MonoClamp

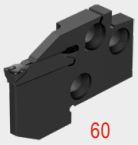


85+86

→ Chapter 16

GX 24





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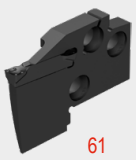


61



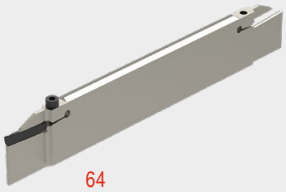
62





63

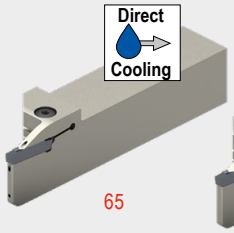




64



Direct Cooling



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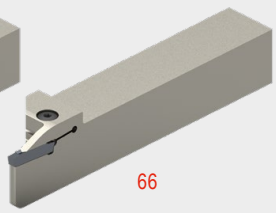

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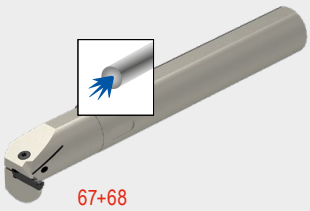
69





67+68

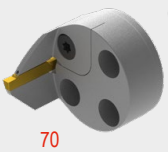
MaxiChange

→ Page 12+13
Here you will find a detailed system overview.



NEW





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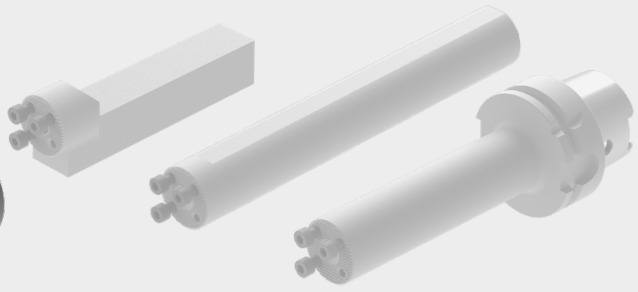
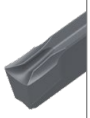
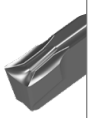


→ Chapter 9 – Turning Tools
Here you will find the suitable base adaptors.

System		Chip groove	Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Fine Machining F	Medium Machining M	Rough Machining R	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Page No.
GX 24		-F2	3–6										●	●	●	○	●		○	52
		-E	3–6										●	●	●	○	●		○	53
		-M1	2–4										●	●	●	○	●		○	54
		-M40	3–6										●	●	●	○	●		○	55
		-M3	CRE 1,5–3,0										●	○	●		○			56
		-M33	CRE 1,5–3,0										●	○	●		○			57
		-27P	3–6												●	●	○		○	58
		-27PF	CRE 3–4												●	●	○		○	59

11

Toolfinder

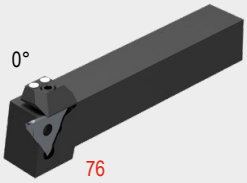
System

MonoClamp



→ Chapter 16

TX



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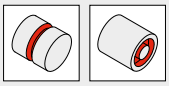

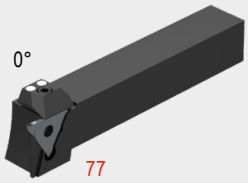

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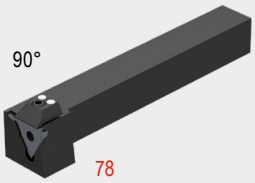


78





79



System overview

MaxiChange

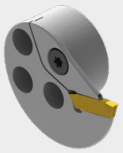
Exchangeable heads

For radial grooving

NEW

GX 16

51

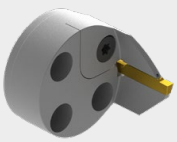


For axial grooving

NEW

GX 24

70



→ **Chapter 9 – Turning Tools**

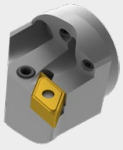
Exchangeable heads

For negative inserts

PCLN 95°



PDUN 93°



PDQN 107,5°

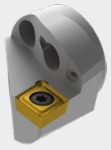


PWLN 95°

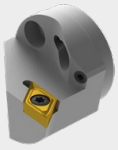


For positive inserts

SCLC 95°



SDUC 93°



SDQC 107,5°



SVPC 117,5°



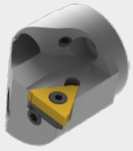
SVUC 93°



SVQC 107,5°



For internal thread



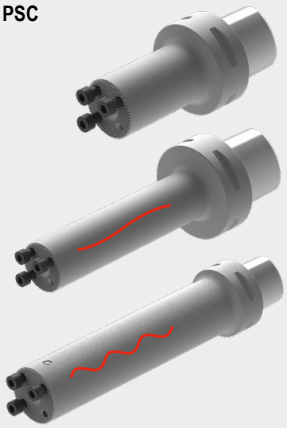
System		Chip groove	Groove width	Grooving	Parting	Grooving and Turning	Copy Turning	Axial Grooving and Turning	Circlip Grooves	Fine Machining F	Medium Machining M	Rough Machining R	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Page No.
TX			1,99–2,79										●	●	●	●	●	○	●	71
			0,57–5,29										●	●	●	●	●	○	●	72
			CRE 0,25–2,5										●	●	●	●	●	○	●	73
			1,5–4,0										●	●	●	●	●	○	●	74
			1,5–3,0										●	●	●	●	●	○	●	75

MaxiChange

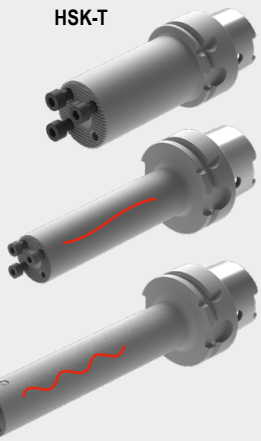
→ **Chapter 9 – Turning Tools**

Tool holder

PSC



HSK-T

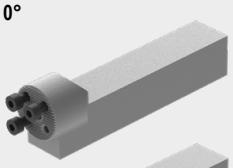


Vibration damped

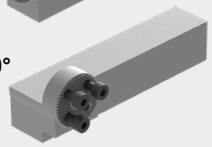
Actively vibration-damped

Square shank holder

0°



90°



Cylindrical shank



Actively vibration-damped

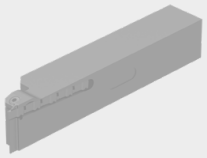
→ **cuttingtools.ceratizit.com**

VertiClamp

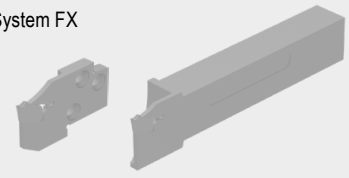
→ catalouge: sliding head



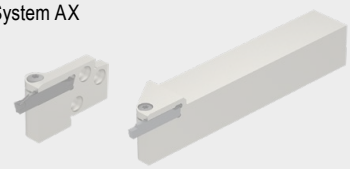
MaxiClick



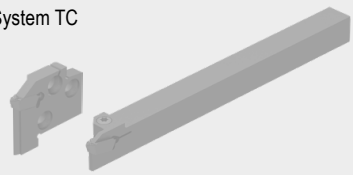
System FX



System AX



System TC



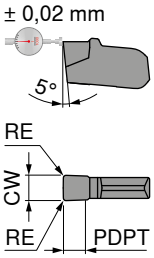
11

Insert SX

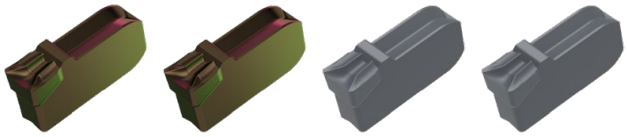
▲ High precision ground geometry



F	M	R



-F2 CTCP325	-F2 CTCP335	-F2 CTPP345	-F2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 346 ... £ 1C/72		70 346 ... £ 1C/72		70 346 ... £ 1C/72		70 346 ... £ 1C/72	
SX E2.00 N 0.20	2	0.2	1.5	-SX2					21.81	**822**	22.88	**622**
SX E3.00 N 0.30	3	0.3	2.0	-SX3	23.43	**923**	23.43	**523**	23.43	**823**	24.59	**623**
SX E4.00 N 0.40	4	0.4	2.5	-SX4					24.81	**824**	26.03	**624**
P					●		●		●		●	
M					○		○		●		●	
K					●		●				●	
N											○	
S					○				○		●	
H												
O											○	

→ v_c Page 88
→ Application recommendation on page 92

Internal machining

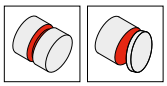
External machining



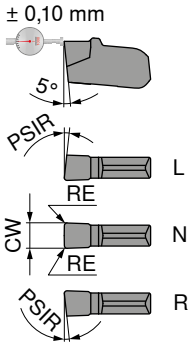
→ 21 | → 22+23 | → 24–27 | → 28+29

Insert SX

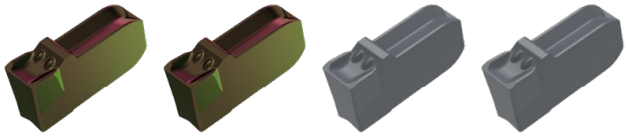
▲ Specially developed geometry with negative edge-chamfers available in right, left and neutral types



F	M	R
		



-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	IH	CW +/-0,05 mm	RE +/-0,05 mm	PSIR	for tool holder	70 342 ... £ 1C/72		70 342 ... £ 1C/72		70 342 ... £ 1C/72		70 342 ... £ 1C/72	
SX E2.00 L 6	L	2	0.2	6°	-SX2							14.62	**612**
SX E3.00 L 6	L	3	0.2	6°	-SX3	15.56	**913**					15.56	**613**
SX E4.00 L 6	L	4	0.3	6°	-SX4							16.42	**614**
SX E2.00 N 0.20	N	2	0.2		-SX2	14.62	**922**	15.79	**52200**	14.62	**822**	15.35	**622**
SX E3.00 N 0.20	N	3	0.2		-SX3	15.56	**923**	16.32	**523**	15.56	**823**	16.32	**623**
SX E4.00 N 0.30	N	4	0.3		-SX4	16.42	**924**	17.22	**524**	16.42	**824**	17.22	**624**
SX E5.00 N 0.30	N	5	0.3		-SX5	17.48	**925**	18.88	**52500**	17.48	**825**	18.33	**625**
SX E6.00 N 0.40	N	6	0.4		-SX6	18.83	**926**	20.36	**52600**	18.83	**826**	19.75	**626**
SX E2.00 R 6	R	2	0.2	6°	-SX2							14.62	**602**
SX E3.00 R 6	R	3	0.2	6°	-SX3	15.56	**903**					15.56	**603**
SX E4.00 R 6	R	4	0.3	6°	-SX4							16.42	**604**

P	●	●	●	●
M	○	○	●	●
K	●	●		●
N				○
S	○		○	●
H				
O				○

→ v_c Page 88
→ Application recommendation on page 92

11

Note: reduce feed rate by 20–50 % with R/L version!

→ **Page 100**
Here you will find further information.

Internal machining

External machining



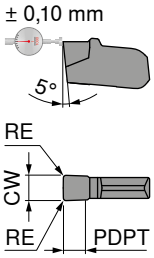
→ 21 | → 22+23 | → 24–27 | → 28+29

Insert SX

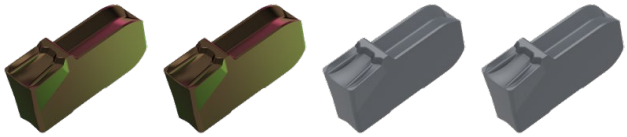
▲ All purpose geometry for parting, grooving & turning.



F	M	R



-M2 CTCP325	-M2 CTCP335	-M2 CTPP345	-M2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 343 ... £ 1C/72		70 343 ... £ 1C/72		70 343 ... £ 1C/72		70 343 ... £ 1C/72	
SX E2.00 N 0.20	2	0.2	1.5	-SX2	14.62	**922**	14.62	**522**	14.62	**822**	14.62	**622**
SX E3.00 N 0.30	3	0.3	2.0	-SX3	15.56	**923**	15.56	**523**	15.56	**823**	15.56	**623**
SX E4.00 N 0.40	4	0.4	2.5	-SX4	16.42	**924**	16.42	**524**	16.42	**824**	16.42	**624**
SX E5.00 N 0.40	5	0.4	2.7	-SX5	17.48	**925**	17.48	**525**	17.48	**825**	17.48	**625**
SX E6.00 N 0.50	6	0.5	3.0	-SX6	18.83	**926**	18.83	**526**	18.83	**826**	18.83	**626**
P						●		●		●		●
M						○		○		●		●
K						●		●				●
N												○
S						○				○		●
H												
O												○

→ v_c Page 88
→ Application recommendation on page 92

Internal machining | *External machining*



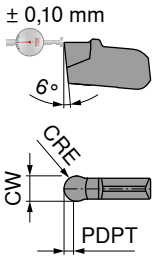
→ 21 | → 22+23 | → 24–27 | → 28+29

Radius Grooving Insert SX

▲ for grooving and copy turning
▲ very good chip control



F	M	R



-M3	-M3
CTCP335	CTP1340
DRAGONSKIN	DRAGONSKIN





Designation	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	70 344 ... £ 1C/72		70 344 ... £ 1C/72	
SX R1.50 N	3	1.5	1.5	-SX3	16.54	**531**	16.54	**631**
SX R2.00 N	4	2.0	2.0	-SX4	17.48	**532**	17.48	**632**
SX R2.50 N	5	2.5	2.5	-SX5	18.45	**533**	18.45	**633**
SX R3.00 N	6	3.0	3.0	-SX6			20.05	**634**

P	●	●
M	○	●
K	●	●
N		○
S		●
H		
O		○

→ v_c Page 88
→ Application recommendation on page 93

Internal machining | *External machining*



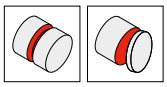



→ 21 | → 22+23 | → 24–27 | → 28+29

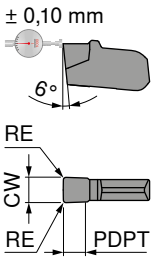
11

Insert SX

▲ For grooving and parting off in steel at medium to high feed rates



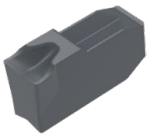
F	M	R



NEW

-M7
CTP1340

DRAGONSKIN



Designation	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 347 ... £ 1C/72	
SX E2.00 N 0.20	2	0.2	1.5	-SX2	15.79	**62200**
SX E3.00 N 0.20	3	0.2	2.0	-SX3	16.82	**62300**
SX E4.00 N 0.30	4	0.3	2.5	-SX4	17.73	**62400**
SX E5.00 N 0.30	5	0.3	2.7	-SX5	18.88	**62500**
SX E6.00 N 0.40	6	0.4	3.0	-SX6	20.36	**62600**

P	●
M	●
K	●
N	○
S	●
H	
O	○

→ v_c Page 88
→ Application recommendation on page 92

Internal machining | *External machining*

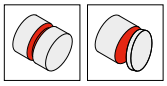




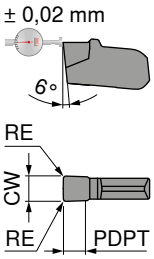

→ 21 | → 22+23 | → 24–27 | → 28+29

Insert SX

▲ Ground geometry
▲ First choice for the grooving and parting off of stainless steel



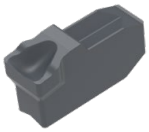
F	M	R



NEW

-M8
CTP1340

DRAGONSKIN



70 348 ...

Designation	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	£ 1C/72	
SX E2.00 N 0.20	2	0.2	1.5	-SX2	23.57	**62200**
SX E3.00 N 0.20	3	0.2	2.0	-SX3	25.34	**62300**
SX E4.00 N 0.30	4	0.3	2.5	-SX4	26.80	**62400**
SX E5.00 N 0.30	5	0.3	2.7	-SX5	28.53	**62500**
SX E6.00 N 0.40	6	0.4	3.0	-SX6	30.77	**62600**

P	●
M	●
K	●
N	○
S	●
H	
O	○

→ v_c Page 88
→ Application recommendation on page 92

Internal machining | *External machining*



→ 21 | → 22+23 | → 24–27 | → 28+29

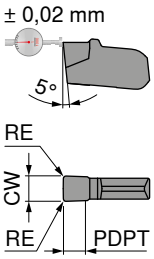
11

Insert SX

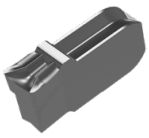
▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ Specialist for aluminum and other soft long-chipping non-ferrous metals



F	M	R



-27P
H216T



70 349 ...

Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	£ 1C/72	
SX E2.00 N 0.20	2	0.2	2.0	-SX2	18.19	**122**
SX E3.00 N 0.30	3	0.3	2.5	-SX3	19.48	**123**
SX E4.00 N 0.40	4	0.4	3.0	-SX4	20.61	**124**

P	
M	
K	●
N	●
S	○
H	
O	○

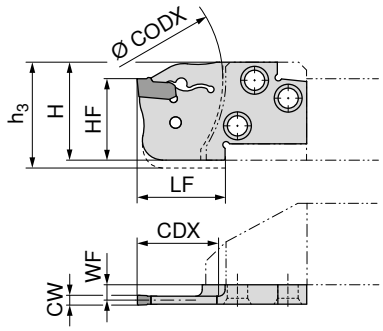
→ v_c Page 88
→ Application recommendation on page 92

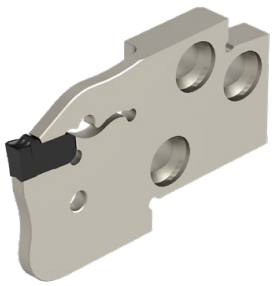
Internal machining			*External machining*			
						
			→ 21	→ 22+23	→ 24–27	→ 28+29

ModularClamp MSS – Radial grooving module SX

▲ for parting, grooving and finish turning

Scope of supply:
Grooving module only





Illustrations show right-hand versions

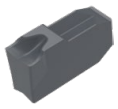
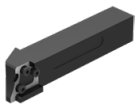
ISO designation	HF mm	CW mm	WF mm	LF mm	H mm	h_3 mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 897 ... £ 2C/71		Right-hand 70 896 ... £ 2C/71	
E20 R/L 20-SX2	20	2	3.57	22	24	27	60	20	SX .2..	104.00	**020**	104.00	**020**
E20 R/L 20-SX3	20	3	3.20	22	24	27	60	20	SX .3..	104.00	**120**	104.00	**120**
E25 R/L 20-SX2	25	2	5.07	22	30		75	20	SX .2..	104.76	**025**	104.76	**025**
E25 R/L 25-SX3	25	3	4.70	27	30		75	25	SX .3..	104.76	**125**	104.76	**125**
E25 R/L 35-SX3	25	3	4.70	37	30		75	35	SX .3..	105.77	**225**	105.77	**225**
E25 R/L 25-SX4	25	4	4.30	27	30		75	25	SX .4..	104.76	**325**	104.76	**325**
E25 R/L 35-SX4	25	4	4.30	37	30		75	35	SX .4..	105.77	**425**	105.77	**425**



Ejector SX

Spare parts for grooving inserts		70 950 ... £ 2A/28	
SX .2..	SX 2-3	33.78	**836**
SX .3..	SX 2-3	33.78	**836**
SX .4..	SX 4-6	34.45	**837**

Please order SX assembly key separately if required.

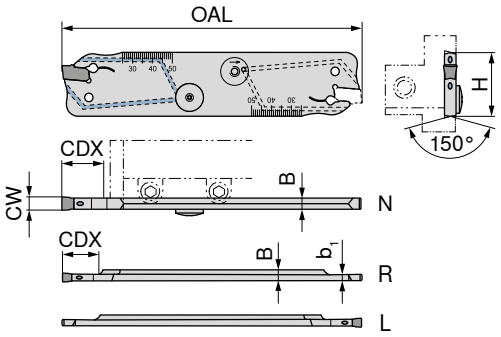



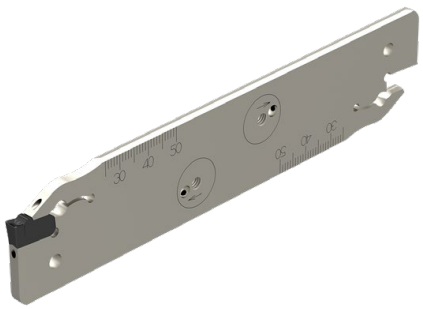

→ 14–20 → 80+81 → 82

MonoClamp – Radial Blade SX-DC Standard

Scope of supply:
Blade incl. 1 sealing screw

Direct Cooling





ISO designation	R/L/N	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	70 884 ... £ 2A/25	
XLCF L 2602-DC-SX2	L	2	26	2.4	1.6	110	25	SX .2..	182.86	**712**
XLCF R 2602-DC-SX2	R	2	26	2.4	1.6	110	25	SX .2..	182.86	**512**
XLCF N 2603-DC-SX3	N	3	26	2.5		110	35	SX .3..	182.86	**613**
XLCF N 2604-DC-SX4	N	4	26	3.3		110	40	SX .4..	182.86	**614**
XLCF L 3202-DC-SX2	L	2	32	2.4	1.6	150	26	SX .2..	198.14	**702**
XLCF R 3202-DC-SX2	R	2	32	2.4	1.6	150	26	SX .2..	198.14	**502**
XLCF N 3203-DC-SX3	N	3	32	2.5		150	50	SX .3..	198.14	**603**
XLCF N 3204-DC-SX4	N	4	32	3.3		150	50	SX .4..	198.14	**604**
XLCF N 3205-DC-SX5	N	5	32	4.3		150	55	SX .5..	198.14	**605**
XLCF N 3206-DC-SX6	N	6	32	5.2		150	60	SX .6..	198.14	**606**

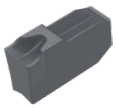

Key D


Ejector SX


Sealing screw

Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28			70 950 ... £ 2A/28	
SX .2..	T15 - IP	21.01	**128**	SX 2-3	33.78	**836**	M4 x 3	15.62	**450**
SX .3..	T15 - IP	21.01	**128**	SX 2-3	33.78	**836**	M4 x 3	15.62	**450**
SX .4..	T15 - IP	21.01	**128**	SX 4-6	34.45	**837**	M4 x 3	15.62	**450**
SX .5..	T15 - IP	21.01	**128**	SX 4-6	34.45	**837**	M4 x 3	15.62	**450**
SX .6..	T15 - IP	21.01	**128**	SX 4-6	34.45	**837**	M4 x 3	15.62	**450**

Please order SX assembly key separately if required.


→ 14–20

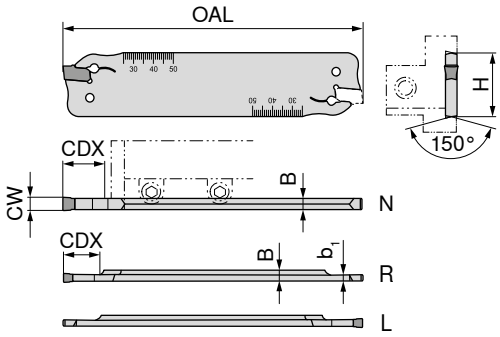

→ 84

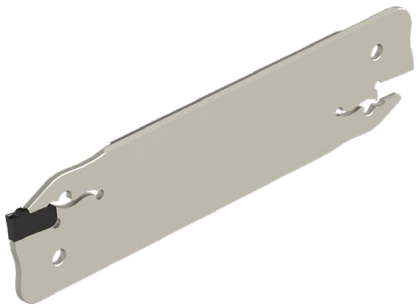

→ **Chapter 16**


→ **Chapter 16**

MonoClamp – Radial Blade SX Standard

Scope of supply:
Blade only



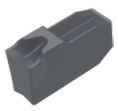


ISO designation	R/L/N	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	70 884 ... £ 2A/25	
XLCF L 2602-SX2	L	2	26	2.4	1.5	110	25	SX .2..	107.17	**212**
XLCF R 2602-SX2	R	2	26	2.4	1.5	110	25	SX .2..	107.17	**012**
XLCF N 2603-SX3	N	3	26	2.4		110	35	SX .3..	107.17	**113**
XCLF N 2604-SX4	N	4	26	3.2		110	40	SX .4..	107.17	**114**
XLCF L 3202-SX2	L	2	32	2.4	1.5	150	25	SX .2..	112.13	**202**
XLCF R 3202-SX2	R	2	32	2.4	1.5	150	25	SX .2..	112.13	**002**
XLCF N 3203-SX3	N	3	32	2.4		150	50	SX .3..	112.13	**103**
XLCF N 3204-SX4	N	4	32	3.2		150	50	SX .4..	112.13	**104**
XLCF N 3205-SX5	N	5	32	4.2		150	55	SX .5..	112.13	**105**
XLCF N 3206-SX6	N	6	32	5.2		150	60	SX .6..	112.13	**106**


Ejector SX

Spare parts for grooving inserts		70 950 ... £ 2A/28	
SX .2..	SX 2-3	33.78	**836**
SX .3..	SX 2-3	33.78	**836**
SX .4..	SX 4-6	34.45	**837**
SX .5..	SX 4-6	34.45	**837**
SX .6..	SX 4-6	34.45	**837**

Please order SX assembly key separately if required.


→ 14–20


→ 85+86

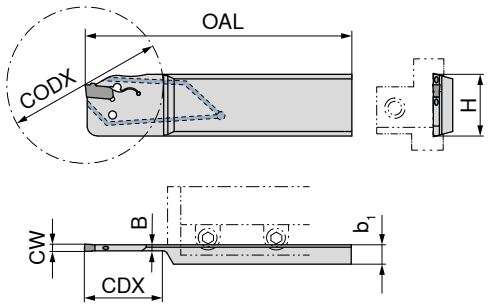

→ **Chapter 16**

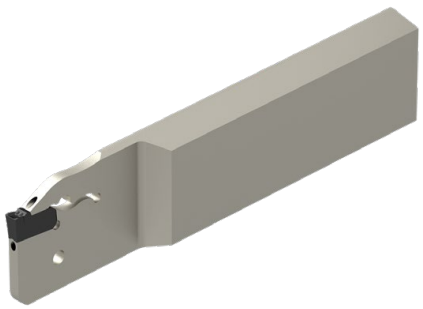

→ **Chapter 16**

MonoClamp – Radial Blade SX-DC reinforced

Scope of supply:
Blade only

Direct Cooling





Illustrations show right-hand versions

ISO designation	R/L/N	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	70 879 ... £ 2A/25	
XLCF L 2608-DC-SX3	L	3	26	2.5	8	110	66	33	SX .3..	182.86	**713**
XLCF R 2608-DC-SX3	R	3	26	2.5	8	110	66	33	SX .3..	182.86	**513**
XLCF L 3208-DC-SX3	L	3	32	2.5	8	110	66	33	SX .3..	198.14	**703**
XLCF R 3208-DC-SX3	R	3	32	2.5	8	110	66	33	SX .3..	198.14	**503**



Ejector SX

Spare parts for grooving inserts		70 950 ... £ 2A/28	
SX .3..	SX 2-3	33.78	**836**

Please order SX assembly key separately if required.

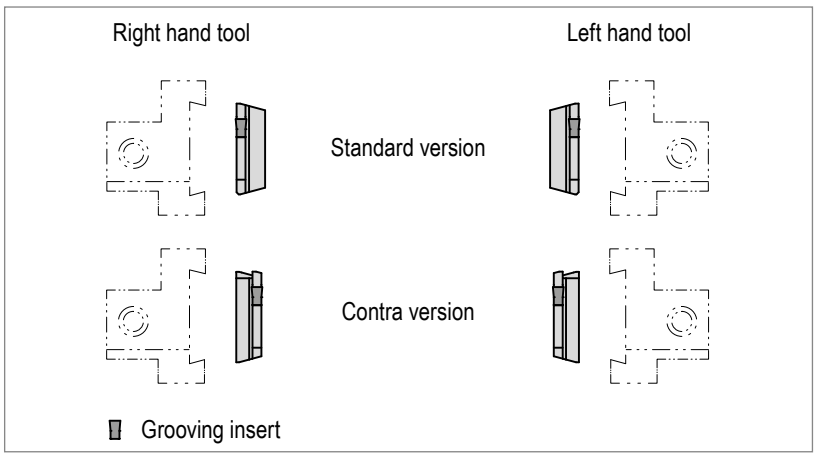

→ 14–20

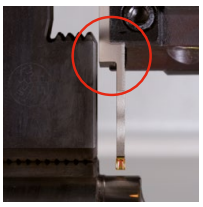

→ 84


→ **Chapter 16**


→ **Chapter 16**

Correct Tool Selection

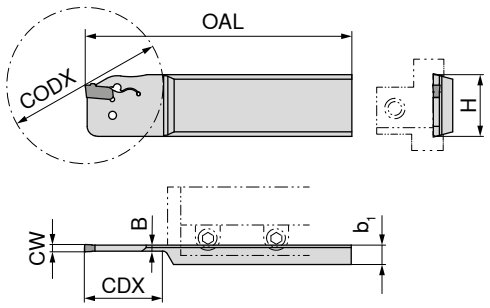


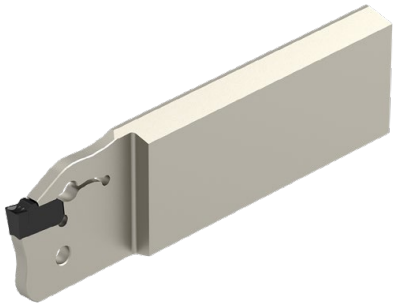




MonoClamp – Radial Blade SX reinforced

Scope of supply:
Blade only





Illustrations show right-hand versions

ISO designation	R/L/N	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	£ 2A/25	70 879 ...
XLCF L 2608-SX3	L	3	26	2.5	8	110	44	22	SX .3..	164.08	**213** [1]
XLCF R 2608-SX3	R	3	26	2.5	8	110	44	22	SX .3..	164.08	**013** [1]
XLCF L 3208-SX3	L	3	32	2.5	8	110	66	33	SX .3..	154.29	**203**
XLCF R 3208-SX3	R	3	32	2.5	8	110	66	33	SX .3..	154.29	**003**
XLCF L 3208-SX4	L	4	32	3.4	8	110	66	33	SX .4..	154.29	**204**
XLCF R 3208-SX4	R	4	32	3.4	8	110	66	33	SX .4..	154.29	**004**

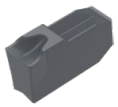
1) can be used in both directions



Ejector SX

Spare parts for grooving inserts		£ 2A/28	70 950 ...
SX .3..	SX 2-3	33.78	**836**
SX .4..	SX 4-6	34.45	**837**

Please order SX assembly key separately if required.


→ 14–20


→ 85+86

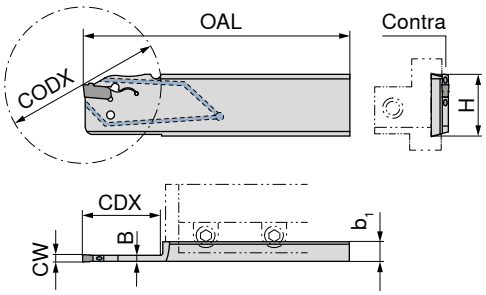

→ **Chapter 16**

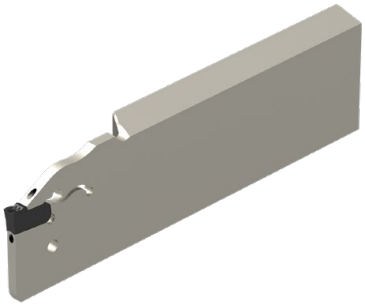

→ **Chapter 16**

MonoClamp – SX-DC reinforced Contra radial blade

Scope of supply:
Blade only

Direct Cooling





Illustrations show right-hand versions

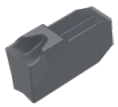
ISO designation	R/L/N	Version	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	70 877 ... £ 2A/25	
XLCF L 3208C-DC-SX3	L	Contra	3	32	2.5	8	110	66	33	SX .3..	198.14	**703**
XLCF R 3208C-DC-SX3	R	Contra	3	32	2.5	8	110	66	33	SX .3..	198.14	**503**



Ejector SX

Spare parts for grooving inserts		70 950 ... £ 2A/28	
SX .3..	SX 2-3	33.78	**836**

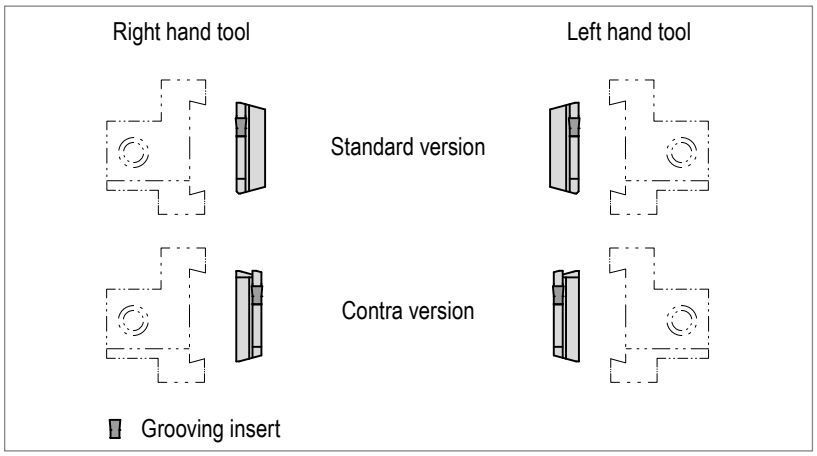
Please order SX assembly key separately if required.

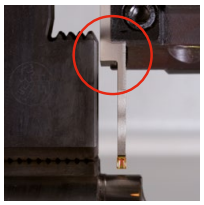


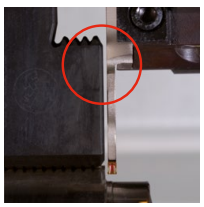



→ 14–20 | → 84 | → **Chapter 16** | → **Chapter 16**

Correct Tool Selection

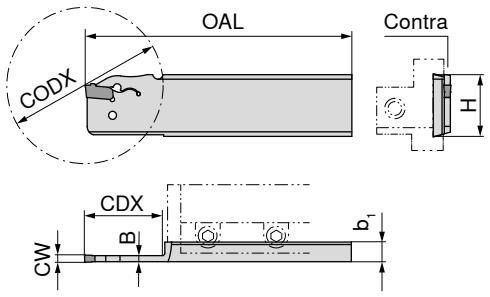


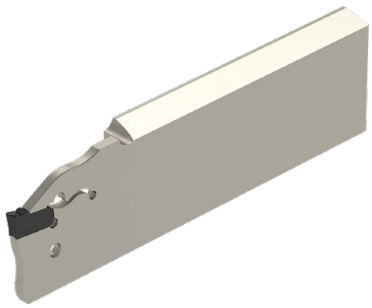




MonoClamp – SX reinforced Contra radial blade

Scope of supply:
Blade only





Illustrations show right-hand versions

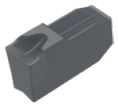
ISO designation	R/L/N	Version	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	70 877 ... £ 2A/25	
XLCF L 3208C-SX3	L	Contra	3	32	2.5	8	110	66	33	SX .3..	154.29	**203**
XLCF R 3208C-SX3	R	Contra	3	32	2.5	8	110	66	33	SX .3..	154.29	**003**



Ejector SX

Spare parts for grooving inserts		70 950 ... £ 2A/28	
SX .3..	SX 2-3	33.78	**836**

Please order SX assembly key separately if required.





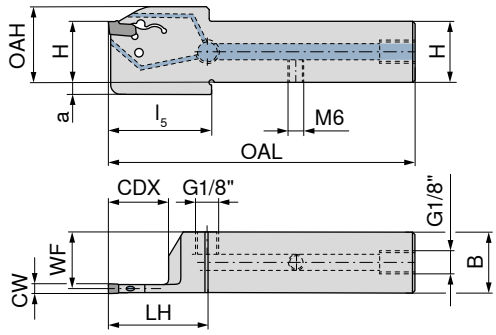

→ 14–20 | → 85+86 | → **Chapter 16** | → **Chapter 16**

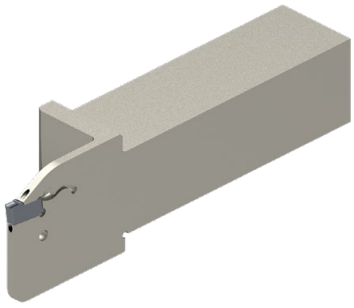
11

MonoClamp – Radial Monoholder SX-DC

Scope of supply:
Mono holder incl. screw plug and grub screw

Direct Cooling





Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	l_5 mm	OAH mm	CDX mm	a mm	for grooving inserts	Left-hand 70 847 ... £ 2C/71		Right-hand 70 847 ... £ 2C/71	
E12 R/L 0022-1212X-K-DC-SX2	12	12	2	11.20	71	27	28	22	22	5	SX .2..	176.92	**21201**	176.92	**21200**
E16 R/L 0026-1616X-K-DC-SX2	16	16	2	15.20	87	32	33	26	26	4	SX .2..	186.97	**21601**	186.97	**21600**
E16 R/L 0026-1616X-K-DC-SX3	16	16	3	14.75	87	32	33	26	26	4	SX .3..	186.97	**31601**	186.97	**31600**
E20 R/L 0026-2020X-K-DC-SX2	20	20	2	19.20	102	32	33	31	26	5	SX .2..	211.80	**22001**	211.80	**22000**
E20 R/L 0026-2020X-K-DC-SX3	20	20	3	18.75	102	32	33	31	26	5	SX .3..	211.80	**32001**	211.80	**32000**
E20 R/L 0033-2020X-K-DC-SX4	20	20	4	18.30	109	39	40	32	33	5	SX .4..	211.80	**42001**	211.80	**42000**
E25 R/L 0033-2525X-K-DC-SX2	25	25	2	24.20	126	41	42	36	33	5	SX .2..	228.03	**22501**	228.03	**22500**
E25 R/L 0026-2525X-K-DC-SX3	25	25	3	23.75	117	33		31	26		SX .3..	228.03	**32501**	228.03	**32500**
E25 R/L 0033-2525X-K-DC-SX3	25	25	3	23.75	126	41	42	36	33	5	SX .3..	228.03	**32601**	228.03	**32600**
E25 R/L 0033-2525X-K-DC-SX4	25	25	4	23.30	126	41	42	36	33	5	SX .4..	228.03	**42501**	228.03	**42500**
E25 R/L 0040-2525X-K-DC-SX4	25	25	4	23.30	133	48	49	38	40	6	SX .4..	228.03	**42601**	228.03	**42600**
E25 R/L 0040-2525X-K-DC-SX5	25	25	5	22.85	133	48	49	38	40	6	SX .5..	228.03	**52501**	228.03	**52500**
E25 R/L 0040-2525X-K-DC-SX6	25	25	6	22.35	133	48	49	38	40	6	SX .6..	228.03	**62501**	228.03	**62500**

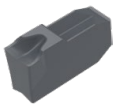
Ejector SX


Coolant screw plug


Grubscrew

Spare parts for grooving inserts	70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
SX .2..	SX 2-3	33.78 **836**	G 1/8"	4.31 **294**	M6x6	3.51 **86700**
SX .3..	SX 2-3	33.78 **836**	G 1/8"	4.31 **294**	M6x6	3.51 **86700**
SX .4..	SX 4-6	34.45 **837**	G 1/8"	4.31 **294**	M6x6	3.51 **86700**
SX .5..	SX 4-6	34.45 **837**	G 1/8"	4.31 **294**	M6x6	3.51 **86700**
SX .6..	SX 4-6	34.45 **837**	G 1/8"	4.31 **294**	M6x6	3.51 **86700**

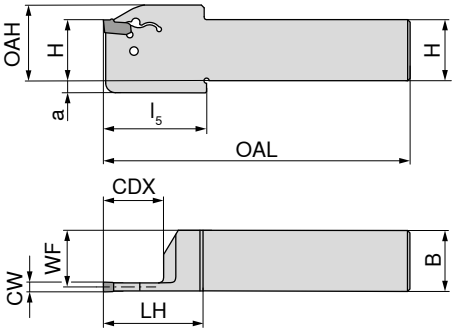
Please order SX assembly key separately if required.

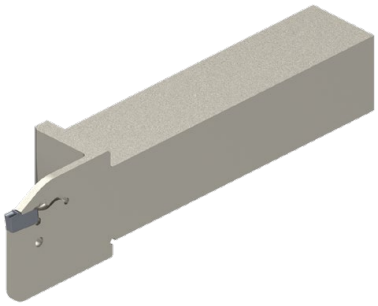



→ 14–20 → **Chapter 16**

MonoClamp – Radial Monoholder SX

Scope of supply:
Mono holder only





Illustrations show right-hand versions

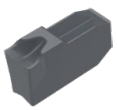
ISO designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	l_5 mm	OAH mm	CDX mm	a mm	for grooving inserts	Left-hand 70 846 ... £ 2C/71		Right-hand 70 846 ... £ 2C/71	
E12 R/L 0022-1212K-K-SX2	12	12	2	11.20	125	27	28	22	22	5	SX .2..	119.62	**21201**	119.62	**21200**
E16 R/L 0026-1616K-K-SX2	16	16	2	15.20	125	32	33	26	26	4	SX .2..	122.07	**21601**	122.07	**21600**
E16 R/L 0026-1616K-K-SX3	16	16	3	14.75	125	32	33	26	26	4	SX .3..	122.07	**31601**	122.07	**31600**
E20 R/L 0026-2020K-K-SX2	20	20	2	19.20	125	32	33	31	26	5	SX .2..	143.27	**22001**	143.27	**22000**
E20 R/L 0026-2020K-K-SX3	20	20	3	18.75	125	32	33	31	26	5	SX .3..	143.27	**32001**	143.27	**32000**
E20 R/L 0033-2020K-K-SX4	20	20	4	18.30	125	39	40	32	33	5	SX .4..	143.27	**42001**	143.27	**42000**
E25 R/L 0033-2525M-K-SX2	25	25	2	24.20	150	41	42	36	33	5	SX .2..	151.97	**22501**	151.97	**22500**
E25 R/L 0033-2525M-K-SX3	25	25	3	23.75	150	41	42	36	33	5	SX .3..	151.97	**32601**	151.97	**32600**
E25 R/L 0026-2525M-K-SX3	25	25	3	23.75	150	33		31	26		SX .3..	151.97	**32501**	151.97	**32500**
E25 R/L 0040-2525M-K-SX4	25	25	4	23.30	150	48	49	38	40	6	SX .4..	151.97	**42601**	151.97	**42600**
E25 R/L 0033-2525M-K-SX4	25	25	4	23.30	150	41	42	37	33	5	SX .4..	151.97	**42501**	151.97	**42500**
E25 R/L 0040-2525M-K-SX5	25	25	5	22.85	150	48	49	38	40	6	SX .5..	151.97	**52501**	151.97	**52500**
E25 R/L 0040-2525M-K-SX6	25	25	6	22.35	150	48	49	38	40	6	SX .6..	151.97	**62501**	151.97	**62500**



Ejector SX

Spare parts for grooving inserts		70 950 ... £ 2A/28	
SX .2..	SX 2-3	33.78	**836**
SX .3..	SX 2-3	33.78	**836**
SX .4..	SX 4-6	34.45	**837**
SX .5..	SX 4-6	34.45	**837**
SX .6..	SX 4-6	34.45	**837**

Please order SX assembly key separately if required.





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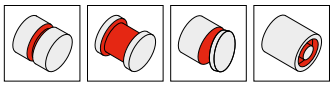
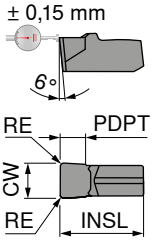
Insert LX

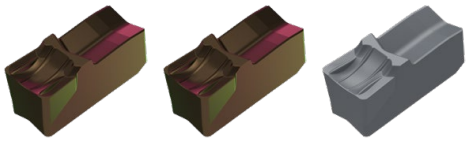
- ▲ Grooving width 8 and 10 mm
- ▲ Axial grooving from Ø 500 mm onwards
- ▲ Internal grooving and turning, from Ø 200 mm onwards



F	M	R



-M2 CTCP325	-M2 CTCP335	-M2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW -/+0,08 mm	RE +/-0,1 mm	PDPT mm	for tool holder	70 337 ... £ 1A/15		70 337 ... £ 1A/15		70 337 ... £ 1A/15	
LXE 8.00N0.80-M2	19	8	0.8	5	E32 N ..-LX	22.75	**928**	22.75	**578**	22.75	**682**
LXE 10.00N0.80-M2	19	10	0.8	5	E32 N ..-LX	30.34	**932**	30.34	**582**	30.34	**678**
P							●		●		●
M							○		○		●
K							●		●		●
N											○
S							○				●
H											
O											○

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→ Application recommendation on page 93

Internal machining



→ 32

External machining





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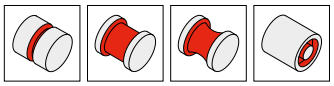
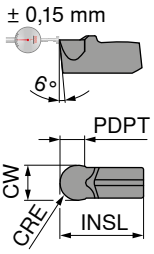
Radial Grooving Insert LX

- ▲ Grooving width 8 mm
- ▲ Axial grooving from Ø 500 mm
- ▲ Internal grooving and turning, from Ø 200 mm



F	M	R



-M3 CTCP325	-M3 CTCP335	-M3 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW -/+0,08 mm	CRE mm	PDPT mm	for tool holder	70 337 ... £ 1A/15		70 337 ... £ 1A/15		70 337 ... £ 1A/15	
LXR 4.00N-M3	19	8	4	5	E32 N ..-LX	24.25	**908**	24.25	**518**	24.25	**618**
P							●		●		●
M							○		○		●
K							●		●		●
N											○
S							○				●
H											
O											○

→ v_c Page 88
→ Application recommendation on page 93

Internal machining



→ 32

External machining





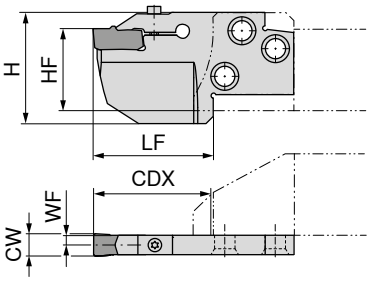
→ 32
→ 33

11

ModularClamp MSS – Axial and radial grooving module LX

▲ Grooving width 8 and 10 mm
▲ Axial grooving from Ø 500 mm onwards
▲ Internal grooving and turning, from Ø 200 mm onwards

Scope of supply:
Grooving module only

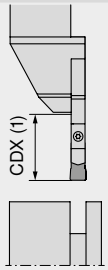




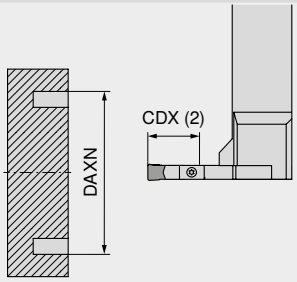
Neutral

ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CDX (1) mm	CDX (2) mm	CDX (3) mm	for grooving inserts	70 835 ... £ 2C/71	
E32 N 25-LX	8 / 10	3.4	27	32	44	25	19	14	LX ..	116.07	**032**
E32 N 32-LX	8 / 10	3.4	34	32	44	32	26	21	LX ..	116.07	**132**
E32 N 45-LX	8 / 10	3.4	47	32	44	45	39	34	LX ..	116.07	**232**

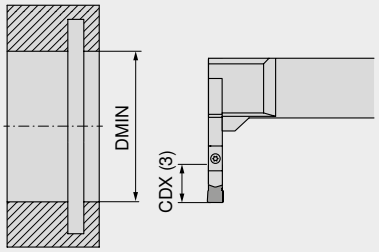
Radial grooving



Axial grooving DAXN > 500 mm



Internal grooving DMIN > 200 mm



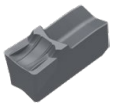
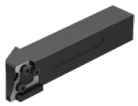


Key D



Clamping screw

Spare parts for grooving inserts		80 950 ... £ Y7		70 950 ... £ 2A/28	
LX ..	T20	17.48	**114**	M4x18	5.77	**204**

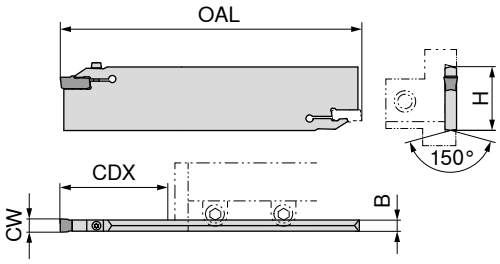



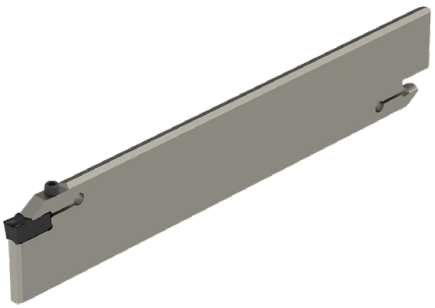


→ 30+31 → 80+81 → 82 → 83

MonoClamp – Blade LX

Scope of supply:
Blade incl. key and clamping screw



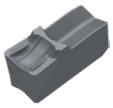


ISO designation	H mm	B mm	OAL mm	CW mm	CDX mm	for grooving inserts	70 833 ... £ 2A/25	
XLCEN 4608-LX	46	6.8	250	8/10	80	LX ..	304.30	**108**


Key D


Clamping screw

Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28	
LX ..	T20	17.48	**114**	M4x18	5.77	**204**





→ 30+31 → 85+86 → **Chapter 16**

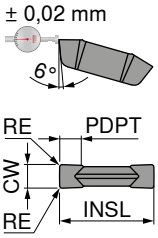
11

Insert GX 09/16

▲ Insert with ground periphery
▲ Suitable also for parting off tubes and thin-walled workpieces



F	M	R
		



-F2
CTP1340

DRAGONSKIN



70 360 ...

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	£ 1C/72	
GX 09-1 E2.00 N 0.20	9	2.0	0.2	1.5	GX 09-1	31.38	**600**
GX 09-1 E2.50 N 0.20	9	2.5	0.2	1.5	GX 09-1	31.38	**602**
GX 09-2 E3.00 N 0.30	9	3.0	0.3	2.0	GX 09-2	31.38	**604**
GX 16-1 E2.00 N 0.20	16	2.0	0.2	2.5	GX 16-1	31.90	**650**
GX 16-2 E3.00 N 0.30	16	3.0	0.3	3.0	GX 16-2	31.90	**652**
GX 16-3 E4.00 N 0.40	16	4.0	0.4	3.5	GX 16-3	34.93	**654**
GX 16-3 E5.00 N 0.40	16	5.0	0.4	3.5	GX 16-3	34.93	**656**

P	●
M	●
K	●
N	○
S	●
H	
O	○

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→ Application recommendation on page 89

Internal machining


→ 44+45


→ 49+50


→ 51

External machining


→ 42+43


→ 46–48

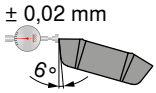

→ 51

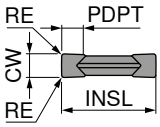
Insert GX 09/16 – Standard

▲ Suitable for parting thin-walled workpieces



F	M	R
		





CTCP325	CTCP335	CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ... £ 1C/72		70 350 ... £ 1C/72		70 350 ... £ 1C/72	
GX 09-1 E2.00 N 0.20	9	2.0	0.2	1.5	GX 09-1	31.38	**984**			31.38	**634**
GX 09-1 E2.50 N 0.20	9	2.5	0.2	1.5	GX 09-1	31.38	**988**			31.38	**638**
GX 09-2 E3.00 N 0.30	9	3.0	0.3	2.0	GX 09-2	31.38	**992**			31.38	**642**
GX 16-1 E2.00 N 0.20	16	2.0	0.2	2.5	GX 16-1	31.90	**900**	31.90	**500**	31.90	**600**
GX 16-1 E2.50 N 0.20	16	2.5	0.2	2.5	GX 16-1	31.90	**904**	31.90	**504**	31.90	**604**
GX 16-2 E3.00 N 0.30	16	3.0	0.3	3.0	GX 16-2	31.90	**908**	31.90	**508**	31.90	**608**
GX 16-2 E3.00 N 0.50	16	3.0	0.5	3.0	GX 16-2	31.90	**910**				
GX 16-2 E3.50 N 0.30	16	3.5	0.3	3.0	GX 16-2	31.90	**912**	31.90	**512**	31.90	**612**
GX 16-3 E4.00 N 0.40	16	4.0	0.4	3.5	GX 16-3	34.93	**916**	34.93	**516**	34.93	**616**
GX 16-3 E5.00 N 0.40	16	5.0	0.4	3.5	GX 16-3	34.93	**924**	34.93	**524**	34.93	**624**
GX 16-4 E6.00 N 0.50	16	6.0	0.5	4.0	GX 16-4	36.85	**928**			36.85	**628**
GX 16-4 E6.00 N 0.80	16	6.0	0.8	4.0	GX 16-4	36.85	**930**				

P	●	●	●
M	○	○	●
K	●	●	●
N			○
S	○		●
H			
O			○

→ v_c Page 88
→ Application recommendation on page 89

11

Internal machining





→ 44+45 | → 49+50 | → 51

External machining





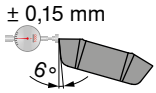
→ 42+43 | → 46–48 | → 51

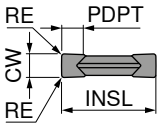
Insert GX 09/16

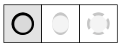
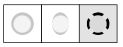
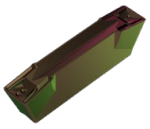
▲ Very good swarf control



F	M	R
		





-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 351 ... £ 1C/72		70 351 ... £ 1C/72		70 351 ... £ 1C/72	
GX 09-1 E2.00 N 0.20	9	2	0.2	1.5	GX 09-1	20.49	**986**	20.49	**886**	20.49	**686**
GX 09-2 E3.00 N 0.30	9	3	0.3	2.0	GX 09-2	20.49	**994**	20.49	**894**	20.49	**694**
GX 16-1 E2.00 N 0.20	16	2	0.2	2.5	GX 16-1	20.76	**902**	20.76	**802**	20.76	**602**
GX 16-2 E3.00 N 0.30	16	3	0.3	3.0	GX 16-2	20.76	**910**	20.76	**810**	20.76	**610**
GX 16-3 E4.00 N 0.40	16	4	0.4	3.5	GX 16-3	23.12	**918**	23.12	**818**	23.12	**618**
GX 16-3 E5.00 N 0.40	16	5	0.4	3.5	GX 16-3	25.46	**926**	25.46	**826**	25.46	**626**
GX 16-4 E6.00 N 0.50	16	6	0.5	4.0	GX 16-4	27.77	**930**	27.77	**830**	27.77	**630**
P							●		●		●
M							○		●		●
K							●				●
N											○
S							○		○		●
H											
O											○

→ v_c Page 88
→ Application recommendation on page 89

Internal machining


→ 44+45


→ 49+50


→ 51

External machining

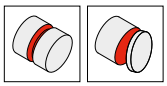

→ 42+43


→ 46–48

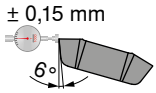

→ 51

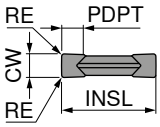
Insert GX 16

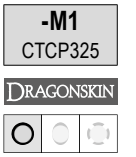
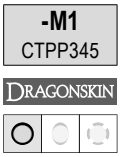
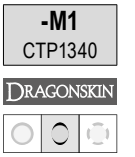
▲ Very good swarf control



F	M	R
		





-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 362 ... £ 1C/72		70 362 ... £ 1C/72		70 362 ... £ 1C/72	
GX 16-1 E2.00 N 0.20	16	2	0.2	2.0	GX 16-1			20.76	**800**	20.76	**600**
GX 16-2 E3.00 N 0.20	16	3	0.2	2.5	GX 16-2	20.76	**902**	20.76	**802**	20.76	**602**
GX 16-3 E4.00 N 0.30	16	4	0.3	3.0	GX 16-3	23.12	**904**			23.12	**604**
P						●		●		●	
M						○		●		●	
K						●				●	
N										○	
S						○		○		●	
H											
O										○	

→ v_c Page 88
→ Application recommendation on page 90

Internal machining


→ 44+45


→ 50


→ 51

External machining


→ 42+43


→ 47+48


→ 51

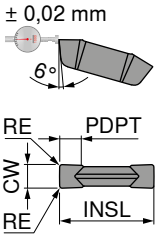
11

Insert GX 16

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery

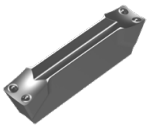


F	M	R
		



-27P
H216T





70 350 ...

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	£ 1C/72	
GX 16-1 E2.00 N 0.20	16	2	0.2	2.5	GX 16-1	24.20	**650**
GX 16-2 E3.00 N 0.30	16	3	0.3	3.0	GX 16-2	24.20	**658**
GX 16-3 E4.00 N 0.40	16	4	0.4	3.5	GX 16-3	26.40	**670**
GX 16-4 E6.00 N 0.50	16	6	0.5	4.0	GX 16-4	27.77	**678**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 88
→ Application recommendation on page 89

Internal machining


→ 44+45


→ 50


→ 51

External machining

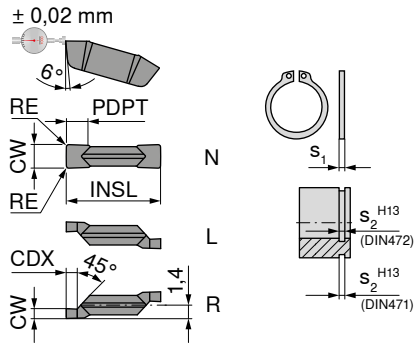

→ 42+43


→ 47+48


→ 51

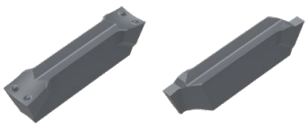
Circlip groove insert GX 09/16 – Standard

F	M	R



CTP1340 DRAGONSKIN

CTP1340 DRAGONSKIN



Designation	IH	INSL mm	s_1 mm	s_2 mm	CW +/-0,02 mm	RE +/-0,05 mm	CDX mm	PDPT mm	for tool holder	70 352 ... £ 1C/72		70 352 ... £ 1C/72	
GX 09-1 S1.00 L	L	9	0.80	0.90	1.00		1.14		R/L 02-GX 09-1			31.38	**684**
GX 09-1 S1.20 L	L	9	1.00	1.10	1.20		1.34		R/L 02-GX 09-1			31.38	**686**
GX 09-1 S1.40 L	L	9	1.20	1.30	1.40		1.53		R/L 02-GX 09-1			31.38	**688**
GX 09-1 S1.70 L	L	9	1.50	1.60	1.70		1.82		R/L 02-GX 09-1			31.38	**690**
GX 09-1 S1.95 N	N	9	1.75	1.85	1.95	0.1		2.0	GX 09-1	31.38	**692**		
GX 09-1 S2.25 N	N	9	2.00	2.15	2.25	0.1		2.0	GX 09-1	31.38	**694**		
GX 09-2 S2.75 N	N	9	2.50	2.65	2.75	0.1		2.0	GX 09-2	31.38	**696**		
GX 09-2 S3.25 N	N	9	3.00	3.15	3.25	0.1		2.0	GX 09-2	31.38	**698**		
GX 09-1 S1.00 R	R	9	0.80	0.90	1.00		1.14		R/L 02-GX 09-1			31.38	**676**
GX 09-1 S1.20 R	R	9	1.00	1.10	1.20		1.34		R/L 02-GX 09-1			31.38	**678**
GX 09-1 S1.40 R	R	9	1.20	1.30	1.40		1.53		R/L 02-GX 09-1			31.38	**680**
GX 09-1 S1.70 R	R	9	1.50	1.60	1.70		1.82		R/L 02-GX 09-1			31.38	**682**
GX 16-2 S0.60 L	L	16	0.40	0.50	0.60		0.75		R/L 03-GX 16-2			31.90	**607**
GX 16-2 S0.80 L	L	16	0.60	0.70	0.80		0.94		R/L 03-GX 16-2			31.90	**609**
GX 16-2 S0.90 L	L	16	0.70	0.80	0.90		1.04		R/L 03-GX 16-2			31.90	**611**
GX 16-2 S1.00 L	L	16	0.80	0.90	1.00		1.14		R/L 03-GX 16-2			31.90	**612**
GX 16-2 S1.20 L	L	16	1.00	1.10	1.20		1.34		R/L 03-GX 16-2			31.90	**614**
GX 16-2 S1.40 L	L	16	1.20	1.30	1.40		1.53		R/L 03-GX 16-2			31.90	**616**
GX 16-2 S1.70 L	L	16	1.50	1.60	1.70		1.82		R/L 03-GX 16-2			31.90	**618**
GX 16-2 S1.95 L	L	16	1.75	1.85	1.95		2.07		R/L 03-GX 16-2			31.90	**620**
GX 16-2 S2.25 L	L	16	2.00	2.15	2.25		2.36		R/L 03-GX 16-2			31.90	**622**
GX 16-2 S2.75 N	N	16	2.50	2.65	2.75	0.1		3.0	GX 16-2	31.90	**624**		
GX 16-2 S3.25 N	N	16	3.00	3.15	3.25	0.1		3.0	GX 16-2	31.90	**626**		
GX 16-3 S4.25 N	N	16	4.00	4.15	4.25	0.2		3.5	GX 16-3	34.93	**628**		
GX 16-2 S0.60 R	R	16	0.40	0.50	0.60		0.75		R/L 03-GX 16-2			31.90	**695**
GX 16-2 S0.80 R	R	16	0.60	0.70	0.80		0.94		R/L 03-GX 16-2			31.90	**697**
GX 16-2 S0.90 R	R	16	0.70	0.80	0.90		1.04		R/L 03-GX 16-2			31.90	**699**
GX 16-2 S1.00 R	R	16	0.80	0.90	1.00		1.14		R/L 03-GX 16-2			31.90	**600**
GX 16-2 S1.20 R	R	16	1.00	1.10	1.20		1.34		R/L 03-GX 16-2			31.90	**602**
GX 16-2 S1.40 R	R	16	1.20	1.30	1.40		1.53		R/L 03-GX 16-2			31.90	**604**
GX 16-2 S1.70 R	R	16	1.50	1.60	1.70		1.82		R/L 03-GX 16-2			31.90	**606**
GX 16-2 S1.95 R	R	16	1.75	1.85	1.95		2.07		R/L 03-GX 16-2			31.90	**608**
GX 16-2 S2.25 R	R	16	2.00	2.15	2.25		2.36		R/L 03-GX 16-2			31.90	**610**

P	●	●
M	●	●
K	●	●
N	○	○
S	●	●
H		
O	○	○

→ v_c Page 88
→ Application recommendation on page 90

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining *External machining*

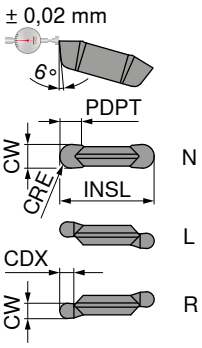


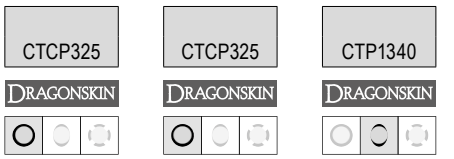
→ 44+45 → 49+50 → 51 → 42+43 → 46–48 → 51

Radius groove insert GX 09/16 – Standard



F	M	R
		







Designation	IH	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	CDX mm	for tool holder	70 354 ... £ 1C/72		70 354 ... £ 1C/72		70 354 ... £ 1C/72	
GX 09-1 R1.00 N	N	9	2.0	1.0	1.0		GX 09-1			37.82	**992**		
GX 09-1 R1.20 N	N	9	2.4	1.2	1.2		GX 09-1			37.82	**996**		
GX 16-2 R0.80 L	L	16	1.6	0.8		1.78	R/L 03-GX 16-2	38.78	**912**				
GX 16-2 R1.00 L	L	16	2.0	1.0		2.18	R/L 03-GX 16-2	38.78	**916**				
GX 16-2 R1.20 L	L	16	2.4	1.2		2.58	R/L 03-GX 16-2	38.78	**920**				
GX 16-2 R1.50 N	N	16	3.0	1.5	1.5		GX 16-2			38.78	**924**	38.78	**624**
GX 16-3 R2.00 N	N	16	4.0	2.0	2.0		GX 16-3			42.10	**928**	42.10	**628**
GX 16-3 R2.50 N	N	16	5.0	2.5	2.5		GX 16-3			42.10	**932**	42.10	**632**
GX 16-4 R3.00 N	N	16	6.0	3.0	3.0		GX 16-4			44.04	**936**	44.04	**636**
GX 16-2 R0.80 R	R	16	1.6	0.8		1.78	R/L 03-GX 16-2	38.78	**900**				
GX 16-2 R1.00 R	R	16	2.0	1.0		2.18	R/L 03-GX 16-2	38.78	**904**				
GX 16-2 R1.20 R	R	16	2.4	1.2		2.58	R/L 03-GX 16-2	38.78	**908**				
P								●		●		●	
M								○		○		●	
K								●		●		●	
N												○	
S								○		○		●	
H													
O												○	

→ v_c Page 88
→ Application recommendation on page 90

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining





→ 44+45 | → 49+50 | → 51

External machining





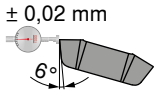
→ 42+43 | → 46–48 | → 51

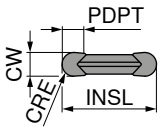
Radius groove insert GX 16

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery



F	M	R
		





-27P
H216T



70 354 ...

Designation	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	for tool holder	£ 1C/72	
GX 16-2 R1.50 N	16	3	1.5	1.5	GX 16-2	29.14	**674**
GX 16-3 R2.00 N	16	4	2.0	2.0	GX 16-3	31.50	**678**
GX 16-3 R2.50 N	16	5	2.5	2.5	GX 16-3	31.50	**682**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 88
→ Application recommendation on page 90

Internal machining


→ 44+45


→ 50


→ 51

External machining


→ 42+43


→ 47–48

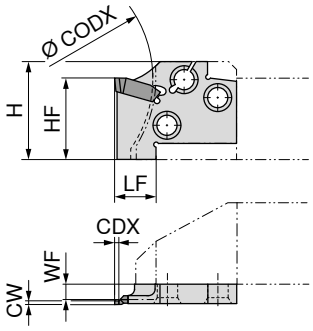

→ 51

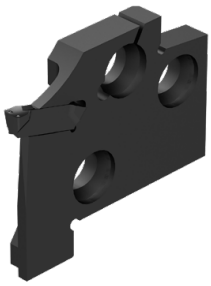
11

ModularClamp MSS – Radial grooving module GX 09/16

▲ For circlip grooves ≤ 2,75 mm
▲ For radius grooves up to ≤ 1,2 mm
▲ For external recessing

Scope of supply:
Grooving module only

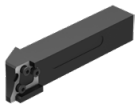




Illustrations show right-hand versions

ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 871 ... £ 2C/71		Right-hand 70 870 ... £ 2C/71	
E16 R/L 02-GX 09-1	<1,95	3.15	8	16	19.5	48	2	GX 09-1 ..R/L	104.00	**116**	104.00	**116**
E20 R/L 03-GX 16-2	<2,75	3.40	13	20	24.0	60	3	GX 16-2 ..R/L	104.00	**120**	104.00	**120**
E25 R/L 03-GX 16-2	<2,75	4.90	13	25	30.0	75	3	GX 16-2 ..R/L	104.76	**125**	104.76	**125**


→ 34–41

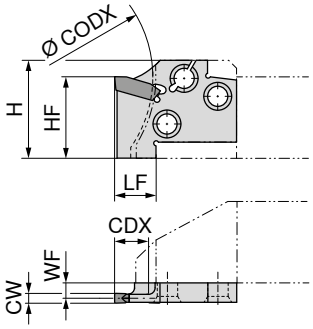

→ 80+81

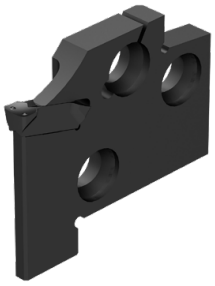

→ 82

ModularClamp MSS – Radial grooving module GX 09/16

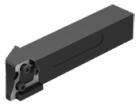
▲ For grooving and turning
▲ For circlip grooves ≤ 5,25 mm
▲ For radius grooves up to ≤ 2,5 mm
▲ For external recessing

Scope of supply:
Grooving module only





									Left-hand		Right-hand	
									70 866 ...		**70 865 ...**	
ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	£ 2C/71		£ 2C/71	
E16 R/L 07-GX 09-1	2,00 - 2,75	3.15	8	16	19.5	48	7	GX 09-1 ..N	104.00	**016**	104.00	**016**
E16 R/L 07-GX 09-2	2,76 - 3,75	2.80	8	16	19.5	48	7	GX 09-2 ..N	104.00	**116**	104.00	**116**
E20 R/L 12-GX 16-1	2,00 - 2,75	3.75	13	20	24.0	60	12	GX 16-1 ..N	104.00	**020**	104.00	**020**
E20 R/L 12-GX 16-2	2,76 - 3,75	3.40	13	20	24.0	60	12	GX 16-2 ..N	104.00	**120**	104.00	**120**
E20 R/L 12-GX 16-3	3,76 - 5,00	2.93	13	20	24.0	60	12	GX 16-3 ..N	104.00	**220**	104.00	**220**
E25 R/L 12-GX 16-1	2,00 - 2,75	5.25	13	25	30.0	75	12	GX 16-1 ..N	104.76	**025**	104.76	**025**
E25 R/L 12-GX 16-2	2,76 - 3,75	4.90	13	25	30.0	75	12	GX 16-2 ..N	104.76	**125**	104.76	**125**
E25 R/L 12-GX 16-3	3,76 - 5,00	4.43	13	25	30.0	75	12	GX 16-3 ..N	104.76	**225**	104.76	**225**
E25 R/L 12-GX 16-4	5,01 - 6,50	3.80	13	25	30.0	75	12	GX 16-4 ..N	104.76	**325**	104.76	**325**

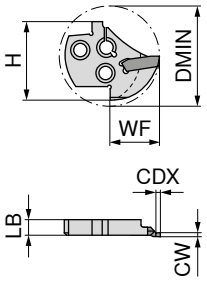

→ 34–41 → 80+81 → 82

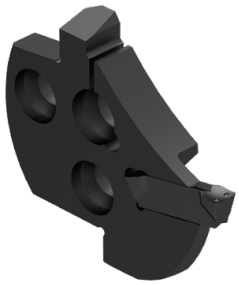
11

ModularClamp MSS – Radial Grooving module GX 09/16 for Internal machining

▲ For circlip grooves ≤ 2,75 mm
▲ For radius grooves up to ≤ 1,2 mm

Scope of supply:
Grooving module only





Illustrations show right-hand versions

ISO designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	Left-hand 70 886 ... £ 2C/71		Right-hand 70 885 ... £ 2C/71	
I16 R/L 02-GX 09-1	<1,95	3.8	10.0	16.4	2	20	GX 09-1 ..R/L	104.00	**016**	104.00	**016**
I20 R/L 02-GX 09-1	<1,95	3.8	12.0	20.3	2	25	GX 09-1 ..R/L	104.00	**020**	104.00	**020**
I25 R/L 02-GX 09-1	<1,95	3.8	15.5	24.9	2	32	GX 09-1 ..R/L	104.76	**025**	104.76	**025**
I32 R/L 03-GX 16-2	<2,75	5.9	20.0	32.2	3	40	GX 16-2 ..R/L	105.77	**032**	105.77	**032**
I40 R/L 03-GX 16-2	<2,75	5.9	24.5	39.6	3	50	GX 16-2 ..R/L	106.65	**040**	106.65	**040**

Right hand module → left hand insert only
Left hand module → right hand insert only



→ 34–41

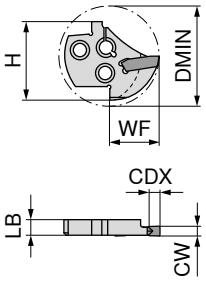


→ 83

ModularClamp MSS – Radial Grooving module GX 09/16 for Internal machining

▲ For circlip grooves ≤ 5,25 mm
▲ For radius grooves up to ≤ 2,5 mm

Scope of supply:
Grooving module only





Illustrations show right-hand versions

ISO designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	Left-hand 70 881 ... £ 2C/71		Right-hand 70 880 ... £ 2C/71	
I16 R/L 04-GX 09-1	2,00 - 2,75	3.8	10.0	16.4	4	20	GX 09-1 ..N	104.00	**017**	104.00	**017**
I16 R/L 04-GX 09-2	2,76 - 3,75	3.8	10.0	16.4	4	20	GX 09-2 ..N	104.00	**117**	104.00	**117**
I20 R/L 05-GX 09-1	2,00 - 2,75	3.8	12.0	20.3	5	25	GX 09-1 ..N	104.00	**021**	104.00	**021**
I20 R/L 05-GX 09-2	2,76 - 3,75	3.8	12.0	20.3	5	25	GX 09-2 ..N	104.00	**121**	104.00	**121**
I25 R/L 06-GX 09-1	2,00 - 2,75	3.8	15.5	24.9	6	32	GX 09-1 ..N	104.76	**026**	104.76	**026**
I25 R/L 06-GX 09-2	2,76 - 3,75	3.8	15.5	24.9	6	32	GX 09-2 ..N	104.76	**126**	104.76	**126**
I32 R/L 09-GX 16-1	2,00 - 2,75	5.9	20.0	32.2	9	40	GX 16-1 ..N	105.77	**033**	105.77	**033**
I32 R/L 09-GX 16-2	2,76 - 3,75	5.9	20.0	32.2	9	40	GX 16-2 ..N	105.77	**133**	105.77	**133**
I32 R/L 09-GX 16-3	3,76 - 5,00	5.9	20.0	32.2	9	40	GX 16-3 ..N	105.77	**233**	105.77	**233**
I32 R/L 09-GX 16-4	5,01 - 6,50	5.9	20.0	32.2	9	40	GX 16-4 ..N	105.77	**333**	105.77	**333**
I40 R/L 10-GX 16-1	2,00 - 2,75	5.9	24.5	39.6	10	50	GX 16-1 ..N	106.65	**041**	106.65	**041**
I40 R/L 10-GX 16-2	2,76 - 3,75	5.9	24.5	39.6	10	50	GX 16-2 ..N	106.65	**141**	106.65	**141**
I40 R/L 10-GX 16-3	3,76 - 5,00	5.9	24.5	39.6	10	50	GX 16-3 ..N	106.65	**241**	106.65	**241**
I40 R/L 10-GX 16-4	5,01 - 6,50	5.9	24.5	39.6	10	50	GX 16-4 ..N	106.65	**341**	106.65	**341**

11

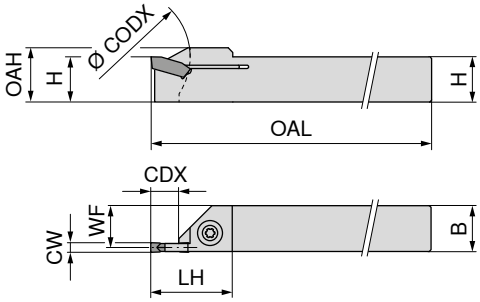




→ 34–41 → 83

MonoClamp – Radial Monoholder GX 09

Scope of supply:
Mono holder incl. Torx key and clamping screw

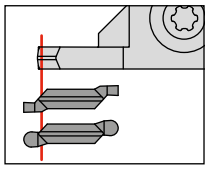




Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 863 ... £ 2C/71		Right-hand 70 862 ... £ 2C/71	
E10 R/L 00-1010M-GX09	10	10	2,00 - 3,50	9.35	12	150	18	30	7	GX 09 ..	149.53	**010**	149.53	**010**

When using 'R' or 'L' tools the tool must be modified at the end face to ensure cutting clerance.



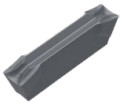


Key D



Clamping screw

Spare parts for grooving inserts		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28	
GX 09 ..	T15	16.32	**113**	M4x11	12.53 **442**



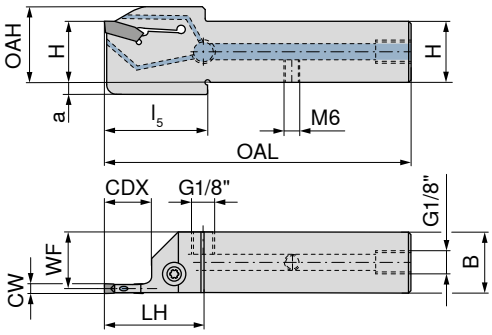


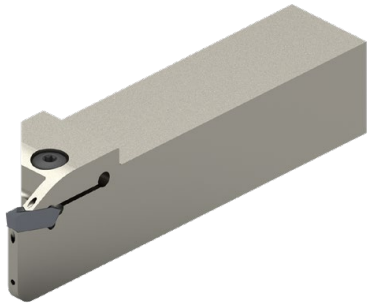
→ 34–40 → **Chapter 16**

MonoClamp – Radial Monoholder GX-DC 16

Scope of supply:
Mono holder incl. Torx key and clamping screw

Direct Cooling





Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	a mm	CDX mm	for grooving inserts	Left-hand 70 842 ... £ 2C/71		Right-hand 70 842 ... £ 2C/71	
E16 R/L 0013S2-1616X-S-DC-GX16	16	16	2	15.20	21	90	35	36	4	13	GX 16-1 E2..	176.75	**21601**	176.75	**21600**
E16 R/L 0013S3-1616X-S-DC-GX16	16	16	3	14.85	21	90	35	36	4	13	GX 16-2 E3..	176.75	**31601**	176.75	**31600**
E16 R/L 0013S4-1616X-S-DC-GX16	16	16	4	14.40	21	90	35	36	4	13	GX 16-3 E4..	176.75	**41601**	176.75	**41600**
E16 R/L 0013S5-1616X-S-DC-GX16	16	16	5	14.00	21	90	35	36	4	13	GX 16-3 E5..	176.75	**51601**	176.75	**51600**
E20 R/L 0013S2-2020X-S-DC-GX16	20	20	2	19.20	25	104	35			13	GX 16-1 E2..	203.45	**22001**	203.45	**22000**
E20 R/L 0013S3-2020X-S-DC-GX16	20	20	3	18.85	25	104	35			13	GX 16-2 E3..	203.45	**32001**	203.45	**32000**
E20 R/L 0013S4-2020X-S-DC-GX16	20	20	4	18.40	25	104	35			13	GX 16-3 E4..	203.45	**42001**	203.45	**42000**
E20 R/L 0013S5-2020X-S-DC-GX16	20	20	5	18.00	25	104	35			13	GX 16-3 E5..	203.45	**52001**	203.45	**52000**
E25 R/L 0013S3-2525X-S-DC-GX16	25	25	3	23.85	30	119	35			13	GX 16-2 E3..	216.35	**32501**	216.35	**32500**
E25 R/L 0013S4-2525X-S-DC-GX16	25	25	4	23.40	30	119	35			13	GX 16-3 E4..	216.35	**42501**	216.35	**42500**
E25 R/L 0013S5-2525X-S-DC-GX16	25	25	5	23.00	30	119	35			13	GX 16-3 E5..	216.35	**52501**	216.35	**52500**


Key D


Clamping screw

Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28	
GX 16-1 E2..	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**
GX 16-2 E3..	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**
GX 16-3 E4..	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**
GX 16-3 E5..	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**

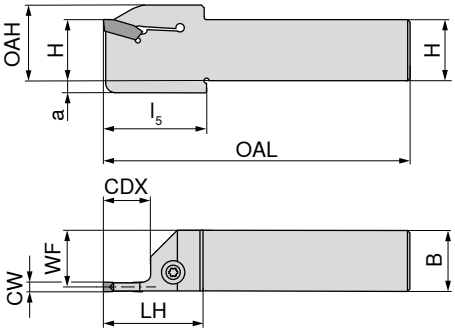



→ 34–41 → **Chapter 16**

11

MonoClamp – Radial Monoholder GX 16

Scope of supply:
Mono holder incl. Torx key and clamping screw

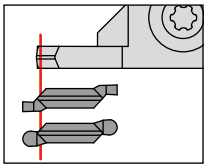




Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	a mm	CDX mm	for grooving inserts	Left-hand 70 843 ... £ 2C/71		Right-hand 70 843 ... £ 2C/71	
E12 R/L 0013S2-1212K-S-GX16	12	12	2	11.20	17	125	25	26	4	13	GX 16-1 E2..	109.25	**21201**	109.25	**21200**
E12 R/L 0013S3-1212K-S-GX16	12	12	3	10.85	17	125	25	26	4	13	GX 16-2 E3..	109.25	**31201**	109.25	**31200**
E16 R/L 0013S2-1616K-S-GX16	16	16	2	15.20	21	125	25	26	4	13	GX 16-1 E2..	116.66	**21601**	116.66	**21600**
E16 R/L 0013S3-1616K-S-GX16	16	16	3	14.85	21	125	25	26	4	13	GX 16-2 E3..	116.66	**31601**	116.66	**31600**
E16 R/L 0013S4-1616K-S-GX16	16	16	4	14.40	21	125	25	26	4	13	GX 16-3 E4..	116.66	**41601**	116.66	**41600**
E16 R/L 0013S5-1616K-S-GX16	16	16	5	14.00	21	125	25	26	4	13	GX 16-3 E5..	116.66	**51601**	116.66	**51600**
E20 R/L 0013S2-2020K-S-GX16	20	20	2	19.20	25	125	25			13	GX 16-1 E2..	134.27	**22001**	134.27	**22000**
E20 R/L 0013S3-2020K-S-GX16	20	20	3	18.85	25	125	25			13	GX 16-2 E3..	134.27	**32001**	134.27	**32000**
E20 R/L 0013S4-2020K-S-GX16	20	20	4	18.40	25	125	25			13	GX 16-3 E4..	134.27	**42001**	134.27	**42000**
E20 R/L 0013S5-2020K-S-GX16	20	20	5	18.00	25	125	25			13	GX 16-3 E5..	134.27	**52001**	134.27	**52000**
E25 R/L 0013S3-2525M-S-GX16	25	25	3	23.85	30	150	25			13	GX 16-2 E3..	142.79	**32501**	142.79	**32500**
E25 R/L 0013S4-2525M-S-GX16	25	25	4	23.40	30	150	25			13	GX 16-3 E4..	142.79	**42501**	142.79	**42500**
E25 R/L 0013S5-2525M-S-GX16	25	25	5	23.00	30	150	25			13	GX 16-3 E5..	142.79	**52501**	142.79	**52500**

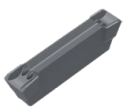
When using 'R' or 'L' tools the tool must be modified at the end face to ensure cutting clerance.




Key D


Clamping screw

Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28	
GX 16-1 E2..	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**
GX 16-2 E3..	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**
GX 16-3 E4..	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**
GX 16-3 E5..	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**

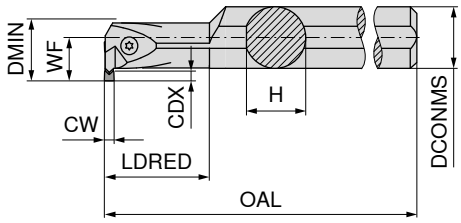




→ 34–41 → **Chapter 16**

MonoClamp – Radial Mono-boring bars GX 09

Scope of supply:
Boring bar incl. key and clamping screw



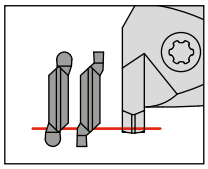


Illustrations show right-hand versions

ISO designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 859 ... £ 2C/71		Right-hand 70 858 ... £ 2C/71	
I12 R/L 90-2,5D-GX09	15.25	16	16	2,00 - 3,75	3	11	150	30	GX 09 ..	183.35	**012**	183.35	**012**

Right hand boring bar → left hand insert only
Left hand boring bar → right hand insert only

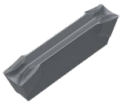
When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.




Key D


Clamping screw

Spare parts for grooving inserts		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28	
GX 09 ..	T15	16.32	**113**	M3,5x12,5	10.86	**441**





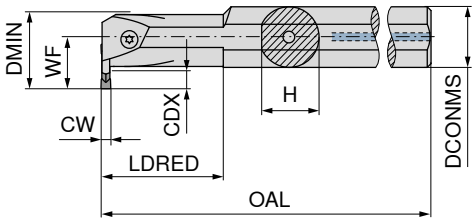
→ 34–40 → **Chapter 16**

11

MonoClamp – Radial Mono-boring bars GX 16

Scope of supply:
Boring bar incl. key and clamping screw





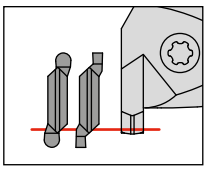


Illustrations show right-hand versions

										Left-hand		Right-hand	
										70 893 ...		**70 892 ...**	
ISO designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	£ 2C/71		£ 2C/71	
I16 R/L 90-2.0D-GX16-1	15.25	16	20.5	2,00 - 2,75	5.0	13.5	150	32	GX 16-1	161.42	**516**	161.42	**516**
I16 R/L 90-2.0D-GX16-2	15.25	16	20.5	2,76 - 3,75	5.0	13.5	150	32	GX 16-2	161.42	**616**	161.42	**616**
I20 R/L 90-2.0D-GX16-2	19.00	20	25.0	2,76 - 3,75	5.5	15.5	180	40	GX 16-2	174.39	**620**	174.39	**620**
I25 R/L 90-2.0D-GX16-2	24.00	25	32.0	2,76 - 3,75	8.0	20.5	200	50	GX 16-2	202.72	**625**	202.72	**625**
I25 R/L 90-2.0D-GX16-3	24.00	25	32.0	3,76 - 5,00	10.0	22.5	200	50	GX 16-3	202.72	**725**	202.72	**725**
I32 R/L 90-2.0D-GX16-2	31.00	32	42.0	2,76 - 3,75	11.0	27.5	250	64	GX 16-2	235.67	**632**	235.67	**632**
I32 R/L 90-2.0D-GX16-3	31.00	32	42.0	3,76 - 5,00	11.0	27.5	250	64	GX 16-3	235.67	**732**	235.67	**732**

Right hand boring bar⟶ left hand insert only
Left hand boring bar⟶ right hand insert only

When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.




Key D


Clamping screw

			80 950 ...			**70 950 ...**	
Spare parts for grooving inserts		£ Y7				£ 2A/28	
GX 16-1	T15	16.32	**113**	M4x14		10.39	**403**
GX 16-2	T15	16.32	**113**	M4x14		10.39	**403**
GX 16-3	T15	16.32	**113**	M4x14		10.39	**403**





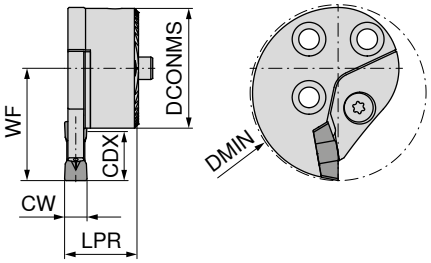
→ 34–41 → **Chapter 16**

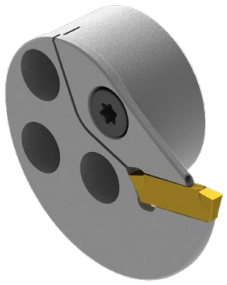
MaxiChange-GX – GX-DC 16 exchangeable grooving head

▲ For grooving and turning

Scope of supply:
Exchangeable grooving head with clamping claw and clamping screw





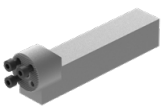


Illustrations show right-hand versions

								NEW Left-hand		NEW Right-hand	
								84 188 ...		84 189 ...	
ISO designation	DCONMS mm	CW mm	WF mm	LPR mm	DMIN mm	CDX mm	for grooving inserts	£ Y8		£ Y8	
WK25 R/L 14-DC GX 16-S2	25	2	27	14.00	41	14	GX 16-1 ..N	358.76	**22500**	358.76	**22500**
WK25 R/L 14-DC GX 16-S3	25	3	27	14.75	41	14	GX 16-2 ..N	358.76	**32500**	358.76	**32500**
WK25 R/L 14-DC GX 16-S4/5	25	4/5	27	15.75	41	14	GX 16-3 ..N	358.76	**42500**	358.76	**42500**
WK32 R/L 13-DC GX 16-S4/5	32	4/5	30	17.75	47	13	GX 16-3 ..N	378.69	**43200**	378.69	**43200**
WK32 R/L 13-DC GX 16-S6	32	6	30	19.35	47	13	GX 16-3 ..N	378.69	**63200**	378.69	**63200**

	Clamping claw			O-Ring			Clamping screw			Guide pin	
	84 950 ...			84 950 ...			84 950 ...			84 950 ...	
Spare parts for Article no.	£ Y8			£ Y8			£ Y8			£ Y8	
84 189 22500	80.77	**50400**	2x1	6.29	**50300**	M4X4/T15	11.54	**50000**	D3H6X10	7.34	**53000**
84 188 22500	80.77	**50500**	2x1	6.29	**50300**	M4X4/T15	11.54	**50000**	D3H6X10	7.34	**53000**
84 189 32500	80.77	**50600**	2x1	6.29	**50300**	M4X4/T15	11.54	**50000**	D3H6X10	7.34	**53000**
84 188 32500	80.77	**50700**	2x1	6.29	**50300**	M4X4/T15	11.54	**50000**	D3H6X10	7.34	**53000**
84 189 42500	80.77	**50800**	2x1	6.29	**50300**	M4X4/T15	11.54	**50000**	D3H6X10	7.34	**53000**
84 188 42500	80.77	**50900**	2x1	6.29	**50300**	M4X4/T15	11.54	**50000**	D3H6X10	7.34	**53000**
84 189 43200	87.07	**51000**	2x1	6.29	**50300**	M5X5,5/T15	12.59	**50100**	D4H6X10	7.34	**53100**
84 188 43200	87.07	**51100**	2x1	6.29	**50300**	M5X5,5/T15	12.59	**50100**	D4H6X10	7.34	**53100**
84 189 63200	87.07	**51200**	2x1	6.29	**50300**	M5X5,5/T15	12.59	**50100**	D4H6X10	7.34	**53100**
84 188 63200	87.07	**51300**	2x1	6.29	**50300**	M5X5,5/T15	12.59	**50100**	D4H6X10	7.34	**53100**

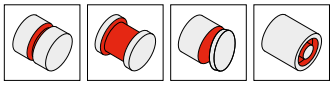




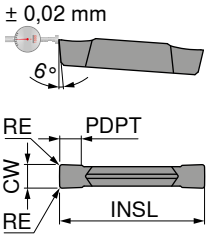
→ 34–41 → **Chapter 9**

Insert GX 24

▲ Insert with ground periphery
▲ Suitable also for parting off tubes and thin-walled workpieces



F	M	R



-F2 CTCP325	-F2 CTPP345	-F2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ... £ 1C/72		70 350 ... £ 1C/72		70 350 ... £ 1C/72	
GX 24-2 E3.00 N 0.30	24	3.0	0.3	2.5	GX 24-2	32.87	**962**	32.87	**862**	32.87	**662**
GX 24-2 E3.50 N 0.30	24	3.5	0.3	2.5	GX 24-2			32.87	**864**		
GX 24-3 E4.00 N 0.40	24	4.0	0.4	3.0	GX 24-3	35.48	**966**	35.48	**866**	35.48	**666**
GX 24-3 E5.00 N 0.40	24	5.0	0.4	3.5	GX 24-3	38.92	**970**	38.92	**870**	38.92	**671**
GX 24-4 E6.00 N 0.50	24	6.0	0.5	4.0	GX 24-4			42.79	**872**	42.79	**672**
P						●		●		●	
M						○		●		●	
K						●				●	
N										○	
S						○		○		●	
H											
O										○	

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→ Application recommendation on page 89

Internal machining




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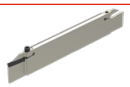
External machining

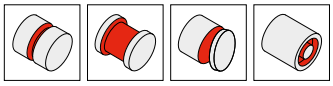





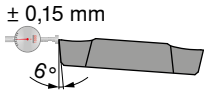

→ 60–62 | → 64 | → 65+66 | → 69 | → 70

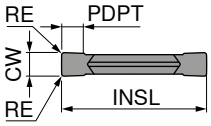
Insert GX 24

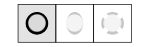
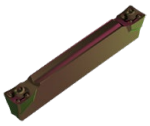
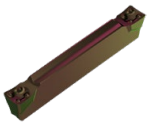
▲ Universal application
▲ First choice for axial grooving



F	M	R
		





-E CTCP325	-E CTCP335	-E CTPP345	-E CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
			
			

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ... £ 1C/72		70 350 ... £ 1C/72		70 350 ... £ 1C/72		70 350 ... £ 1C/72	
GX 24-2 E3.00 N 0.30	24	3	0.3	2.5	GX 24-2	22.12	**932**	22.12	**532**	22.12	**832**	22.12	**632**
GX 24-3 E4.00 N 0.40	24	4	0.4	3.0	GX 24-3	24.20	**936**	24.20	**536**	24.20	**836**	24.20	**636**
GX 24-3 E5.00 N 0.40	24	5	0.4	3.0	GX 24-3	26.40	**940**	26.40	**540**	26.40	**840**	26.40	**640**
GX 24-4 E6.00 N 0.50	24	6	0.5	3.5	GX 24-4	29.02	**944**	29.02	**544**	29.02	**844**	29.02	**644**
P							●		●		●		●
M							○		○		●		●
K							●		●				●
N													○
S							○				○		●
H													
O													○

→ v_c Page 88
→ Application recommendation on page 89

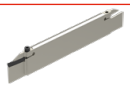
Internal machining


→ 63


→ 67+68

External machining


→ 60–62


→ 64


→ 65+66

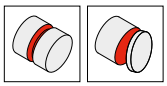

→ 69


→ 70

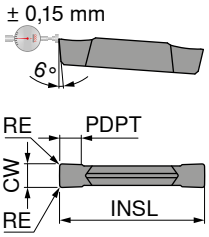
11

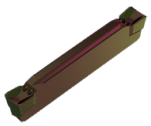
Insert GX 24

▲ Very good swarf control



F	M	R
		



-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	for tool holder	70 363 ... £ 1C/72		70 363 ... £ 1C/72		70 363 ... £ 1C/72	
GX 24-1 E2.00 N 0.20	24	2	0.2	GX 24-1	22.12	**900**	22.12	**800**	22.12	**600**
GX 24-2 E3.00 N 0.20	24	3	0.2	GX 24-2	22.12	**902**	22.12	**802**	22.12	**602**
GX 24-3 E4.00 N 0.30	24	4	0.3	GX 24-3	24.20	**904**	24.20	**804**	24.20	**604**
P						●		●		●
M						○		●		●
K						●				●
N										○
S						○		○		●
H										
O										○

→ v_c Page 88
→ Application recommendation on page 90

Internal machining




→ 63 | → 67+68

External machining

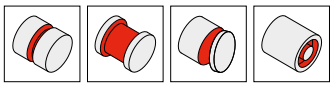




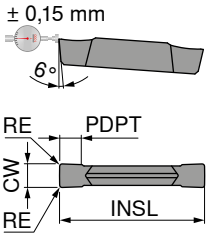

→ 60–63 | → 64 | → 65+66 | → 69

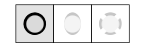
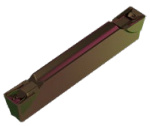
Insert GX 24

▲ Very good swarf control



F	M	R
		



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 364 ... £ 1C/72		70 364 ... £ 1C/72		70 364 ... £ 1C/72	
GX 24-2 E3.00 N 0.30	24	3	0.3	3.5	GX 24-2	22.12	**900**	22.12	**800**	22.12	**600**
GX 24-3 E4.00 N 0.40	24	4	0.4	4.0	GX 24-3	24.20	**902**	24.20	**802**	24.20	**602**
GX 24-3 E5.00 N 0.40	24	5	0.4	4.0	GX 24-3	26.40	**904**	26.40	**804**	26.40	**604**
GX 24-4 E6.00 N 0.50	24	6	0.5	4.0	GX 24-4	29.02	**906**	29.02	**806**	29.02	**606**
P						●		●		●	
M						○		●		●	
K						●				●	
N										○	
S						○		○		●	
H											
O										○	

→ v_c Page 88
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Internal machining


→ 63


→ 67+68

External machining


→ 60–63


→ 64

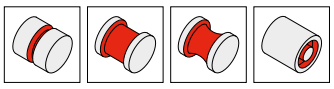

→ 65+66


→ 69

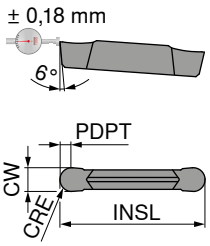

→ 70

11

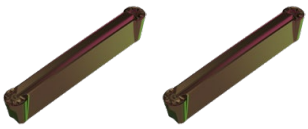
Radius groove insert GX 24



F	M	R



-M3 CTCP325	-M3 CTCP335
DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	70 354 ... £ 1C/72		70 354 ... £ 1C/72	
GX 24-2 R1.50 N	24.4	3	1.5	1.5	GX 24-2	29.41	**952**	29.41	**552**
GX 24-3 R2.00 N	24.4	4	2.0	2.5	GX 24-3	31.50	**954**	31.50	**554**
GX 24-3 R2.50 N	24.4	5	2.5	3.0	GX 24-3	32.87	**956**	32.87	**556**
GX 24-4 R3.00 N	24.4	6	3.0	4.0	GX 24-4	35.34	**958**	35.34	**558**
P							●		●
M							○		○
K							●		●
N									
S							○		
H									
O									

→ v_c Page 88
→ Application recommendation on page 90

Internal machining




→ 63 | → 67+68

External machining



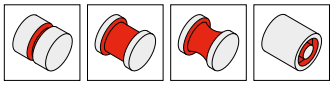




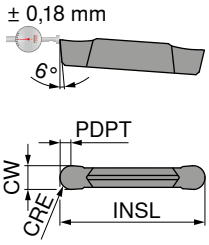
→ 60–63 | → 64 | → 65+66 | → 69 | → 70

Radius groove insert GX 24

▲ Suitable for the machining of tough and ductile materials

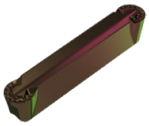


F	M	R
		



-M33
CTCP325

DRAGONSKIN



70 365 ...

Designation	INSL mm	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	£ 1C/72	
GX 24-2 R1.50 N	24.4	3	1.5	1.5	GX 24-2	29.41	**95200**
GX 24-3 R2.00 N	24.4	4	2.0	2.5	GX 24-3	31.50	**95400**
GX 24-3 R2.50 N	24.4	5	2.5	3.0	GX 24-3	32.87	**95600**
GX 24-4 R3.00 N	24.4	6	3.0	4.0	GX 24-4	35.34	**95800**

P	●
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K	●
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→ v_c Page 88
→ Application recommendation on page 90

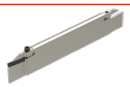
Internal machining


→ 63


→ 67+68

External machining


→ 60–63


→ 64


→ 65+66


→ 69


→ 70

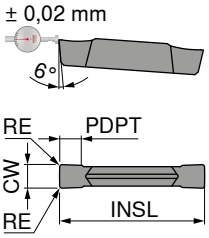
11

Insert GX 24

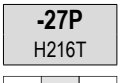
▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery

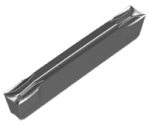


F	M	R
		



-27P
H216T





70 350 ...

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	£ 1C/72	
GX 24-2 E3.00 N 0.30	24	3	0.3	2.5	GX 24-2	26.40	**682**
GX 24-3 E4.00 N 0.40	24	4	0.4	3.0	GX 24-3	29.02	**684**
GX 24-3 E5.00 N 0.40	24	5	0.4	3.5	GX 24-3	30.25	**686**
GX 24-4 E6.00 N 0.50	24	6	0.5	4.0	GX 24-4	31.38	**688**

P	
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K	●
N	●
S	○
H	
O	○

→ v_c Page 88
→ Application recommendation on page 89

Internal machining


→ 63


→ 67+68

External machining


→ 60–63


→ 64

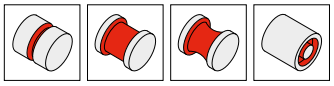

→ 65+66


→ 69

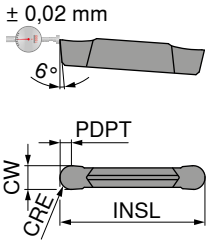

→ 70

Radius grooving insert GX 24

▲ Insert with highly positive cutting edge geometry and sharp cutting edge
▲ ground periphery



F	M	R
		



-27PF
H216T



Designation	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	for tool holder	70 353 ... £ 1C/72	
GX 24-4 R3.00 N	25.4	6	3	4	GX 24-4	39.46	**500**
GX 24-5 R4.00 N	25.4	8	4	5	GX 24-5	41.65	**506**

P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 88
→ Application recommendation on page 90

Internal machining


→ 63


→ 67+68

External machining


→ 60–63


→ 64


→ 65+66


→ 69

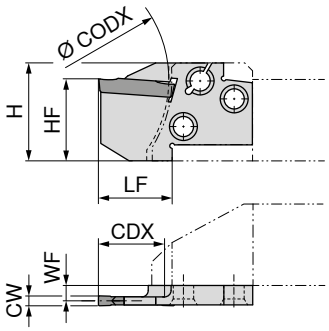

→ 70

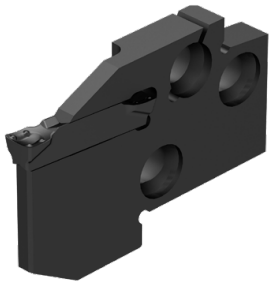
11

ModularClamp MSS – Radial grooving module GX 24

▲ For deep radial parting and grooving
▲ For turning

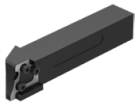
Scope of supply:
Grooving module only





Illustrations show right-hand versions

ISO designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 868 ... £ 2C/71		Right-hand 70 867 ... £ 2C/71	
E20 R/L 21-GX 24-1	2,00 - 2,75	3.60	22	20	24	60	21	GX 24-1	104.00	**020**	104.00	**020**
E20 R/L 21-GX 24-2	3	3.40	22	20	24	60	21	GX 24-2	104.00	**120**	104.00	**120**
E20 R/L 21-GX 24-3	4/5	2.93	22	20	24	30	21	GX 24-3	104.00	**22000**	104.00	**22000**
E25 R/L 21-GX 24-1	2,00 - 2,75	5.10	22	25	30	75	21	GX 24-1	104.76	**025**	104.76	**025**
E25 R/L 21-GX 24-2	3	4.90	22	25	30	75	21	GX 24-2	104.76	**125**	104.76	**125**
E25 R/L 21-GX 24-3	4/5	4.43	22	25	30	75	21	GX 24-3	104.76	**225**	104.76	**225**
E25 R/L 21-GX 24-4	6	3.80	22	25	30	75	21	GX 24-4	104.76	**325**	104.76	**325**
E25 R/L 21-GX 24-5	8	2.95	23	25	30	75	21	GX 24-5	104.76	**425**	104.76	**425**

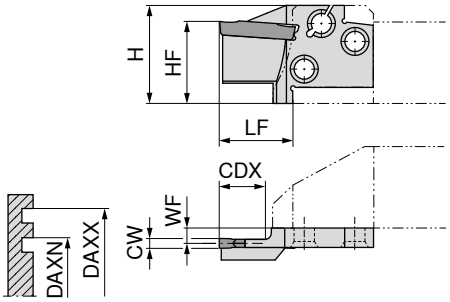



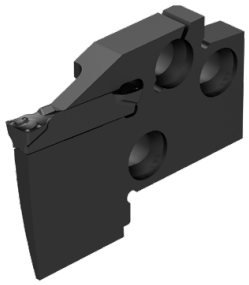

→ 52–59 → 80+81 → 82

ModularClamp MSS – Axial grooving module GX 24 short

▲ For axial grooving
▲ For face turning

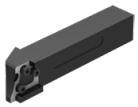
Scope of supply:
Grooving module only





Illustrations show right-hand versions

ISO designation	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	HF mm	H mm	CDX mm	for grooving inserts	Left-hand 70 891 ... £ 2C/71		Right-hand 70 890 ... £ 2C/71	
E20 R/L 14-GX 24-2 A	50	70	3	3.40	22	20	24	14	GX 24-2	135.03	**100**	135.03	**100**
E20 R/L 14-GX 24-2 A	70	100	3	3.40	22	20	24	14	GX 24-2	135.03	**102**	135.03	**102**
E20 R/L 14-GX 24-2 A	100	150	3	3.40	22	20	24	14	GX 24-2	135.03	**104**	135.03	**104**
E25 R/L 15-GX 24-2 A	50	70	3	4.90	22	25	30	15	GX 24-2	136.22	**200**	136.22	**200**
E25 R/L 15-GX 24-2 A	70	100	3	4.90	22	25	30	15	GX 24-2	136.22	**202**	136.22	**202**
E25 R/L 15-GX 24-2 A	100	150	3	4.90	22	25	30	15	GX 24-2	136.22	**204**	136.22	**204**
E25 R/L 15-GX 24-3 A	50	70	4/5	4.43	22	25	30	15	GX 24-3	136.22	**206**	136.22	**206**
E25 R/L 15-GX 24-3 A	70	100	4/5	4.43	22	25	30	15	GX 24-3	136.22	**208**	136.22	**208**
E25 R/L 15-GX 24-3 A	100	150	4/5	4.43	22	25	30	15	GX 24-3	136.22	**210**	136.22	**210**
E25 R/L 15-GX 24-3 A	150	300	4/5	4.43	22	25	30	15	GX 24-3	136.22	**212**	136.22	**212**
E25 R/L 15-GX 24-4 A	50	70	6	3.80	22	25	30	15	GX 24-4	136.22	**214**	136.22	**214**
E25 R/L 15-GX 24-4 A	70	100	6	3.80	22	25	30	15	GX 24-4	136.22	**216**	136.22	**216**
E25 R/L 15-GX 24-4 A	100	150	6	3.80	22	25	30	15	GX 24-4	136.22	**218**	136.22	**218**
E25 R/L 15-GX 24-4 A	150	300	6	3.80	22	25	30	15	GX 24-4	136.22	**220**	136.22	**220**

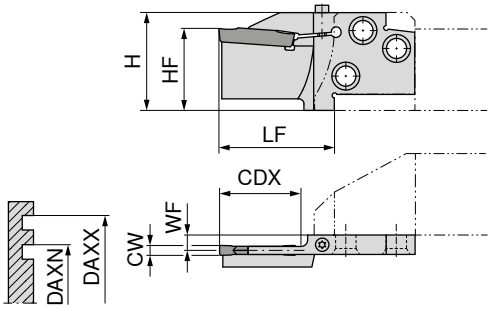




→ 52–59 → 80+81 → 82

ModularClamp MSS – Axial grooving module GX 24 long

▲ For axial grooving
▲ For face turning

Scope of supply:
Grooving module only





Illustrations show right-hand versions

ISO designation	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	HF mm	H mm	CDX mm	for grooving inserts	Left-hand 70 895 ... £ 2C/71		Right-hand 70 894 ... £ 2C/71	
E25 R/L 21-GX 24-3 AS	50	70	4/5	4.53	35	25	30	21	GX 24-3	139.02	**200**	139.02	**200**
E25 R/L 21-GX 24-3 AS	70	100	4/5	4.53	35	25	30	21	GX 24-3	139.02	**202**	139.02	**202**
E25 R/L 21-GX 24-3 AS	100	150	4/5	4.53	35	25	30	21	GX 24-3	139.02	**204**	139.02	**204**
E25 R/L 21-GX 24-3 AS	150	300	4/5	4.53	35	25	30	21	GX 24-3	139.02	**206**	139.02	**206**
E25 R/L 25-GX 24-4 AS	50	70	6	3.90	35	25	30	25	GX 24-4	139.02	**210**	139.02	**210**
E25 R/L 25-GX 24-4 AS	70	100	6	3.90	35	25	30	25	GX 24-4	139.02	**212**	139.02	**212**
E25 R/L 25-GX 24-4 AS	100	150	6	3.90	35	25	30	25	GX 24-4	139.02	**214**	139.02	**214**
E25 R/L 25-GX 24-4 AS	150	300	6	3.90	35	25	30	25	GX 24-4	139.02	**216**	139.02	**216**

Axial modules version „GX 24 long“ can be clamped on both sides.


Key D


Clamping screw

Spare parts for grooving inserts		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28	
GX 24-3	T15	16.32	**113**	M3,5x14	4.96 **160**
GX 24-4	T15	16.32	**113**	M3,5x14	4.96 **160**


→ 52–59

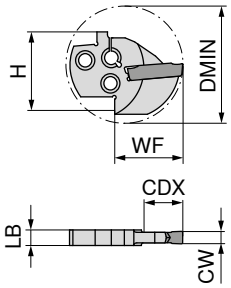

→ 80+81


→ 82

ModularClamp MSS – Radial Grooving module GX 24 for Internal machining

▲ for grooving and turning

Scope of supply:
Grooving module only





Neutral

ISO designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	70 880 ... £ 2C/71	
I40 N 19-GX 24-2	2,76 - 3,75	6.2	33.5	40.7	19	60	GX 24-2 ..N	121.10	**340**
I40 N 19-GX 24-3	3,76 - 5,00	6.2	33.5	40.7	19	60	GX 24-3 ..N	121.10	**440**
I40 N 19-GX 24-4	5,01 - 6,50	6.2	33.5	40.7	19	60	GX 24-4 ..N	121.10	**540**





→ 52–59 → 83

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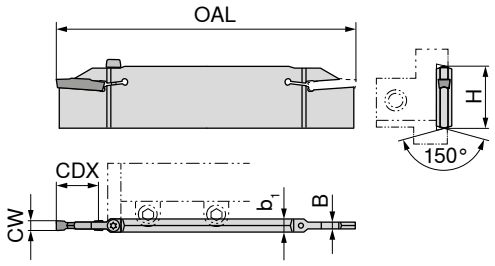
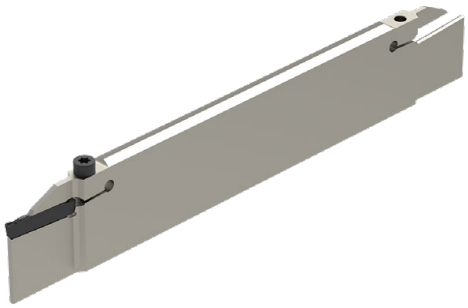
MonoClamp – Radial Blade GX 24

Scope of supply:
Blade incl. key and clamping screw





ISO designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	70 834 ... £ 2A/25	
XLCF N 3203-GX24-1S	2	32	1.05	6.2	180	21	GX 24-1	101.45	**102**
XLCF N 3203-GX24-2S	3	32	2.10	6.2	180	21	GX 24-2	102.99	**103**
XLCF N 3204-GX24-3S	4/5	32	3.05	6.2	180	21	GX 24-3	109.82	**104**
XLCF N 3206-GX24-4S	6	32	4.20	6.2	180	21	GX 24-4	129.80	**106**


Key D


Clamping screw

Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28	
GX 24-1	T15	16.32	**113**	M3,5x14	4.96	**160**
GX 24-2	T15	16.32	**113**	M3,5x14	4.96	**160**
GX 24-3	T15	16.32	**113**	M3,5x14	4.96	**160**
GX 24-4	T15	16.32	**113**	M3,5x14	4.96	**160**



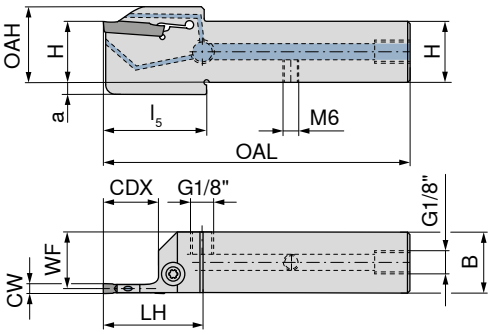


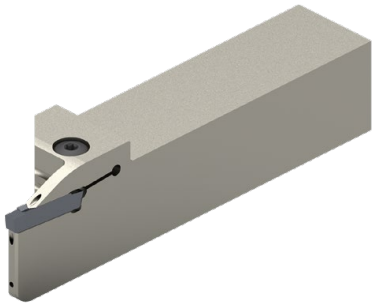
→ 52–59 → 85+86 → **Chapter 16**

MonoClamp – Radial Monoholder GX-DC 24

Scope of supply:
Mono holder incl. key and clamping screw

Direct Cooling





Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	CDX mm	a mm	for grooving inserts	Left-hand 70 844 ... £ 2C/71		Right-hand 70 844 ... £ 2C/71	
E16 R/L 0021S2-1616X-S-DC-GX24	16	16	2	15.2	22	94	39	40	21	4	GX 24-1 E2..	190.01	**21601**	190.01	**21600**
E16 R/L 0021S3-1616X-S-DC-GX24	16	16	3	14.8	22	94	39	40	21	4	GX 24-2 E3..	190.01	**31601**	190.01	**31600**
E20 R/L 0021S2-2020X-S-DC-GX24	20	20	2	19.2	26	109	40		21		GX 24-1 E2..	218.71	**22001**	218.71	**22000**
E20 R/L 0021S3-2020X-S-DC-GX24	20	20	3	18.8	26	109	40		21		GX 24-2 E3..	218.71	**32001**	218.71	**32000**
E20 R/L 0021S4-2020X-S-DC-GX24	20	20	4	18.3	26	109	40		21		GX 24-3 E4..	218.71	**42001**	218.71	**42000**
E20 R/L 0021S5-2020X-S-DC-GX24	20	20	5	18.0	26	109	40		21		GX 24-3 E5..	218.71	**52001**	218.71	**52000**
E25 R/L 0021S3-2525X-S-DC-GX24	25	25	3	23.8	31	124	40		21		GX 24-2 E3..	233.78	**32501**	233.78	**32500**
E25 R/L 0021S4-2525X-S-DC-GX24	25	25	4	23.3	31	124	40		21		GX 24-3 E4..	233.78	**42501**	233.78	**42500**
E25 R/L 0021S5-2525X-S-DC-GX24	25	25	5	23.0	31	124	40		21		GX 24-3 E5..	233.78	**52501**	233.78	**52500**
E25 R/L 0021S6-2525X-S-DC-GX24	25	25	6	22.5	31	124	40		21		GX 24-4 E6..	233.78	**62501**	233.78	**62500**


Key D


Clamping screw

Spare parts for grooving inserts		80 950 ... £ Y7			70 950 ... £ 2A/28	
GX 24-1 E2..	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**
GX 24-2 E3..	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**
GX 24-3 E4..	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**
GX 24-3 E5..	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**
GX 24-4 E6..	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**

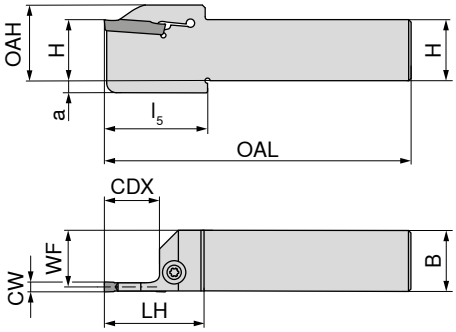


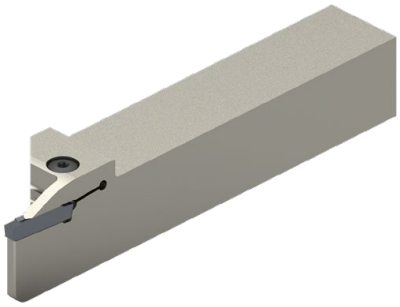


→ 52–59 → **Chapter 16**

MonoClamp – Radial Monoholder GX 24

Scope of supply:
Mono holder incl. key and clamping screw





Illustrations show right-hand versions

ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	CDX mm	a mm	for grooving inserts	Left-hand 70 845 ... £ 2C/71		Right-hand 70 845 ... £ 2C/71	
E16 R/L 0021S2-1616K-S-GX24	16	16	2	15.2	22	125	39	40	21	4	GX 24-1 E2..	125.41	**21601**	125.41	**21600**
E16 R/L 0021S3-1616K-S-GX24	16	16	3	14.8	22	125	39	40	21	4	GX 24-2 E3..	125.41	**31601**	125.41	**31600**
E20 R/L 0021S2-2020K-S-GX24	20	20	2	19.2	26	125	40		21		GX 24-1 E2..	144.34	**22001**	144.34	**22000**
E20 R/L 0021S3-2020K-S-GX24	20	20	3	18.8	26	125	40		21		GX 24-2 E3..	144.34	**32001**	144.34	**32000**
E20 R/L 0021S4-2020K-S-GX24	20	20	4	18.3	26	125	40		21		GX 24-3 E4..	144.34	**42001**	144.34	**42000**
E20 R/L 0021S5-2020K-S-GX24	20	20	5	18.0	26	125	40		21		GX 24-3 E5..	144.34	**52001**	144.34	**52000**
E25 R/L 0021S3-2525M-S-GX24	25	25	3	23.8	31	150	40		21		GX 24-2 E3..	154.30	**32501**	154.30	**32500**
E25 R/L 0021S4-2525M-S-GX24	25	25	4	23.3	31	150	40		21		GX 24-3 E4..	154.30	**42501**	154.30	**42500**
E25 R/L 0021S5-2525M-S-GX24	25	25	5	23.0	31	150	40		21		GX 24-3 E5..	154.30	**52501**	154.30	**52500**
E25 R/L 0021S6-2525M-S-GX24	25	25	6	22.5	31	150	40		21		GX 24-4 E6..	154.30	**62501**	154.30	**62500**


Key D


Clamping screw

Spare parts for grooving inserts	80 950 ...		70 950 ...	
	£ Y7		£ 2A/28	
GX 24-1 E2..	T15 - IP 21.01	**128**	M5x18 - 15IP 11.55	**865**
GX 24-2 E3..	T15 - IP 21.01	**128**	M5x18 - 15IP 11.55	**865**
GX 24-3 E4..	T15 - IP 21.01	**128**	M5x18 - 15IP 11.55	**865**
GX 24-3 E5..	T15 - IP 21.01	**128**	M5x18 - 15IP 11.55	**865**
GX 24-4 E6..	T15 - IP 21.01	**128**	M5x18 - 15IP 11.55	**865**

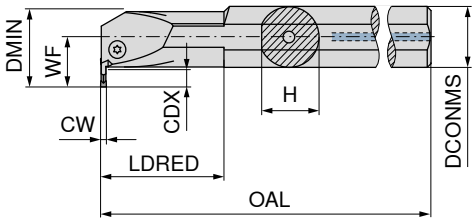


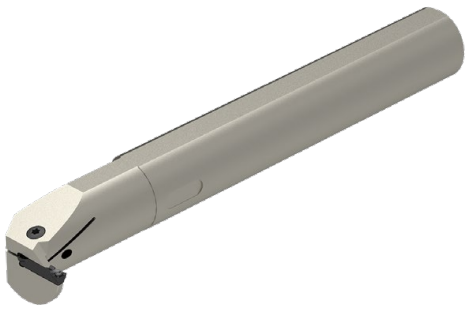

→ 52–59 → **Chapter 16**

MonoClamp – Radial Mono-boring bars GX 24

Scope of supply:
Boring bar incl. key and clamping screw







Illustrations show right-hand versions

										Left-hand		Right-hand	
										70 895 ...		**70 894 ...**	
ISO designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	£ 2C/71		£ 2C/71	
I32 R/L 90-2.0D-GX24-2	31.0	32	42	2,76 - 3,75	11	27.5	250	64	GX 24-2	235.67	**132**	235.67	**132**
I32 R/L 90-2.0D-GX24-3	31.0	32	42	3,76 - 5,00	11	27.5	250	64	GX 24-3	235.67	**232**	235.67	**232**
I40 R/L 90-2.0D-GX24-3	38.5	40	53	3,76 - 5,00	12	32.5	300	80	GX 24-3	292.82	**240**	292.82	**240**



Key D



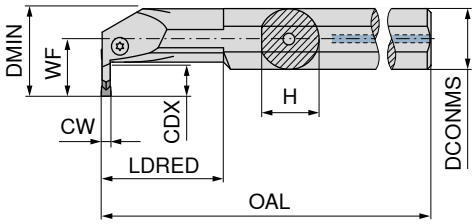
Clamping screw

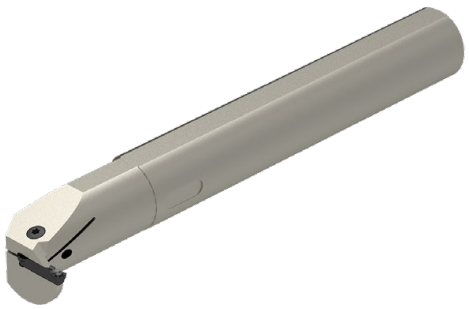
| | | | | | | | | | |

MonoClamp – Radial Mono-boring bars GX 24

Scope of supply:
Boring bar incl. key and clamping screw







Illustrations show right-hand versions

										Left-hand		Right-hand	
										70 895 ...		**70 894 ...**	
ISO designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	£ 2C/71		£ 2C/71	
I32 R/L 90-2.0D-GX24-4	31.0	32	47	5,01 - 6,50	17.5	30.4	250	64	GX 24-4	235.67	**332**	235.67	**332**
I40 R/L 90-2.0D-GX24-4	38.5	40	57	5,01 - 6,50	17.5	34.4	300	80	GX 24-4	292.82	**340**	292.82	**340**


Key D


Clamping screw

				80 950 ...		**70 950 ...**	
Spare parts for grooving inserts				£ Y7		£ 2A/28	
GX 24-4		T20		17.48	**114**	M5x18	6.92	**404**





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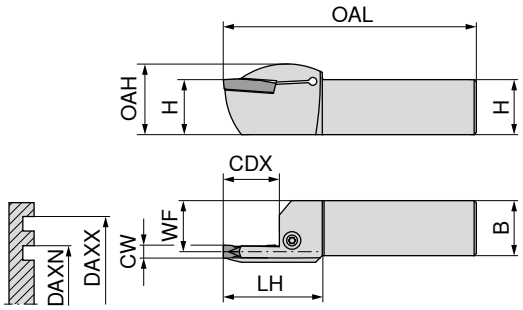
MonoClamp – Axial Monoholder GX 24

Scope of supply:
Mono holder incl. key and clamping screw





Illustrations show right-hand versions

ISO designation	H	B	CW	WF	DAXN	DAXX	OAH	OAL	LH	CDX	for grooving inserts	Left-hand 70 904 ... £ 2C/71		Right-hand 70 903 ... £ 2C/71	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm					
E25 R/L 0012-2525X-GX24-2	25	25	3	24.7	45	50	32	115	45	12	GX 24-2	158.77	**202**	158.77	**202**
E25 R/L 0016-2525X-GX24-2	25	25	3	24.7	50	60	32	115	45	16	GX 24-2	158.77	**204**	158.77	**204**
E25 R/L 0019-2525X-GX24-2	25	25	3	24.7	60	75	32	115	45	19	GX 24-2	158.77	**206**	158.77	**206**
E25 R/L 0019-2525X-GX24-2	25	25	3	24.7	75	100	32	115	45	19	GX 24-2	158.77	**208**	158.77	**208**
E25 R/L 0022-2525X-GX24-2	25	25	3	24.7	100	130	32	115	45	22	GX 24-2	158.77	**210**	158.77	**210**
E25 R/L 0022-2525X-GX24-2	25	25	3	24.7	130	180	32	115	45	22	GX 24-2	158.77	**212**	158.77	**212**
E25 R/L 0022-2525X-GX24-2	25	25	3	24.7	180	300	32	115	45	22	GX 24-2	158.77	**214**	158.77	**214**
E25 R/L 0012-2525X-GX24-3	25	25	4+5	24.2	45	50	32	115	45	12	GX 24-3	158.77	**232**	158.77	**232**
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24.2	50	60	32	115	45	20	GX 24-3	158.77	**234**	158.77	**234**
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24.2	60	75	32	115	45	20	GX 24-3	158.77	**236**	158.77	**236**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24.2	75	100	32	115	45	22	GX 24-3	158.77	**238**	158.77	**238**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24.2	100	150	32	115	45	22	GX 24-3	158.77	**240**	158.77	**240**
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24.2	150	300	32	115	45	22	GX 24-3	158.77	**242**	158.77	**242**
E25 R/L 0022-2525X-GX24-4	25	25	6	23.2	50	70	32	115	45	22	GX 24-4	158.77	**262**	158.77	**262**
E25 R/L 0025-2525X-GX24-4	25	25	6	23.2	70	100	32	115	45	25	GX 24-4	158.77	**264**	158.77	**264**
E25 R/L 0025-2525X-GX24-4	25	25	6	23.2	100	150	32	115	45	25	GX 24-4	158.77	**266**	158.77	**266**
E25 R/L 0025-2525X-GX24-4	25	25	6	23.2	150	300	32	115	45	25	GX 24-4	158.77	**268**	158.77	**268**


Key D


Clamping screw

Spare parts for grooving inserts		80 950 ... £ Y7		70 950 ... £ 2A/28	
GX 24-2	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**
GX 24-3	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**
GX 24-4	T15 - IP	21.01	**128**	M5x18 - 15IP	11.55	**865**





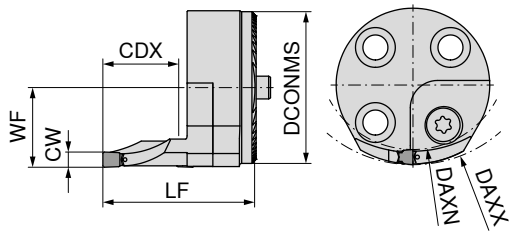
→ 52–59 → **Chapter 16**

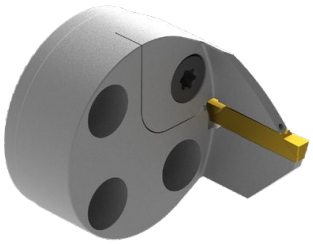
MaxiChange-GX – GX-DC 24 axial exchangeable grooving head

▲ For axial grooving

Scope of supply:
Exchangeable grooving head with clamping claw and clamping screw





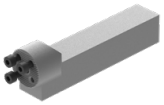


Illustrations show right-hand versions

									NEW Left-hand		NEW Right-hand	
									84 186 ...		84 187 ...	
ISO designation	DCONMS mm	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	CDX mm	for grooving inserts	£ Y8		£ Y8	
WK40 R/L 20-DC GX 24-S3 D50-70	40	50	70	3	21	40	20	GX 24-2 ..N	458.41	**34000**	458.41	**34000**
WK40 R/L 20-DC GX 24-S3 D70-100	40	70	100	3	21	40	20	GX 24-2 ..N	458.41	**34100**	458.41	**34100**
WK40 R/L 20-DC GX 24-S3 D100-150	40	100	150	3	21	40	20	GX 24-2 ..N	458.41	**34200**	458.41	**34200**
WK40 R/L 20-DC GX 24-S3 D150-300	40	150	300	3	21	40	20	GX 24-2 ..N	458.41	**34300**	458.41	**34300**
WK40 R/L 20-DC GX 24-S4 D50-70	40	50	70	4	21	40	20	GX 24-3 ..N	487.79	**44000**	487.79	**44000**
WK40 R/L 20-DC GX 24-S4 D70-100	40	70	100	4	21	40	20	GX 24-3 ..N	487.79	**44100**	487.79	**44100**
WK40 R/L 20-DC GX 24-S4 D100-150	40	100	150	4	21	40	20	GX 24-3 ..N	487.79	**44200**	487.79	**44200**
WK40 R/L 20-DC GX 24-S4 D150-300	40	150	300	4	21	40	20	GX 24-3 ..N	487.79	**44300**	487.79	**44300**

	Clamping claw		O-Ring		Clamping screw		Guide pin	
	84 950 ...		84 950 ...		84 950 ...		84 950 ...	
Spare parts for Article no.	£ Y8		£ Y8		£ Y8		£ Y8	
84 187 34000	90.21	**51400**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 186 34000	90.21	**51800**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 187 34100	92.31	**51500**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 186 34100	92.31	**51900**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 187 34200	94.41	**51600**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 186 34200	94.41	**52000**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 187 34300	99.66	**51700**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 186 34300	99.66	**52100**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 187 44000	90.21	**52200**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 186 44000	90.21	**52600**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 187 44100	92.31	**52300**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 186 44100	92.31	**52700**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 187 44200	94.41	**52400**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 186 44200	94.41	**52800**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 187 44300	99.66	**52500**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**
84 186 44300	99.66	**52900**	2x1	6.29 **50300**	M6x0,5X5/T25	14.69 **50200**	D4H6X12	7.34 **53200**

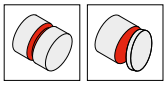




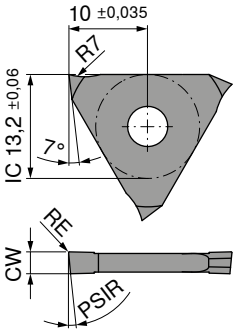
→ 52–59 → **Chapter 9**

TX grooving insert for grooving and parting off

▲ Cutting depth 5.0 mm
▲ Cutting width 1.99–2.79 mm



F	M	R

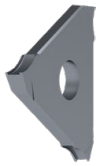


Illustrations show right-hand versions

CWX500



CWX500



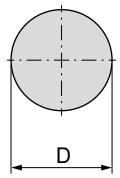
ISO designation	CW -0,05 mm	RE mm	PSIR	for tool holder	Left-hand 73 302 ... £ Y6		Right-hand 73 301 ... £ Y6	
TX R/L 0518.00.1	1.99	0.1	5°	R/L 207 .. . / 780 .. . 1	61.39	**204**	59.71	**204**
TX R/L 0521.00.2	2.29	0.1	5°	R/L 207 .. . / 780 .. . 2	59.10	**206**	61.66	**206**
TX R/L 0526.00.2	2.79	0.1	5°	R/L 207 .. . / 780 .. . 2	59.10	**208**	61.66	**208**
P						●		●
M						●		●
K						●		●
N						●		●
S						●		●
H						○		○
O						●		●

→ v_c Page 88

11

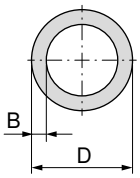
Grooving depth

Full material



max. 10 mm

Pipe



D ≤ 50 mm: Wall thickness B = approx. 5 mm
D ≥ 50 mm: Wall thickness B = approx. 4 mm

Internal machining



→ 79

External machining



→ 76–78

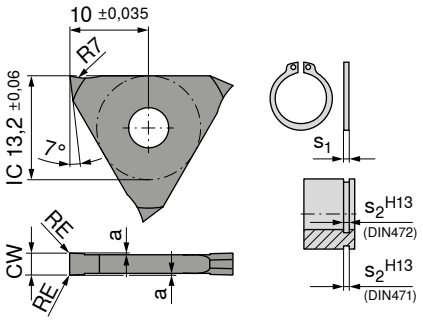
TX insert for circlip grooves

▲ For circlip grooves according to DIN 471 / 472



CWX500

F	M	R
		





Neutral

73 300 ...

Designation	s_2 mm	CW $_{-0,05}$ mm	RE mm	a $_{+/-0,02}$ mm	for tool holder	£ Y6	
TX N 0050.00.1	0.50	0.57	0.05	0.07	R/L .. .1	40.80	**204**
TX N 0060.00.1	0.60	0.67	0.05	0.07	R/L .. .1	40.80	**206**
TX N 0070.00.1	0.70	0.77	0.05	0.08	R/L .. .1	40.80	**208**
TX N 0080.00.1	0.80	0.87	0.05	0.08	R/L .. .1	40.80	**210**
TX N 0090.00.1	0.90	0.97	0.05	0.08	R/L .. .1	40.80	**212**
TX N 0100.00.1	1.00	1.07	0.10	0.09	R/L .. .1	40.80	**214**
TX N 0110.00.1	1.10	1.24	0.10	0.15	R/L .. .1	40.80	**216**
TX N 0130.00.1	1.30	1.44	0.10	0.15	R/L .. .1	40.80	**218**
TX N 0160.00.1	1.60	1.74	0.10	0.20	R/L .. .1	40.80	**220**
TX N 0185.00.1	1.85	1.99	0.10	0.20	R/L .. .1	40.80	**222**
TX N 0215.00.2	2.15	2.29	0.10	0.20	R/L .. .2	40.80	**224**
TX N 0265.00.2	2.65	2.79	0.10	0.20	R/L .. .2	40.80	**226**
TX N 0315.00.3	3.15	3.29	0.10	0.20	R/L .. .3	46.54	**228**
TX N 0415.00.4	4.15	4.29	0.10	0.20	R/L .. .4	46.80	**230**
TX N 0515.00.4	5.15	5.29	0.10	0.20	R/L .. .4	48.29	**232**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 88

Internal machining



→ 79

External machining



→ 76–78

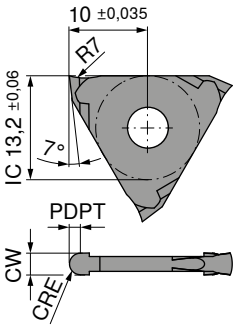
Radial TX insert for corner recessing

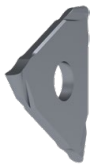
▲ Full radius for cutting width 0.5–5.0 mm



CWX500

F	M	R





Neutral

73 304 ...

Designation	CRE mm	CW +/-0,05 mm	PDPT mm	for tool holder	£ Y6	
TX N 0002.05.1	0.25	0.5	0.20	R/L .. .1	59.35	**212**
TX N 0005.10.1	0.50	1.0	0.35	R/L .. .1	59.35	**214**
TX N 0006.12.1	0.60	1.2	0.40	R/L .. .1	59.35	**216**
TX N 0008.16.1	0.80	1.6	0.55	R/L .. .1	59.35	**218**
TX N 0010.20.2	1.00	2.0	0.70	R/L .. .2	61.92	**204**
TX N 0012.25.2	1.25	2.5	0.85	R/L .. .2	68.65	**220**
TX N 0015.30.3	1.50	3.0	1.00	R/L .. .3	65.48	**206**
TX N 0020.40.4	2.00	4.0	1.20	R/L .. .4	65.02	**208**
TX N 0025.50.4	2.50	5.0	1.50	R/L .. .4	66.12	**210**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 88

Internal machining



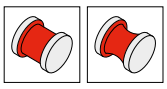
→ 79

External machining

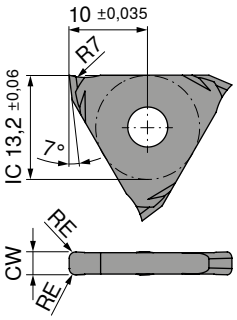


→ 76–78

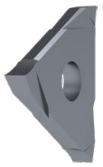
TX insert for fine and copy turning



F	M	R



CWX500



Neutral

Designation	CW +0,03 mm	RE mm	for tool holder	73 303 ... £ Y6	
TX N 0150.02.1	1.5	0.2	R/L 207 .. . / 738 .. . / 660 .. . 1	50.93	**204**
TX N 0200.02.1	2.0	0.2	R/L 207 .. . / 738 .. . / 660 .. . 1	50.93	**206**
TX N 0200.04.1	2.0	0.4	R/L 207 .. . / 738 .. . / 660 .. . 1	50.93	**208**
TX N 0300.02.2	3.0	0.2	R/L 207 .. . / 738 .. . / 660 .. . 2	53.71	**210**
TX N 0300.06.2	3.0	0.6	R/L 207 .. . / 738 .. . / 660 .. . 2	53.71	**212**
TX N 0300.08.2	3.0	0.8	R/L 207 .. . / 738 .. . / 660 .. . 2	53.71	**214**
TX N 0400.02.3	4.0	0.2	R/L 207 .. . / 738 .. . / 660 .. . 3	54.16	**216**
TX N 0400.08.3	4.0	0.8	R/L 207 .. . / 738 .. . / 660 .. . 3	54.16	**218**
TX N 0400.12.3	4.0	1.2	R/L 207 .. . / 738 .. . / 660 .. . 3	54.16	**220**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 88

Internal machining



→ 79

External machining



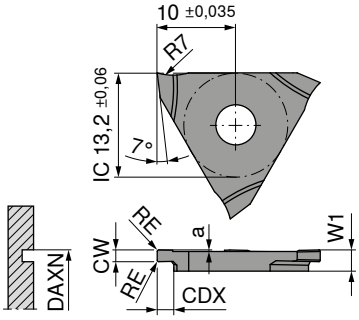
→ 76–78

TX insert for axial grooving

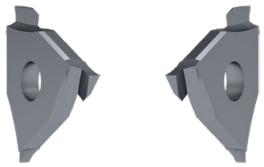
▲ Up to cutting depth 3.5 mm
▲ Cutting width 1.5–5.0 mm
▲ Groove-Ø external D_a ≥ 20 mm



F	M	R
		



CWX500 CWX500



Illustrations show right-hand versions

ISO designation	CW mm	W1 mm	CDX mm	a mm	DAXN mm	RE mm	for tool holder	Left-hand 73 306 ... £ Y6		Right-hand 73 305 ... £ Y6	
TX R/L 2015.2.2	1.5	2.7	2	0.2	20	0.2	R/L 207 .. . 2	58.39	**204**	58.39	**204**
TX R/L 3020.2.2	2.0	2.7	3	0.2	30	0.2	R/L 207 .. . 2	58.39	**206**	58.39	**206**
TX R/L 3030.2.3	3.0	3.7	3	0.2	30	0.2	R/L 207 .. . 3	59.07	**208**	59.07	**208**

P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	○	○
O	●	●

→ v_c Page 88

11

Internal machining *External machining*

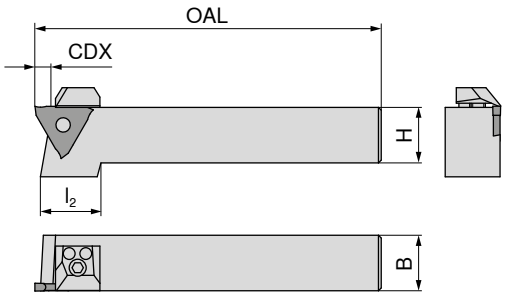


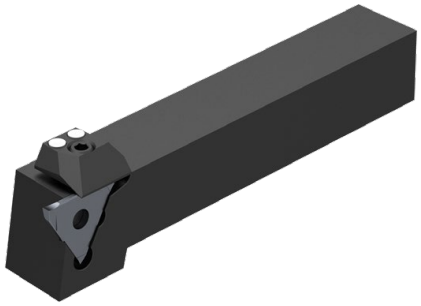
→ 76+77

MonoClamp – Radial/Axial TX Grooving Holder 0° 6 mm cutting depth

▲ For radial and axial grooving
▲ Cutting width 0.5–6.3 mm

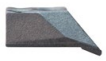
Scope of supply:
Grooving holder only

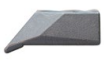




Illustrations show right-hand versions

ISO designation	H mm	B +/-0,1 mm	OAL mm	l_2 mm	CDX mm	for grooving inserts	Left-hand 73 501 ... £ Y6		Right-hand 73 500 ... £ Y6	
R/L 207.1212.1	12	12	100	24	4	TX R/N/L ...1	260.96	**112**	258.13	**112**
R/L 207.1616.1	16	16	125	22	4	TX R/N/L ...1	232.85	**116**	230.38	**116**
R/L 207.2020.1	20	20	125	21	4	TX R/N/L ...1	180.56	**120**	178.67	**120**
R/L 207.2525.1	25	25	150		4	TX R/N/L ...1	189.94	**125**	188.01	**125**
R/L 207.1212.2	12	12	100	24	6	TX R/N/L ...2	260.96	**212**	258.13	**212**
R/L 207.1616.2	16	16	125	22	6	TX R/N/L ...2	232.85	**216**	230.38	**216**
R/L 207.2020.2	20	20	125	21	6	TX R/N/L ...2	180.56	**220**	178.67	**220**
R/L 207.2525.2	25	25	150		6	TX R/N/L ...2	189.94	**225**	188.01	**225**
R/L 207.1212.3	12	12	100	24	6	TX R/N/L ...3	260.96	**312**	258.13	**312**
R/L 207.1616.3	16	16	125	22	6	TX R/N/L ...3	232.85	**316**	230.38	**316**
R/L 207.2020.3	20	20	125	21	6	TX R/N/L ...3	180.56	**320**	178.67	**320**
R/L 207.2525.3	25	25	150		6	TX R/N/L ...3	189.94	**325**	188.01	**325**
R 207.3232.3	32	32	170		6	TX R/N/L ...3			218.52	**332**
R/L 207.1616.4	16	16	125	22	6	TX R/N/L ...4	232.85	**416**	232.85	**416**
R/L 207.2020.4	20	20	125	21	6	TX R/N/L ...4	180.56	**420**	180.56	**420**
R/L 207.2525.4	25	25	150		6	TX R/N/L ...4	189.94	**425**	189.94	**425**


right hand


left hand


Key I


Clamping screw


Guide pin

Spare parts for grooving inserts	right hand 73 950 ... £ Y6		left hand 73 950 ... £ Y6		Key I 70 950 ... £ 2A/28		Clamping screw 73 950 ... £ Y6		Guide pin 73 950 ... £ Y6	
TX R/N/L ...1	52.49	**020**			SW3	2.97 **176**	M6x20	11.05 **028**	Ø 4x18	1.32 **030**
TX R/N/L ...1			52.49	**024**	SW3	2.97 **176**	M6x20	11.05 **028**	Ø 4x18	1.32 **030**
TX R/N/L ...2			52.49	**024**	SW3	2.97 **176**	M6x20	11.05 **028**	Ø 4x18	1.32 **030**
TX R/N/L ...2	52.49	**020**			SW3	2.97 **176**	M6x20	11.05 **028**	Ø 4x18	1.32 **030**
TX R/N/L ...3			52.49	**024**	SW3	2.97 **176**	M6x20	11.05 **028**	Ø 4x18	1.32 **030**
TX R/N/L ...3	52.49	**020**			SW3	2.97 **176**	M6x20	11.05 **028**	Ø 4x18	1.32 **030**
TX R/N/L ...4	58.30	**022**			SW3	2.97 **176**	M6x20	11.05 **028**	Ø 4x18	1.32 **030**
TX R/N/L ...4			58.30	**026**	SW3	2.97 **176**	M6x20	11.05 **028**	Ø 4x18	1.32 **030**



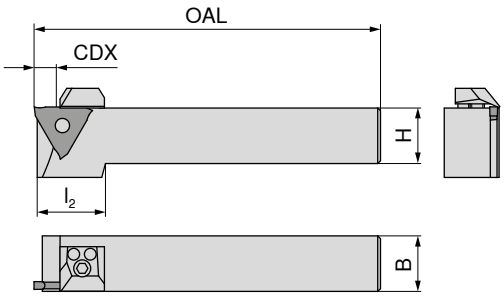


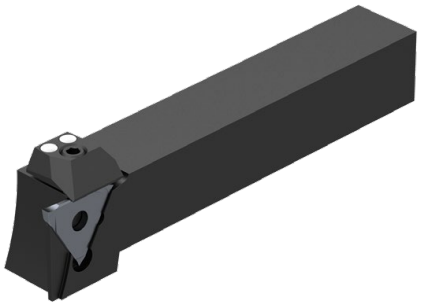
→ 71–75 → **Chapter 16**

MonoClamp – Radial TX Grooving holder 0° 8 mm cutting depth

▲ For radial parting and grooving
▲ Cutting width 1.9–6.3 mm

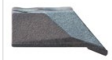
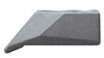
Scope of supply:
Grooving holder only





Illustrations show right-hand versions

ISO designation	H mm	B +/-0,1 mm	OAL mm	l_2 mm	CDX mm	for grooving inserts	Left-hand 73 503 ... £ Y6		Right-hand 73 502 ... £ Y6	
R/L 780.2020.2	20	20	125	24	8	TX R/N/L ...2	192.41	**120**	192.41	**120**
R/L 780.2525.2	25	25	150		8	TX R/N/L ...2	203.05	**125**	203.05	**125**
R/L 780.2020.3	20	20	125	24	8	TX R/N/L ...3	192.41	**220**	192.41	**220**
R/L 780.2525.3	25	25	150		8	TX R/N/L ...3	203.05	**225**	203.05	**225**
R/L 780.2020.4	20	20	125	24	8	TX R/N/L ...4	192.41	**320**	192.41	**320**
R/L 780.2525.4	25	25	150		8	TX R/N/L ...4	203.05	**325**	203.05	**325**

Spare parts for grooving inserts	 right hand 73 950 ... £ Y6		 left hand 73 950 ... £ Y6		 Key I 70 950 ... £ 2A/28		 Clamping screw 73 950 ... £ Y6		 Guide pin 73 950 ... £ Y6	
TX R/N/L ...2	52.49	**020**			SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**
TX R/N/L ...2			52.49	**024**	SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**
TX R/N/L ...3	52.49	**020**			SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**
TX R/N/L ...3			52.49	**024**	SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**
TX R/N/L ...4	58.30	**022**			SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**
TX R/N/L ...4			58.30	**026**	SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**



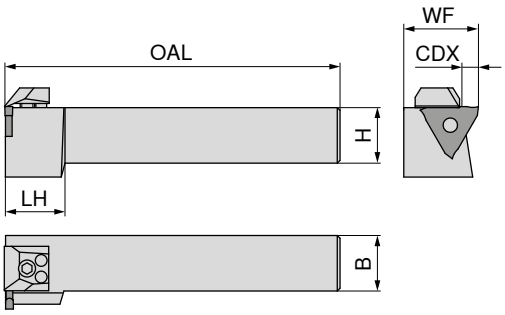


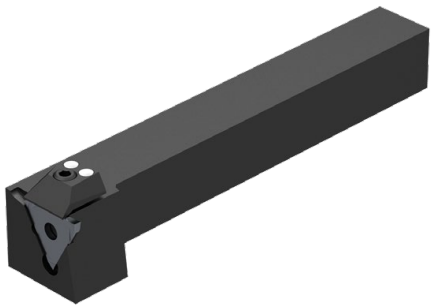
→ 71–75 → **Chapter 16**

MonoClamp – Radial TX Grooving holder 90° 6 mm cutting depth

▲ For radial grooving
▲ Cutting width 0.5–6.3 mm

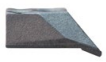
Scope of supply:
Grooving holder only

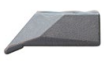




Illustrations show right-hand versions

ISO designation	H mm	B +/-0,1 mm	OAL mm	LH mm	WF +/-0,07 mm	CDX mm	for grooving inserts	Left-hand 73 505 ... £ Y6		Right-hand 73 504 ... £ Y6	
R/L 738.2020.1	20	20	150	20	27	4	TX R/N/L ...1	224.73	**120**	224.73	**120**
R/L 738.2525.1	25	25	150		32	4	TX R/N/L ...1	216.37	**125**	232.85	**125**
R/L 738.2020.2	20	20	150	20	27	6	TX R/N/L ...2	224.73	**220**	224.73	**220**
R/L 738.2525.2	25	25	150		32	6	TX R/N/L ...2	232.85	**225**	232.85	**225**
R/L 738.2020.3	20	20	150	20	27	6	TX R/N/L ...3	228.65	**320**	224.73	**320**
R/L 738.2525.3	25	25	150		32	6	TX R/N/L ...3	232.85	**325**	232.85	**325**
R/L 738.2020.4	20	20	150	20	27	6	TX R/N/L ...4	224.73	**420**	218.74	**420**
R/L 738.2525.4	25	25	150		32	6	TX R/N/L ...4	232.85	**425**	232.85	**425**


right hand


left hand


Key I


Clamping screw


Guide pin

Spare parts for grooving inserts	73 950 ... £ Y6		73 950 ... £ Y6		70 950 ... £ 2A/28			73 950 ... £ Y6			73 950 ... £ Y6	
TX R/N/L ...1	52.49	**020**			SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**
TX R/N/L ...1			52.49	**024**	SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**
TX R/N/L ...2			52.49	**024**	SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**
TX R/N/L ...2	52.49	**020**			SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**
TX R/N/L ...3			52.49	**024**	SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**
TX R/N/L ...3	52.49	**020**			SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**
TX R/N/L ...4	58.30	**022**			SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**
TX R/N/L ...4			58.30	**026**	SW3	2.97	**176**	M6x20	11.05	**028**	Ø 4x18	1.32	**030**





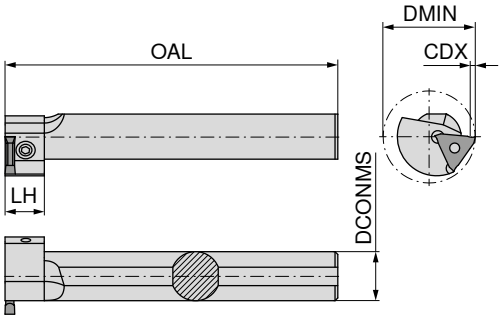
→ 71–75

→ **Chapter 16**

MonoClamp – Radial Boring bar TX

▲ For radial internal grooving
▲ Cutting width 0.5–6.3 mm

Scope of supply:
Boring bar only





Illustrations show right-hand versions

ISO designation	DCONMS $_{g7}$ mm	DMIN mm	OAL mm	LH mm	CDX mm	for grooving inserts	Left-hand 73 511 ... £ Y6		Right-hand 73 510 ... £ Y6	
R/L 660.0025.1	25	46	170	20	2	TX R/N/L ...1	317.46	**125**	311.37	**125**
R/L 660.0032.1	32	46	200	20	2	TX R/N/L ...1	379.63	**132**	385.73	**132**
R/L 660.0040.1	40	46	250		2	TX R/N/L ...1	379.63	**140**	378.59	**140**
R/L 660.0025.2	25	46	170	20	2	TX R/N/L ...2	311.94	**225**	311.37	**225**
R/L 660.0032.2	32	46	200	20	2	TX R/N/L ...2	379.63	**232**	385.73	**232**
R/L 660.0040.2	40	46	250		2	TX R/N/L ...2	379.63	**240**	378.59	**240**
R/L 660.0025.3	25	46	170	20	2	TX R/N/L ...3	311.94	**325**	311.37	**325**
R/L 660.0032.3	32	46	200	20	2	TX R/N/L ...3	379.63	**332**	385.73	**332**
R/L 660.0040.3	40	46	250		2	TX R/N/L ...3	379.63	**340**	378.59	**340**

Bore-Ø$_{min.}$ in mm	46	50	60	80	100	for grooving insert
CDX$_{max.}$ (mm)	2	3	4	4,5	5	TX R/N/L ...1
	2	3	4	4,5	5	TX R/N/L ...2
	2	3	4	4,5	5	TX R/N/L ...3
	2	3	4	4,5	5	TX R/N/L ...4


Clamping element


Key I


Clamping screw

Spare parts for grooving inserts	Clamping element 73 950 ... £ Y6		Key I 70 950 ... £ 2A/28		Clamping screw 73 950 ... £ Y6	
TX R/N/L ...1	64.77	**011**	SW3	2.97 **176**	M6x30	11.05 **009**
TX R/N/L ...2	64.77	**011**	SW3	2.97 **176**	M6x30	11.05 **009**
TX R/N/L ...3	64.77	**011**	SW3	2.97 **176**	M6x30	11.05 **009**

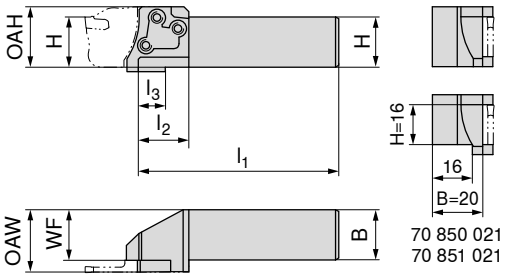


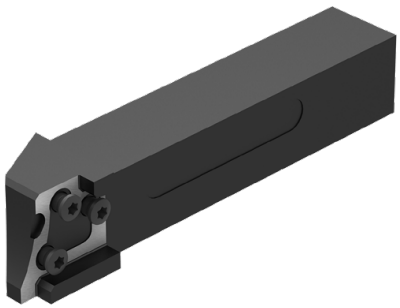


→ 71–74 → **Chapter 16**

ModularClamp MSS – Tool holder 0°

Scope of supply:
Base holder incl. clamping screw





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAW mm	OAH mm	WF mm	l_1 mm	l_2 mm	l_3 mm	for modules	Left-hand 70 851 ... £ 2C/71		Right-hand 70 850 ... £ 2C/71	
E16 R/L 00-1616G	16	16	19.25	19.5	15.75	90	16		E16 R/L ...	160.44	**016**	160.44	**016**
E20 R/L 00-1620G	16	20	24.25	24.0	20.15	90	20		E20 R/L/N ...	161.92	**021** 1)	161.92	**021** 1)
E20 R/L 00-2020J	20	20	24.25	24.0	20.15	110	20		E20 R/L/N ...	161.92	**020**	161.92	**020**
E25 R/L 00-2525L	25	25	31.00	30.0	25.50	140	25		E25 R/L ...	165.28	**025**	165.28	**025**
E32 R/L 00-3225N	32	25	31.00	38.0	25.50	160	32		E32 R/L ...	169.76	**032**	169.76	**032**
E32 L 00-3232N	32	32	38.00	38.8	32.50	180	32	16	E32 R/L ...	172.69	**13200**		
E32 R 00-3232Q	32	32	38.00	38.8	32.50	180	32	16	E32 R/L ...			172.69	**13200**

1) see drawing

for right hand holder → use right hand (or neutral) module
for left hand holder → use left hand (or neutral) module

Spare parts for Article no.		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28	
70 851 016 / 70 850 016	T15	16.32	**113**	M3,5x12,5	10.86 **441**
70 851 021 / 70 850 021	T15	16.32	**113**	M4x14	10.39 **403**
70 851 020 / 70 850 020	T15	16.32	**113**	M4x14	10.39 **403**
70 851 025 / 70 850 025	T20	17.48	**114**	M5x18	6.92 **404**
70 851 032 / 70 850 032	T25	17.97	**115**	M6x20	5.13 **405**


SX
→ 21

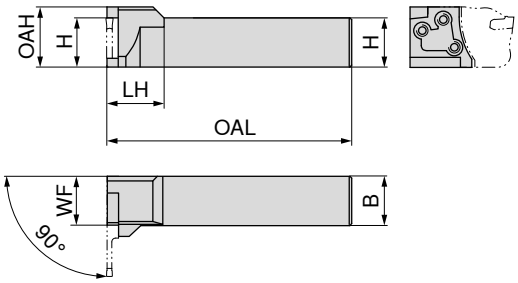

LX
→ 32

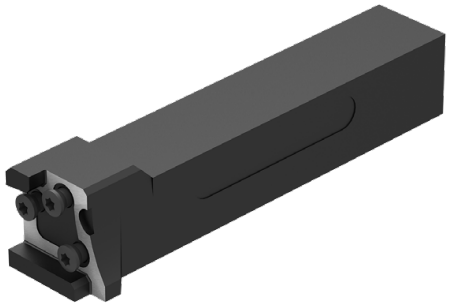

GX 09 / GX 16
→ 42+43


GX 24
→ 60–62

ModularClamp MSS – Tool holder 90°

Scope of supply:
Base holder incl. clamping screw





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAH mm	WF mm	OAL mm	LH mm	for modules	Left-hand 70 855 ... £ 2C/71		Right-hand 70 854 ... £ 2C/71	
E20 R/L 90-2020J	20	20	24	20	110	20	E20 R/L/N ...	161.92	**020**	161.92	**020**
E25 R/L 90-2525L	25	25	30	25	140	28	E25 R/L ...	165.28	**025**	165.28	**025**
E32 R/L 90-3225N	32	25	38	32	160	34	E32 R/L ...	169.76	**032**	169.76	**032**

for right hand holder → use left hand (or neutral) module
for left hand holder → use right hand (or neutral) module


Key D


Clamping screw

Spare parts for Article no.		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 855 020 / 70 854 020	T15	16.32	**113**	M4x14	10.39	**403**
70 855 025 / 70 854 025	T20	17.48	**114**	M5x18	6.92	**404**
70 855 032 / 70 854 032	T25	17.97	**115**	M6x20	5.13	**405**


SX
→ 21

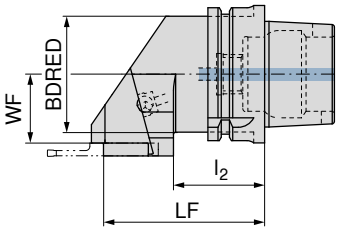

LX
→ 32


GX 09 / GX 16
→ 42+43


GX 24
→ 60–62

ModularClamp MSS – HSK-T Base Holder 0°

Scope of supply:
Base holder incl. clamping screw





Illustrations show right-hand versions

ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	for modules	Left-hand 74 581 ... £ 2D/80		Right-hand 74 580 ... £ 2D/80	
HSK T63 E25 R/L 00	HSK-T 63	67	42	53	38.7	E25 R/L...	638.92	**525**	638.92	**525**

for right hand holder → use right hand module
for left hand holder → use left hand module

Spare parts for Article no.	Protection plugs 70 950 ... £ 2A/28		Nozzle 70 950 ... £ 2A/28		Key D 80 950 ... £ Y7		Clamping screw 70 950 ... £ 2A/28		Hollow key with nose 70 950 ... £ 2A/28	
74 580 525 / 74 581 525	24.46	**05600**	35.18	**05500**	17.48	**114**	6.92	**404**	54.39	**05700**


SX
→ 21


LX
→ 32

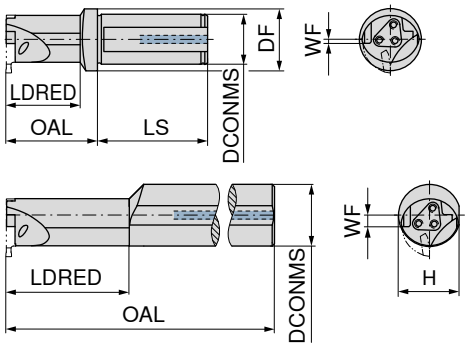

GX 09 / GX 16
→ 42+43

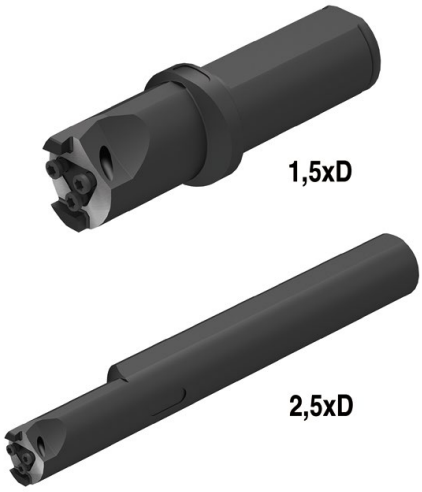

GX 24
→ 60–62

ModularClamp MSS – Boring bars GX

▲ with thro' coolant

Scope of supply:
Boring bar incl. clamping screw





Illustrations show right-hand versions

	ISO designation	DCONMS mm	DF mm	WF mm	H mm	OAL mm	LDRED mm	LS mm	for modules	Left-hand 70 861 ... £ 2C/71		Right-hand 70 860 ... £ 2C/71	
≤ 1,5xD	I16 R/L 90-1,5 D-N	20	25	1.0		32	24	50	I 16 R/L	177.28	017	177.28	017
	I20 R/L 90-1,5 D-N	20	25	1.0		37	30	50	I 20 R/L	217.24	021	217.24	021
	I25 R/L 90-1,5 D-N	25	32	1.5		46	38	56	I 25 R/L	248.98	026	248.98	026
	I32 R/L 90-1,5 D-N	32	40	2.0		59	48	60	I 32 R/L	321.03	033 1)	321.03	033 1)
	I40 R/L 90-1,5 D-N	40	50	2.5		72	60	70	I 40 R/L/N	400.36	041	400.36	041
≤ 2,5xD	I16 R/L 90-2,5 D-N	20		4.5	19.0	180	40		I 16 R/L	191.09	117	191.09	117
	I20 R/L 90-2,5 D-N	25		6.0	24.0	200	50		I 20 R/L	232.37	121	232.37	121
	I25 R/L 90-2,5 D-N	32		7.0	31.0	250	63		I 25 R/L	265.93	126	265.93	126
	I32 R/L 90-2,5 D-N	40		9.5	38.0	300	80		I 32 R/L	346.83	133 1)	346.83	133 1)
	I40 R/L 90-2,5 D-N	50		11.5	48.5	350	100		I 40 R/L/N	441.66	141	441.66	141

1) with 2 clamping surfaces

11

for right hand holder → use right hand (or neutral) module
for left hand holder → use left hand (or neutral) module


Key D


Clamping screw

Spare parts for modules		80 950 ... £ Y7		70 950 ... £ 2A/28	
I 16 R/L	T08	13.73	110	M2,5x10	8.59	440
I 20 R/L	T10	16.05	112	M3x11	8.90	444
I 25 R/L	T15	16.32	113	M3,5x12,5	10.86	441
I 32 R/L	T20	17.48	114	M4,5x17	9.88	445
I 40 R/L/N	T20	17.48	114	M5x18	6.92	404


GX 09 / GX 16

→ 44+45

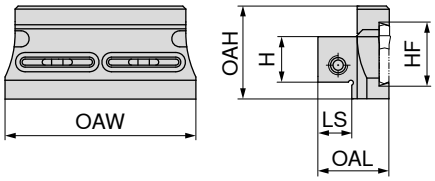

GX 24

→ 63

Split clamping block for blades DC

Scope of supply:
Complete clamping block, but without blade

Direct Cooling





Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 829 ... £ 2A/25	
SBN 2020-26-DC	20	26	43.0	20	40.0	82	XLC.. 26..	289.43	**020**
SBN 2020-32-DC	20	32	43.0	20	40.0	95	XLC.. 32..	289.43	**120**
SBN 2525-32-DC	25	32	48.5	25	44.5	95	XLC.. 32..	298.50	**025**
SBN 3232-32-DC	32	32	52.0	32	51.0	95	XLC.. 32..	312.43	**032**


Coolant screw plug


Clamping rail


clamping screw

Spare parts for Article no.		70 950 ... £ 2A/28			70 950 ... £ 2A/28			70 950 ... £ 2A/28	
70 829 020	G 1/8"	4.31	**294**	CU70	39.12	**290**	M6x12	2.70	**861**
70 829 120	G 1/8"	4.31	**294**	CU85	39.12	**291**	M6x12	2.70	**861**
70 829 025	G 1/8"	4.31	**294**	CU85	39.12	**291**	M6x12	2.70	**861**
70 829 032	G 1/8"	4.31	**294**	CU85	39.12	**291**	M6x12	2.70	**861**


Key I

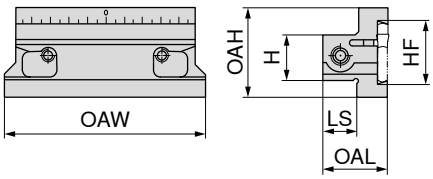

O-Ring

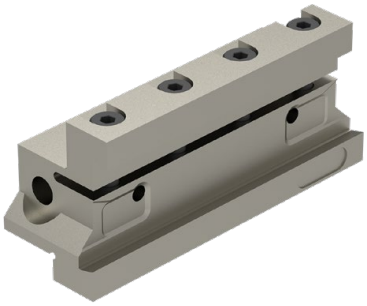

O-Ring

Spare parts for Article no.		70 950 ... £ 2A/28			70 950 ... £ 2A/28			70 950 ... £ 2A/28	
70 829 020	SW5	4.47	**265**	19x2,5	5.21	**293**			
70 829 120	SW5	4.47	**265**	19x2,5	5.21	**293**	23x2,5	5.21	**292**
70 829 025	SW5	4.47	**265**				23x2,5	5.21	**292**
70 829 032	SW5	4.47	**265**				23x2,5	5.21	**292**

Clamping block for blades

Scope of supply:
Clamping block complete, but without blade and coolant set





Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 830 ... £ 2A/25	
SBN 2020-26-K	20	26	39	20	33.0	90	XLC.. 26..	198.72	**020**
SBN 2520-32-K	25	32	48	20	36.0	110	XLC.. 32..	198.72	**025**
SBN 3229-32-K	32	32	48	29	44.5	120	XLC.. 32..	203.08	**032**
SBN 3229-46-K	32	46	70	29	52.0	150	XLC.. 46..	336.16	**132**
SBN 4037-46-K	40	46	70	37	60.0	150	XLC.. 46..	408.09	**140**


Key I


Cooling agent set

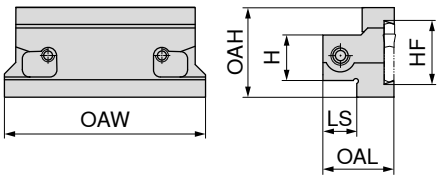

clamping screw

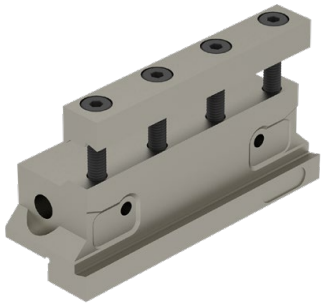
Spare parts for blades		70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
XLC.. 26..	SW5	4.47	**265**	50.60	**278**	M6x25	2.49	**269**
XLC.. 32..	SW5	4.47	**265**	50.60	**278**	M6x25	2.49	**269**
XLC.. 46..	SW6	6.26	**266**	49.28	**279**	M8x35	2.49	**282**

11

Split clamping block for blades

Scope of supply:
Clamping block complete, but without blade and coolant set





Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 831 ... £ 2A/25	
SBN 2020-26-KS	20	26	39	20	35.0	90	XLC.. 26..	241.46	**020**
SBN 2520-32-KS	25	32	48	20	38.0	110	XLC.. 32..	248.98	**025**
SBN 3229-32-KS	32	32	48	29	46.5	120	XLC.. 32..	258.32	**032**


Key I


Cooling agent set


clamping screw

Spare parts for blades		70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
XLC.. 26..	SW5	4.47	**265**	50.60	**278**	M6x25	2.49	**269**
XLC.. 32..	SW5	4.47	**265**	50.60	**278**	M6x25	2.49	**269**

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

11

Cutting data values for grooving inserts

Index	System SX, LX, GX							System TX		● 1st choice ○ suitable		
	CTCP325	CTCP335	CTPP345	CTPP520	CTPP535	CTP1340	H216T	CWX500				
	DRAGONSKIN											
	v_c (m/min.)							v_c (m/min.)	f (mm/rev)	Emulsion	Compressed air	MMS
P.1.1	220	185	135	235	180	180		160	0,03–0,10	●		
P.1.2	195	160	120	205	150	150		140	0,03–0,10	●		
P.1.3	170	140	105	175	125	125		110	0,03–0,10	●		
P.1.4	165	130	100	165	120	115		110	0,03–0,10	●		
P.1.5	150	120	95	150	105	100		90	0,03–0,10	●		
P.2.1	200	165	120	210	160	155		110	0,03–0,10	●		
P.2.2	160	130	100	160	115	110		90	0,03–0,10	●		
P.2.3	150	120	95	150	105	100		90	0,03–0,07	●		
P.2.4	120	90	75	115	75	70		80	0,03–0,06	●		
P.3.1	150	130	100	185	120	110		80	0,03–0,07	●		
P.3.2	95	90	80	130	90	75		60	0,03–0,07	●		
P.3.3	45	50	60	75	60	40		50	0,03–0,07	●		
P.4.1	150	130	100	185	120	110		100	0,03–0,06	●		
P.4.2	125	110	90	160	105	95		90	0,03–0,06	●		
M.1.1	150	130	100	185	120	110		110	0,02–0,06	●		
M.2.1	95	90	80	130	90	80		90	0,02–0,06	●		
M.3.1	135	115	95	170	110	100		70	0,02–0,06	●		
K.1.1	170	135		140	165	150	140	140	0,03–0,10	●		
K.1.2	150	115		115	150	125	115	100	0,03–0,10	●		
K.2.1	160	130		180	145	140	150	90	0,03–0,10	●		
K.2.2	145	105		115	155	120	110	80	0,03–0,10	●		
K.3.1	210	150		130	190	170	170	140	0,03–0,10	●		
K.3.2	140	115		110	145	120	140	120	0,03–0,10	●		
N.1.1						300	400	330	0,05–0,12	●		
N.1.2						200	400	310	0,05–0,12	●		
N.2.1						300	450	270	0,05–0,12	●		
N.2.2						200	450	230	0,05–0,12	●		
N.2.3						150	500	140	0,05–0,12	●		
N.3.1						300	425	240	0,05–0,12	●		
N.3.2						300	400	200	0,05–0,12	●		
N.3.3						200	275	180	0,05–0,12	●		
N.4.1						200	225	180	0,05–0,12	●		
S.1.1	35			40	30	35	40	60	0,02–0,07	●		
S.1.2	30		30	30	25	30	30	50	0,02–0,08	●		
S.2.1	20		25	20	15	20	30	60	0,02–0,09	●		
S.2.2	15			15	15	15	25	50	0,02–0,10	●		
S.2.3	15			20	15	15	20	40	0,02–0,11	●		
S.3.1				125	85	85	90	60	0,02–0,12	●		
S.3.2				50	35	40	55	40	0,02–0,13	●		
S.3.3				35	25	30	40	30	0,02–0,14	●		
H.1.1				15				50	0,01–0,07	●		
H.1.2				15								
H.1.3												
H.1.4												
H.2.1				15								
H.3.1				40								
O.1.1						130	130	180	0,05–0,12	●		
O.1.2								180	0,05–0,12	●		
O.2.1						105	105	150	0,05–0,12	●		
O.2.2								110	0,05–0,12	●		
O.3.1								170	0,03–0,10	●		

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

GX – Depths of cut and feed rates

GX Standard / GX-E

Groove width CW (mm)	Turning – Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	3,5	Parting / Grooving	Axial grooving
	Feed rate f (mm/rev.)							f (mm/rev)	f (mm/rev)
2	0,10–0,15	0,05–0,15	0,05–0,12	0,05–0,10				0,05–0,20	When axial grooving reduce feed by 40%.
3	0,10–0,17	0,05–0,17	0,05–0,17	0,05–0,15	0,05–0,12			0,10–0,25	
4	0,10–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,25	
5	0,10–0,25	0,10–0,25	0,07–0,25	0,07–0,25	0,07–0,22	0,07–0,20		0,10–0,30	
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,22	0,15–0,35	

GX-M40

Groove width CW (mm)	Turning – Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	Parting / Grooving	Axial grooving
	Feed rate f (mm/rev.)								f (mm/rev)	f (mm/rev)
2	0,10–0,20	0,05–0,20	0,05–0,17	0,05–0,15					0,05–0,15	When axial grooving reduce feed by 40%.
3	0,10–0,22	0,10–0,22	0,10–0,21	0,10–0,20	0,10–0,17				0,075–0,20	
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,17			0,10–0,25	
5	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,27	0,10–0,23	0,10–0,20		0,10–0,30	
6	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,27	0,10–0,23	0,10–0,20	0,15–0,325	

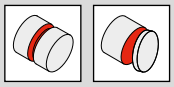
GX-F2

Groove width CW (mm)	Turning – Depth of cut a_p (mm) 0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,25	2,50	Parting / Grooving	Axial grooving
	Feed rate f (mm/rev.)									f (mm/rev)	f (mm/rev)
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10						0,05–0,15	When axial grooving reduce feed by 40%.
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12				0,075–0,20	
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15			0,10–0,25	
5	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,30	
6	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,19	0,10–0,15	0,15–0,325	

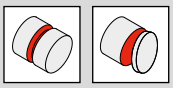
GX-27P

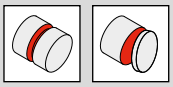
Groove width CW (mm)	Turning – Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	Parting / Grooving	Axial grooving
	Feed rate f (mm/rev.)								f (mm/rev)	f (mm/rev)
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20					0,05–0,20	When axial grooving reduce feed by 40%.
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20				0,05–0,25	
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25			0,05–0,30	
5	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,30		0,10–0,35	
6	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,36	0,10–0,33	0,10–0,30	0,10–0,40	

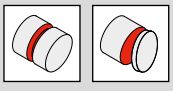
GX – Depths of cut and feed rates

GX-M1	
Groove width CW (mm)	 Parting / Grooving
	Feed rate f (mm/rev.)
2	0,05–0,15
3	0,10–0,20
4	0,10–0,25

GX circlip grooving	
Groove width CW (mm)	 Grooving
	Feed rate f (mm/rev.)
0,60–1,70	0,02–0,09
1,95–2,25	0,05–0,10
2,75–3,25	0,05–0,12

GX Standard / GX-27P / GX-27PF									
	 Turning								 Parting / Grooving
Radius CRE (mm)	Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	
	Feed rate f (mm/rev.)								f (mm/rev)
0,8									0,05–0,10
1,0									0,05–0,15
1,2									0,05–0,15
1,5	0,10–0,45	0,05–0,45	0,05–0,40						0,05–0,15
2,0	0,15–0,50	0,10–0,50	0,10–0,50	0,10–0,40					0,075–0,20
2,5	0,15–0,60	0,10–0,60	0,10–0,60	0,10–0,50	0,10–0,45				0,10–0,25
3,0	0,25–0,70	0,20–0,70	0,15–0,70	0,15–0,70	0,15–0,65	0,15–0,60	0,15–0,55		0,10–0,30
4,0	0,25–0,80	0,20–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,75	0,15–0,70	0,15–0,35

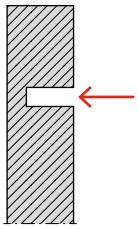
GX-M3							
	 Turning						 Parting / Grooving
Radius CRE (mm)	Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	
	Feed rate f (mm/rev.)						f (mm/rev)
1,5	0,15–0,35	0,15–0,35	0,15–0,30				0,05–0,20
2,0	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30			0,10–0,25
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35		0,10–0,25
3,0	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40	0,10–0,35

GX-M33							
	 Turning						 Parting / Grooving
Radius CRE (mm)	Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	
	Feed rate f (mm/rev.)						f (mm/rev)
1,5	0,05–0,25	0,05–0,20	0,05–0,15				0,05–0,15
2,0	0,05–0,35	0,05–0,30	0,05–0,25	0,05–0,20			0,05–0,20
2,5	0,10–0,45	0,10–0,40	0,10–0,35	0,10–0,30	0,10–0,25		0,05–0,25
3,0	0,10–0,50	0,10–0,45	0,10–0,40	0,10–0,35	0,10–0,30	0,10–0,25	0,10–0,25

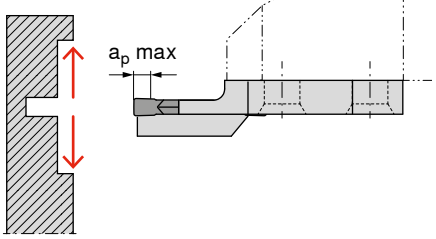
GX 24 – Axial grooving and face turning

Approximate feed rates

Axial grooving



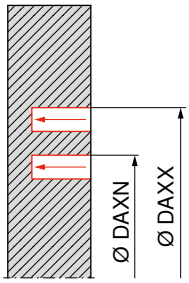
Face turning



Designation	Axial grooving	Face turning	
	Feed rate f (mm/rev.)	f (mm/rev)	a_p max. (mm)
GX 24-2 E 3.00 ..	0,05–0,15	0,05–0,20	2,5
GX 24-3 E 4.00 ..	0,05–0,15	0,05–0,25	3,0
GX 24-3 E 5.00 ..	0,05–0,15	0,10–0,25	3,0
GX 24-4 E 6.00 ..	0,05–0,20	0,10–0,30	3,5

Processing notes

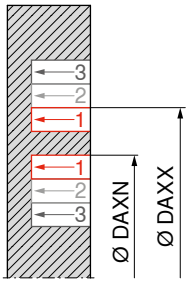
Axial grooving



It is only possible to plunge within the fixed diameter range of the axial grooving module or monoholder (e.g. 50 - 70 mm).

Important: The indicated diameter range is always valid for the external diameter of the groove!

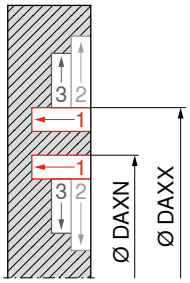
Axial grooving – Groove widening



In case of face turning it is possible to widen the groove above and below the diameter range indicated on the Axial grooving module or monoholder.

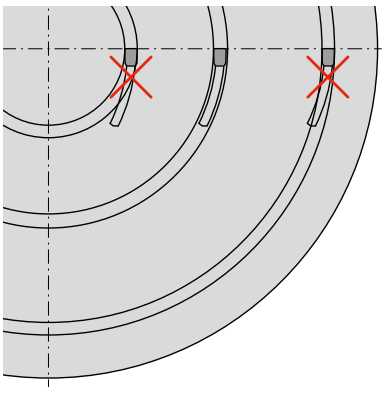
Important: Only the first groove must lie within the diameter range of the axial grooving module or axial monoholder. The depth of the widening groove must not be larger than the depth of the original groove.

Axial grooving and face turning



Groove widening by face turning in the diameter range above and below the values specified for the Axial grooving module and Axial monoholder are possible.

Important: Only the first groove must lie within the diameter range of the module.



Attention: The diameter of face grooves must lie within the diameter range indicated on the axial grooving module and axial monoholder. Not following this range will result in the tool being damaged or destroyed.

SX – Depths of cut and feed rates

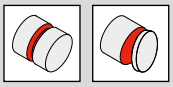
SX-F2								
Groove width CW (mm)	Turning Depth of cut a_p (mm)							Parting / Grooving
	0,50	0,75	1,00	1,25	1,50	1,75	2,00	
	Feed rate f (mm/rev.)							f (mm/rev)
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10				0,05–0,15
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12		0,075–0,20
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15	0,10–0,25

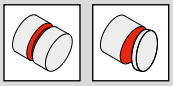
SX-27P							
Groove width CW (mm)	Turning Depth of cut a_p (mm)						Parting / Grooving
	0,5	1,0	1,5	2,0	2,5	3,0	
	Feed rate f (mm/rev.)						f (mm/rev)
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20			0,05–0,20
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20		0,05–0,25
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25	0,05–0,30

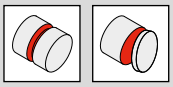
SX-M2							
Groove width CW (mm)	Turning Depth of cut a_p (mm)						Parting / Grooving
	0,5	1,0	1,5	2,0	2,5	3,0	
	Feed rate f (mm/rev.)						f (mm/rev)
2	0,05–0,17	0,05–0,13	0,05–0,10				0,05–0,15
3	0,07–0,20	0,07–0,20	0,07–0,18	0,07–0,15			0,075–0,20
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,18		0,10–0,25
5	0,12–0,27	0,12–0,27	0,12–0,27	0,12–0,25	0,12–0,22		0,10–0,30
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,20	0,15–0,35

SX-M1		SX-M7		SX-M8	
Groove width CW (mm)	Parting / Grooving	Groove width CW (mm)	Parting / Grooving	Groove width CW (mm)	Parting / Grooving
	f (mm/rev)		f (mm/rev)		f (mm/rev)
2	0,05–0,15	2	0,10–0,20	2	0,05–0,20
3	0,10–0,20	3	0,10–0,20	3	0,05–0,20
4	0,10–0,25	4	0,10–0,20	4	0,05–0,15
5	0,15–0,30	5	0,15–0,25	5	0,05–0,15
6	0,15–0,35	6	0,15–0,25	6	0,05–0,15

SX/LX – Depths of cut and feed rates

SX-M3							
	 Turning						
Radius CRE (mm)	Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	Parting / Grooving
	Feed rate f (mm/rev.)						f (mm/rev)
1,5	0,15–0,35	0,15–0,35	0,15–0,30				0,05–0,20
2	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30			0,10–0,25
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35		0,10–0,25
3	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40	0,10–0,35

LX-M2									
	 Turning								
Groove width CW (mm)	Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	Parting / Grooving
	Feed rate f (mm/rev.)								f (mm/rev)
8	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,40	0,17–0,37	0,17–0,35		0,20–0,50
10	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,46	0,20–0,42	0,20–0,38	0,20–0,35	0,20–0,50

LX-M3									
	 Turning								
Radius CRE (mm)	Depth of cut a_p (mm) 0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	Parting / Grooving
	Feed rate f (mm/rev.)								f (mm/rev)
4	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,70	0,25–0,60	0,25–0,50	0,15–0,35

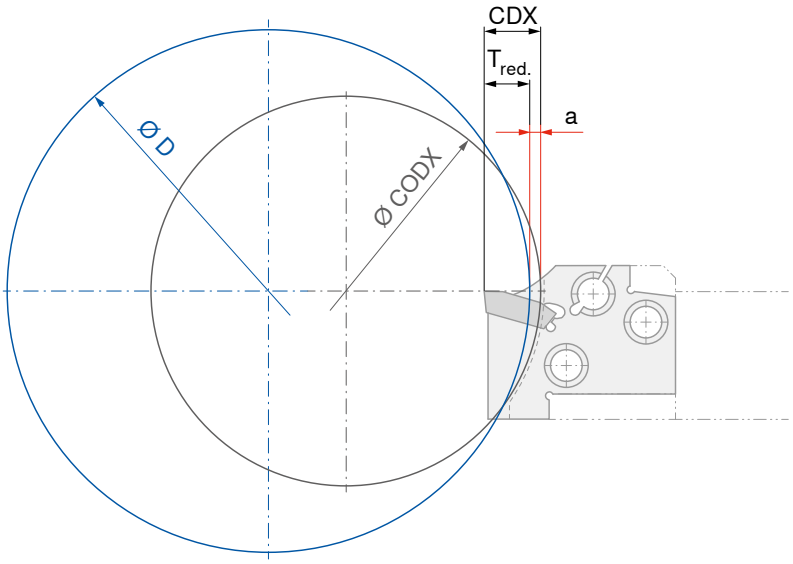
11

ModularClamp – Grooving depth reduction

The ModularClamp grooving modules are matched according to size on a particular workpiece diameter CODX. If the diameter of the workpiece is greater than CODX of the grooving Modules, this reduces the achievable penetration depth by the dimension „a“.
The extent of reduction can be determined with the following table.

			Reduction a (mm) of the maximum grooving depth (CDX)															
			0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	6,5	7,0	7,5	8,0
Size	E12	35	40	45	60	75	115	> 250										
	E16	50	55	60	70	80	100	130	200	> 420								
	E20	60	65	70	75	85	95	110	130	165	220	> 330						
	E25	75	80	85	90	100	110	125	140	160	190	240	320	> 500				
	E32	95	100	105	110	120	125	135	145	160	180	200	225	270	320	400	530	> 800
			Workpiece diameter D (mm)															
		Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm																

Calculation example:



CDX =
maximum plunge depth (mm)

CODX =
maximum workpiece Ø with full penetration depth (mm)

a =
Reduction amount (mm)

$$T_{red.} = CDX - a$$

E25R**21**-GX24-3

CDX = 21 mm, Ø CODX = 75 mm

Size 25

Workpiece diameter
D = Ø 100 mm

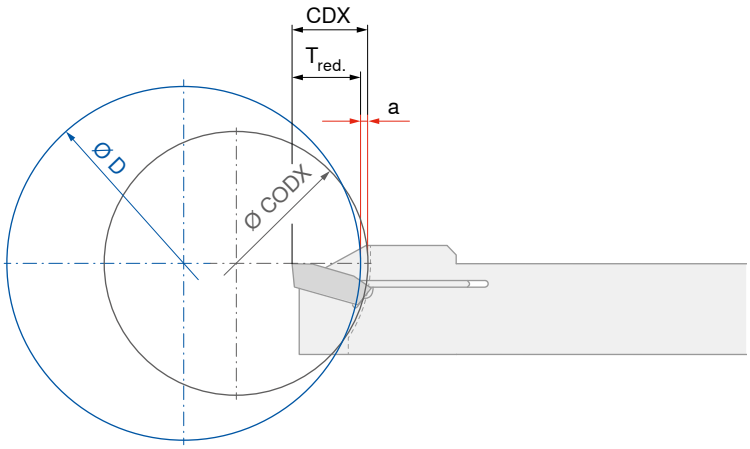
$T_{red.}$ = CDX – a = 21 – 2 = 19 mm

MonoClamp – Grooving depth reduction

Depending on the groove width and shank size, the MonoClamp tools are designed for use with a specific workpiece diameter CODX. If the workpiece diameter is larger than the CODX of the grooving module, the achievable groove depth is reduced by the dimension „a“. The extent of the reduction is determined using the following table.

Shank			Reduction a (mm) of the maximum grooving depth (CDX)								
			0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5
	E12R/L0022...	44	70	80	95	115	150	225	> 450		
	E16R/L0026...	52	90	105	125	155	210	305	> 600		
	E20R/L0026...	52	110	125	140	160	195	240	320	475	> 950
	E20R/L0033...	66	110	125	140	160	195	240	320	475	> 950
	E25R/L0026...	52	140	160	190	235	310	465	> 930		
	E25R/L0033...	66	155	175	200	230	275	340	450	675	> 1350
	E25R/L0040...	80	155	175	200	230	275	340	450	675	> 1350
			Workpiece diameter D (mm)								
		Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm									

Calculation example:



CDX =
maximum plunge depth (mm)

CODX =
maximum workpiece Ø with full penetration depth (mm)

a =
Reduction amount (mm)

$$T_{red.} = CDX - a$$

E25R0033...

CDX = 33 mm, Ø CODX = 66 mm

Workpiece diameter
D = Ø 200 mm

$T_{red.}$ = CDX – a = 33 – 1,5 = 31,5 mm

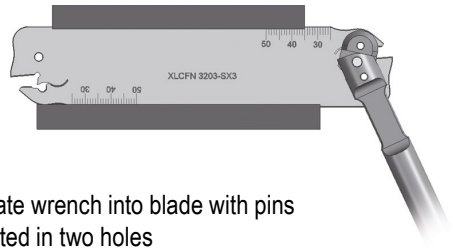
11

Clamping Method – SX-System

System function – inserting and removing the cutting inserts

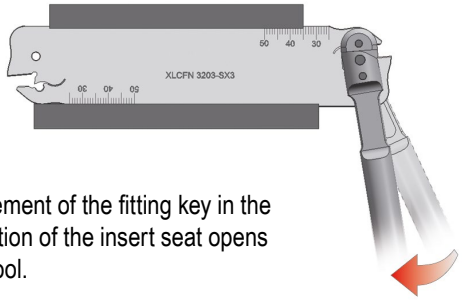
Precision system for internal and external grooving.
The key has been designed in such a way that it will not stress the material beyond its ‘elastic limit’.
With this alternate system the material always remains in its flexible range and provides a substantial increase in tool life.

1



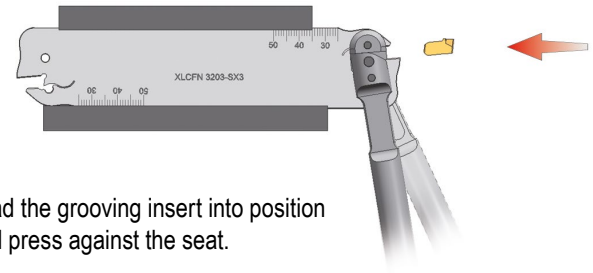
Locate wrench into blade with pins located in two holes

2



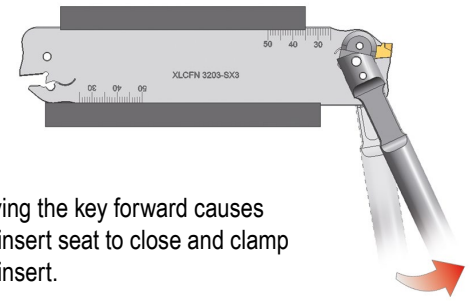
Movement of the fitting key in the direction of the insert seat opens the tool.

3



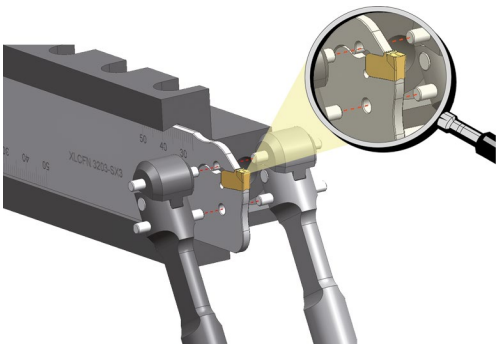
Load the grooving insert into position and press against the seat.

4



Moving the key forward causes the insert seat to close and clamp the insert.

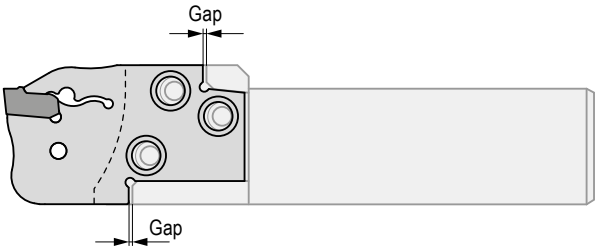
When changing the inserts, always maintain tension on the key!



The clamp is designed so that the wrench can be inserted from both sides of the blade according to the accessibility.

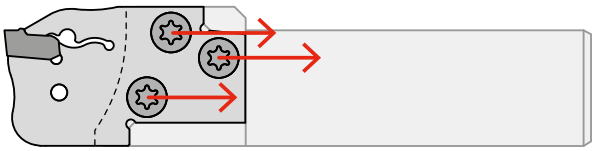
Maximum blade projection when turning	
Blade	max. overhang (mm)
SX 2 – SX 3	25
SX 4 – SX 5	30
SX 6	35

Clamping function – ModularClamp-Module



Module unclamped

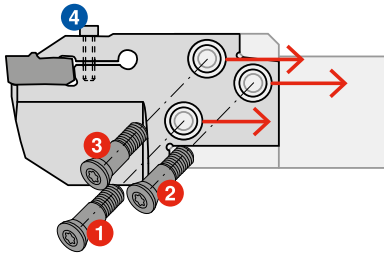
▲ Gap between module and support face for axial clamping



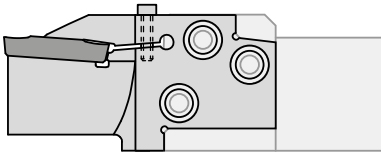
Module clamped

▲ Axial clamping with support face
▲ Connection free from play, therefore maximum stability

System
LX



GX 24

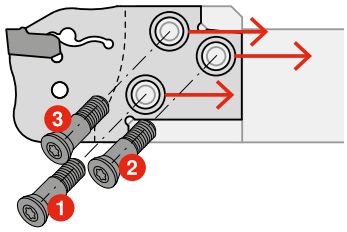


Active insert clamping

Clamping screws 1, 2 and 3 are used to clamp the modules.
The insert is clamped in the module via the additional screw 4.

11

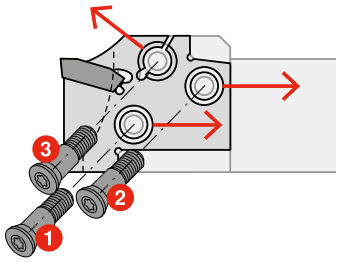
System
SX



Self clamping of the insert

Clamping screws 1, 2 and 3 are used for clamping the module.
The insert is self-clamping.

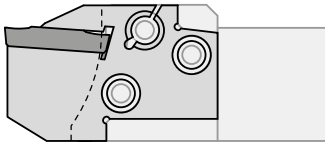
System
GX 09 / GX 16



Active insert clamping

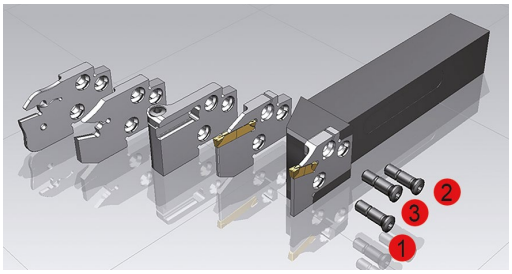
Clamping screws 1 and 2 are used for clamping the module.
Important: first tighten clamp screws 1 and 2.
Then clamp the insert with screw 3.

GX 24



Torque Moment ModularClamp Module Screws

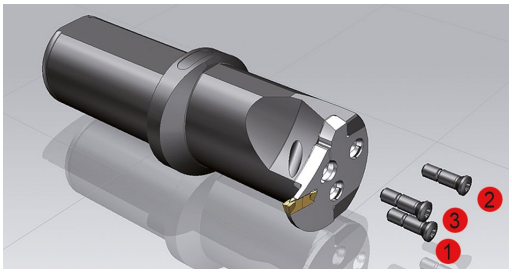
ModularClamp – Tool holder



ModularClamp – Tool holder	Screw	Torx	Torque moment	
			Nm	in.lbs
E12..	M2,5x10	T08	1,2	10,6
E16..	M3,5x12,5	T15	3,2	28,3
E20..	M4x14	T15	4,0	35,4
E25..	M5x18	T20	5,0	44,3
E32..	M6x20	T25	6,0	53,1

Tighten screws to the correct Torque moment in this order.

ModularClamp – Boring bar



ModularClamp – Boring bar	Screw	Torx	Torque moment	
			Nm	in.lbs
I16..	M2,5x10	T08	1,2	10,6
I20..	M3x11	T10	2,0	17,7
I25..	M3,5x12,5	T15	3,2	28,3
I32..	M4,5x17	T20	4,0	35,4
I40..	M5x18	T20	5,0	44,3

Tighten screws to the correct Torque moment in this order.

Tightening torque for the insert clamping

Recommended tightening torque

Grooving systems	Screw	Torx	Torque moment	
			Nm	in.lbs
GX / AX / LX	M3,5	T15	3,2	28,3
	M4,0	T15/T20	4,0	35,4
	M5,0	T20	5,0	44,3

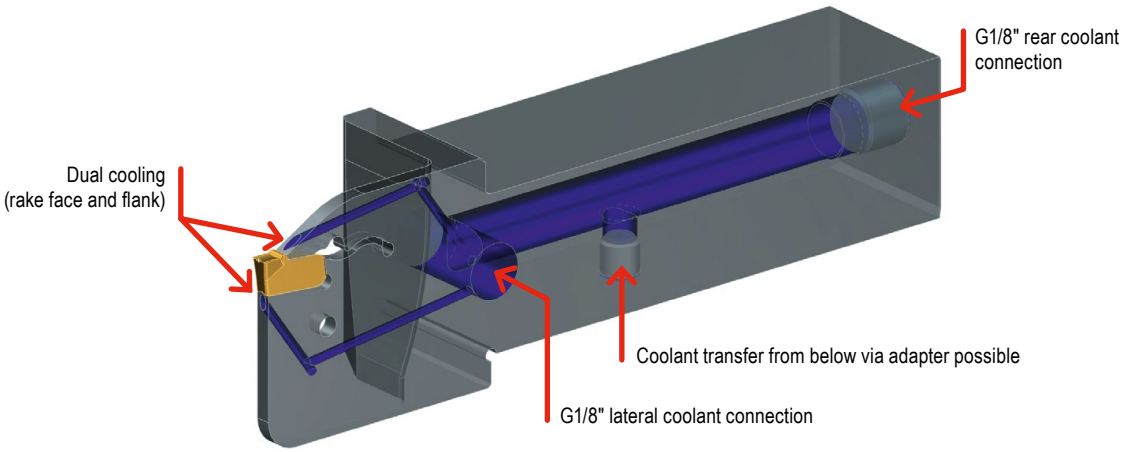
Advantages due to DirectCooling

Internal coolant supply with groove machining has a decisively positive effect on your turning process.
In our CERATIZIT grooving range, the following grooving systems have an internal coolant supply:

- **SX** Grooving holder (single tool)
- **GX** Grooving holder (single tool)

Advantages due to DirectCooling

- Improved chip control
- Longer service life of the indexable insert
- Greater process security
- Application of higher cutting data

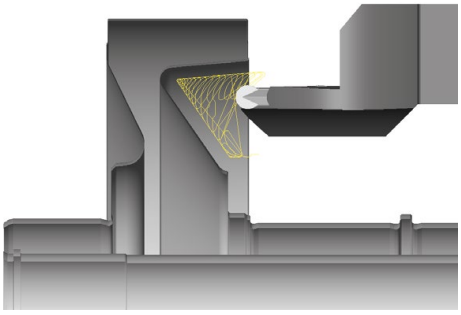


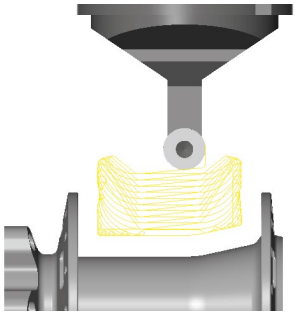
Advantages of the trochoidal turning strategy

- Less wear and longer tool life due to softer entry and exit
- Smaller angle of engagement = less vibration
- Up to 40% higher feed rate values possible
- Broad field of application in austenitic steels, heat-resistant steels, Inconel and nickel-base alloys as well as long-chipping ductile materials
- Savings on tools

Trochoidal turning with support of the following CAM systems:

- hyperMill – High-performance turning
- Esprit CAM – ProfitTurning
- SolidCAM – Turning
- EdgeCAM – Waveform turning
- MasterCAM – Dynamic turning



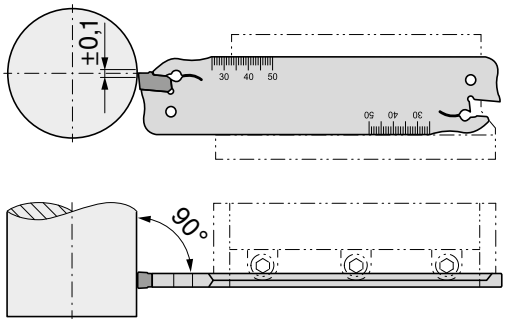


Possible applications

- Radial and axial recesses and grooves
- Rough machining – high-speed turning with button insert

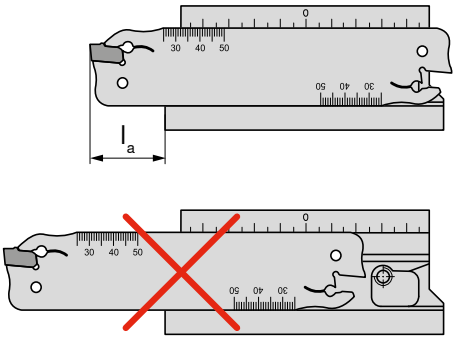
General references

Tool position

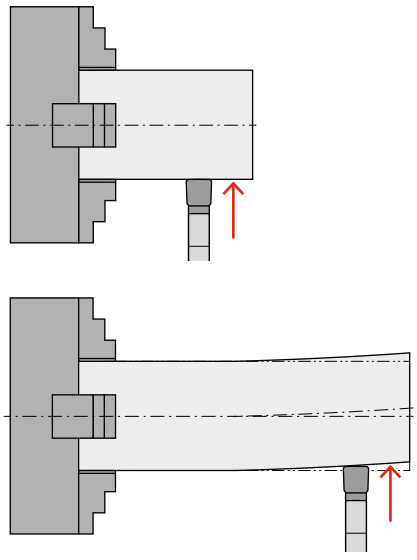


Tool overhang

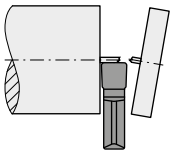
As a rule of thumb: Overhang l_a should not be greater than 8 x CW (Groove width).



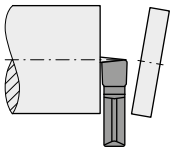
Workpiece overhang



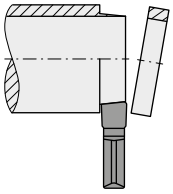
References for Parting off



From Ø 5 mm on, reduce feed “f“ by approx. 50 %. No parting across centre (risk of breakage).

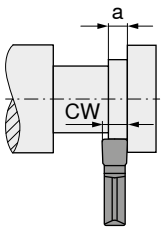


For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.

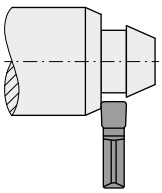


In order to prevent ring formation, use R or L inserts. Reduce feed “f“ because of lateral deflection by approx. 20–50 %.

References for grooving



When grooving with an axial displacement the width „a“ should amount to at least 70 % of the grooving width „CW“.



When grooving oblique surfaces the feed should be reduced by approx. 20–50 % until fully engaged.

Trouble shooting guide for grooving FX/SX/GX/LX

Type of problem											
Type of wear				Work piece problems				Swarf control			
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Formation of pips and burrs	Chattered surface	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)		
	↑	↓	↓	↓			↑	↓		Cutting speed	Cutting data
↓			↓	↑		↓	↓	↑	↓	Feed rate	Cutting data
↓		↓	↓		↓	↓	↓			Feed rate at centre -R -F -M ↑ ↓	Cutting data
↑	↓		~	~	↓	↓	↓	↓	↑	Chip groove	Insert selection
					●					R/L execution	Insert selection
↑		↑	↑	↓	↓	↓	↑			Corner radius ↑ larger ↓ smaller	Insert selection
↓		↑	↑							Tool Material ↑ Wear resistance ↓ toughness	Insert selection
				↓		↑	↑			Groove width	Insert selection
~				~		~	~			Tool clamping	General criteria
~				~		~	~			Work piece clamping	General criteria
~				~			↓			Overhang	General criteria
~		~		~	~		~			Tip height	General criteria
	●	●	●		●		●	●		Cooling lubricant	General criteria

Remedy measures

↑ raise, increase large influence
↑ raise, increase small influence
↓ avoid, reduce large influence
↓ avoid, reduce small influence
~ check, optimise
● use

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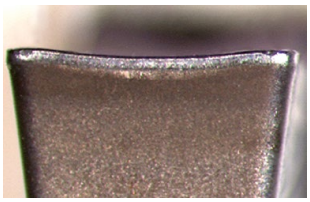
Wear causes

Wear on clearance face



Abrasion on the flank, normal wear after a given operation time

Cause

- ▲ cutting speed too high
- ▲ grade with too low wear resistance
- ▲ insufficient coolant

Remedy

- ▲ Reduce the cutting speed
- ▲ select a more wear resistant grade
- ▲ Improve/check coolant feed

Edge chipping



Excessive mechanical stress on the cutting edge causing carbide particles to break out.

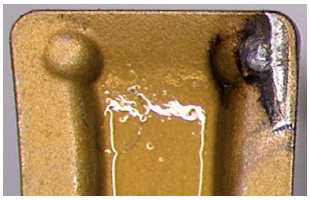
Cause

- ▲ too hard grade
- ▲ vibration
- ▲ too high feed and depth of cut
- ▲ chip impact

Remedy

- ▲ use tougher grade
- ▲ use negative geometry with chip breaker
- ▲ reduce overhang, check center height
- ▲ stabilize the cutting edge

Cratering



The outgoing hot chip causes cratering of the insert on the clamping surface.

Cause

- ▲ too high cutting speed, feed, or both
- ▲ too low rake angle
- ▲ grade with too low wear resistance
- ▲ incorrectly supplied cooling

Remedy

- ▲ Reduce cutting speed and / or feed
- ▲ Check coolant flow and / or increase pressure
- ▲ Use harder grade

Plastic deformation



Large mechanical load produces high temperature machining, this can lead to plastic deformation.

Cause

- ▲ too high operating temperature, thus softening the base material
- ▲ unsuitable grade
- ▲ inadequate coolant supply

Remedy

- ▲ Reduce the cutting speed
- ▲ select a more wear resistant grade
- ▲ use coolant

Built-up edge



Weld deposits of material on the cutting edge occurs when the chip does not flow caused by low average temperature.

Cause

- ▲ too low cutting speed
- ▲ too low rake angle
- ▲ Incorrect grade
- ▲ lack of cooling / lubrication

Remedy

- ▲ Increase the cutting speed
- ▲ Increase rake angle
- ▲ Use TiN coating
- ▲ increase coolant strength

Notch wear



Contraction at maximum cutting depth.

Cause

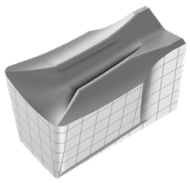
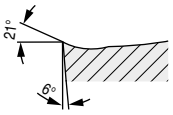
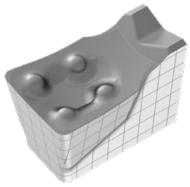
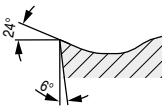
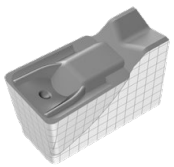
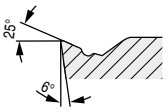
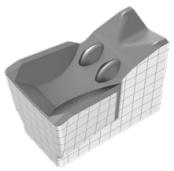
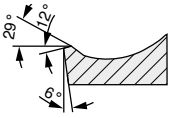
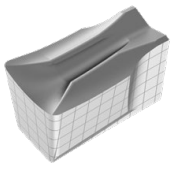
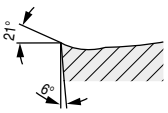
- ▲ Oxidation at the cutting edge
- ▲ Too high a temperature at the edge

Remedy

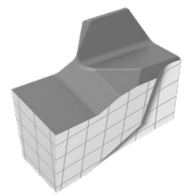
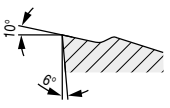
- ▲ Use different cutting depths
- ▲ Reduce cutting speed
- ▲ Improve/check coolant feed

Chip breakers / Applications

System GX

		Smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTPP345 		0,05–0,15
-Standard / -E ▲ positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ universal application ▲ first choice for axial grooving		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340/CTPP345** **CTCP335/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,05–0,17
-M40 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,075–0,20
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** CTP1340 CTPP345 		0,1–0,20
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		0,05–0,25

Circlip grooving

Standard ▲ positive geometry ▲ honed cuttign edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 CTP1340 CTP1340 		0,05–0,30

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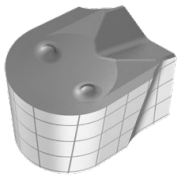
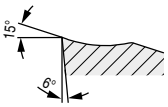
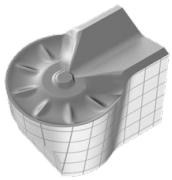
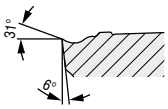
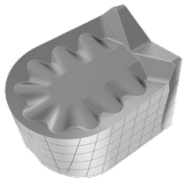
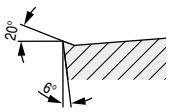
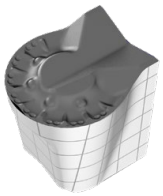
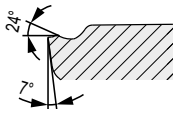
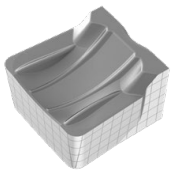
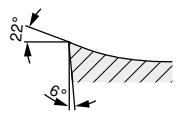
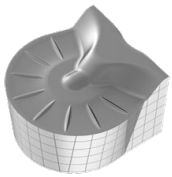
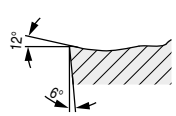
Chip breakers / Applications

System GX

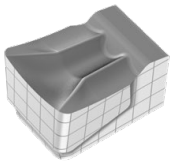
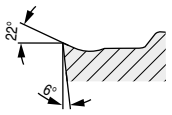
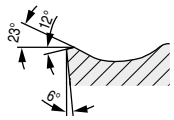
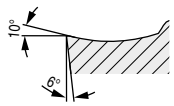
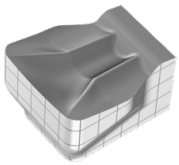
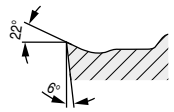
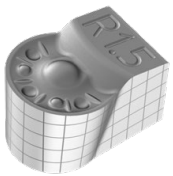
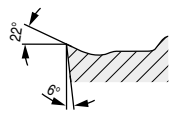
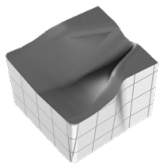
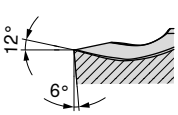
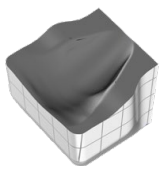
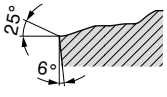
		Smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
Standard – Radius ▲ positive geometry ▲ honed cutting edge ▲ low-medium feed rates ▲ low cutting forces ▲ Radius grooving/copy turning		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTP1340 CTP1340 CTP1340 		0,05–0,20
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325** CTCP335 **CTCP325** CTCP325 CTCP325	**CTCP325/CTCP335** CTCP335 **CTCP325/CTCP335** 	**CTCP335** **CTCP335** 		0,07–0,20
-27P – Radius ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		0,05–0,30
-M33 ▲ Radius grooving & copy turning ▲ Finishing geometry ▲ Specially for tough and ductile steels ▲ Low - medium feed rates ▲ High surface quality		**CTCP325** CTCP325 **CTCP325** 	**CTCP325** CTCP325 **CTCP325** 	CTCP325 CTCP325 CTCP325 		0,05–0,20

System LX

		Smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325** CTCP335 **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340** **CTCP325** **CTP1340** CTP1340	**CTCP335** CTP1340 **CTCP335** CTP1340 		0,20–0,50
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325** CTCP335 **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP335/CTP1340** **CTP1340** **CTCP325/CTCP335** **CTP1340** CTP1340	**CTCP335** CTP1340 **CTCP335** CTP1340 		0,15–0,35

Chip breakers / Applications

System SX

		Smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTCP325** **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	**CTCP325/CTP1340** **CTP1340/CTPP345** **CTCP325/CTP1340** **CTP1340** CTP1340	**CTPP345** **CTPP345** **CTP1340** CTPP345 		0,05–0,15
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		CTCP325 **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	CTCP335/CTP1340 **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTPP345 **CTPP345** CTP1340 CTPP345 		0,10–0,20
-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		CTCP325 **CTP1340** **CTCP325** **CTP1340** CTCP325 CTP1340	CTCP335/CTP1340 **CTP1340** **CTCP325/CTP1340** **CTP1340** CTP1340	CTPP345 **CTPP345** CTP1340 CTPP345 		0,075–0,20
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals		 **H216T** **H216T** H216T H216T	 **H216T** **H216T** H216T 	 **H216T** **H216T** 		0,05–0,25
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving / Copy turning		**CTCP335** **CTP1340** **CTCP335** **CTP1340** CTP1340	**CTCP335/CTP1340** **CTP1340** **CTCP335/CTP1340** **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 		0,05–0,20
-M7 ▲ Grooving & parting off ▲ First choice for steel ▲ Medium - high feed rates ▲ Good chip control ▲ Positive geometry		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 CTP1340 CTP1340	 		0,10–0,20
-M8 ▲ Grooving & parting off ▲ Ground cutting edge ▲ Good chip control ▲ First choice for stainless steel ▲ Low feeds		**CTP1340** **CTP1340** **CTP1340** CTP1340 **CTP1340** CTP1340	**CTP1340** **CTP1340** **CTP1340** CTP1340 CTP1340 CTP1340	 		0,03–0,15

11

Example of Coding Grooving Tools

Grooving insert

GX	16	2	E	3.00	N	0.50
Grooving system (GX)	Insert length (16 mm)	Width class of the holder / module or support surface (2 mm)	Type of insert, application	Groove width (3.0 mm)	Insert seat N = Neutral L = Left R = Right	Corner radius size (0.5 mm)

Module

E	25	R	12	GX	16	2
Application E = External I = Internal	Size (25 mm)	Module version R = Right L = Left	Maximum groove depth (12 mm)	Grooving system (GX)	Insert size (16 mm)	Width class 2

Basic holder

E	25	R	00	2525	L
Application E = External I = Internal	Size (25 mm)	Holder version R = Right L = Left	Approach angle 0°	Shank type 25x25mm	Shank length L = (see ISO)

Monobloc tool holder

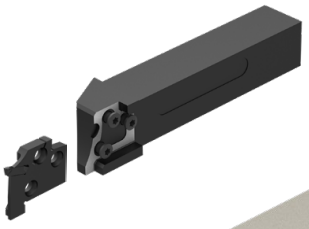
E	25	R	00	13	S3	2525	X	S	DC	GX16
Application E = External I = Internal	Size (25 mm)	Holder version R = Right L = Left	Approach angle 0°	Groove depth (13 mm)	Groove width (3.0 mm)	Shank type 25x25mm	Shank length X = (see ISO)	Insert clamping S = Key	Cooling system DC = DirectCooling	Grooving system/width (3 mm)

Summary



Grooving insert

GX 16-2 E3.00 N 0.50

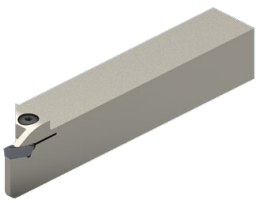


Module

E25 R 12- GX 16-2

Basic holder

E25 R 00 - 2525L

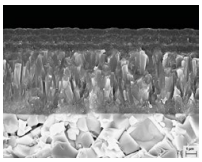


Monobloc tool holder

E25 R 0013S3-2525X-S-DC-GX16

Grade description

CTCP325

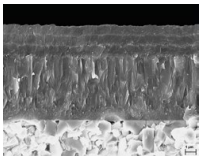


ISO | **P25** | M20 | **K30** | S25

Specifications:
Composition: Co 7.0%; mixed carbide 8.1%; WC balance | grain size: 1-2 µm | Hardness: HV_{30} 1470 |
Layer system: CVD TiCN-Al_2O_3 Multilayer

Recommended use:
The wear-resistant solution for steel and cast iron materials at high cutting speeds

CTCP335

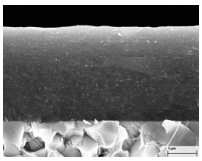


ISO | **P35** | M30 | **K35**

Specifications:
Composition: Co 10.5%; mixed carbide 1.9%; WC balance | grain size: 1 µm | Hardness: HV_{30} 1370 |
Layer system: CVD TiCN-Al_2O_3 Multilayer

Recommended use:
The reliable choice for machining steel and cast iron materials.

CTP1340

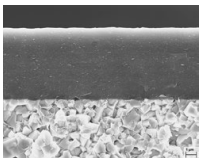


ISO | **P30** | **M35** | **K30** | N30 | **S30** | O30

Specifications:
Composition: Co 9.0%; mixed carbide 0.75%; WC balance | grain size: 0.7–1 µm | Hardness: HV_{30} 1590 | Layer system: PVD TiAlTaN

Recommended use:
The universal high-performance grade for steels, austenitic steel, cast iron materials and heat-resistant alloys

CTPP345

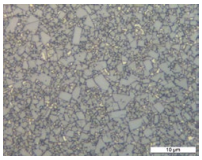


ISO | **P45** | **M40** | S40

Specifications:
Composition: Co 12.5%; mixed carbide 2.0%; WC balance | grain size: 1-1.5 µm | Hardness: HV_{30} 1350 | Layer system: PVD TiAlTaN

Recommended use:
The reliable solution for steel and austenitic steels in unstable conditions.

H216T

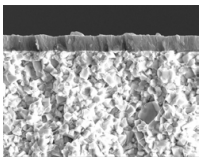


ISO | **K15** | **N15** | S15 | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

CWX500

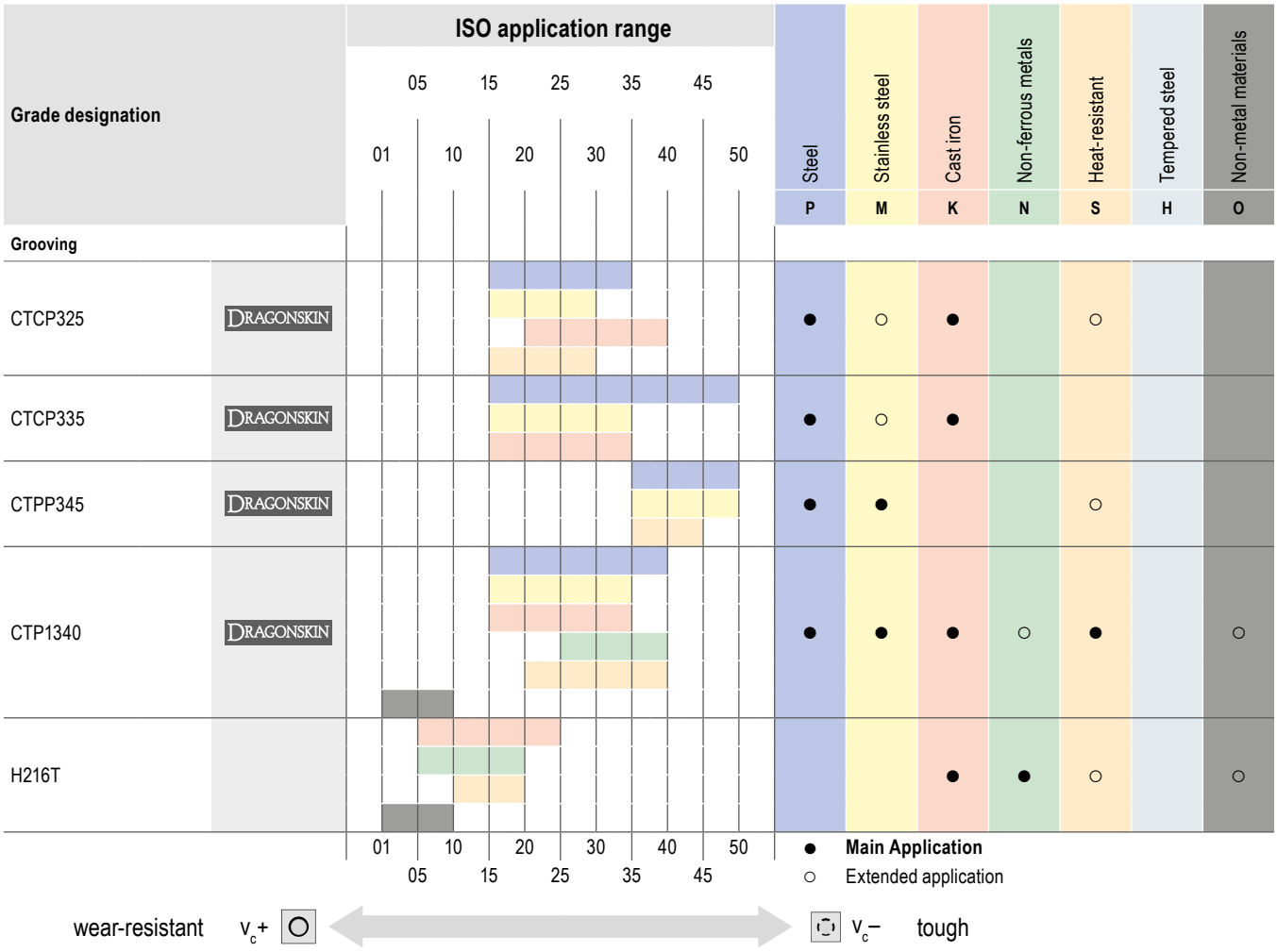


ISO | **P30** | **M30** | **K35** | **N35** | **S15** | H05 | **O10**

Specification:
Composition: Co 10.0%; Others 0.7 %, WC balance | Grain size: 1 µm | Hardness: HV_{30} 1660

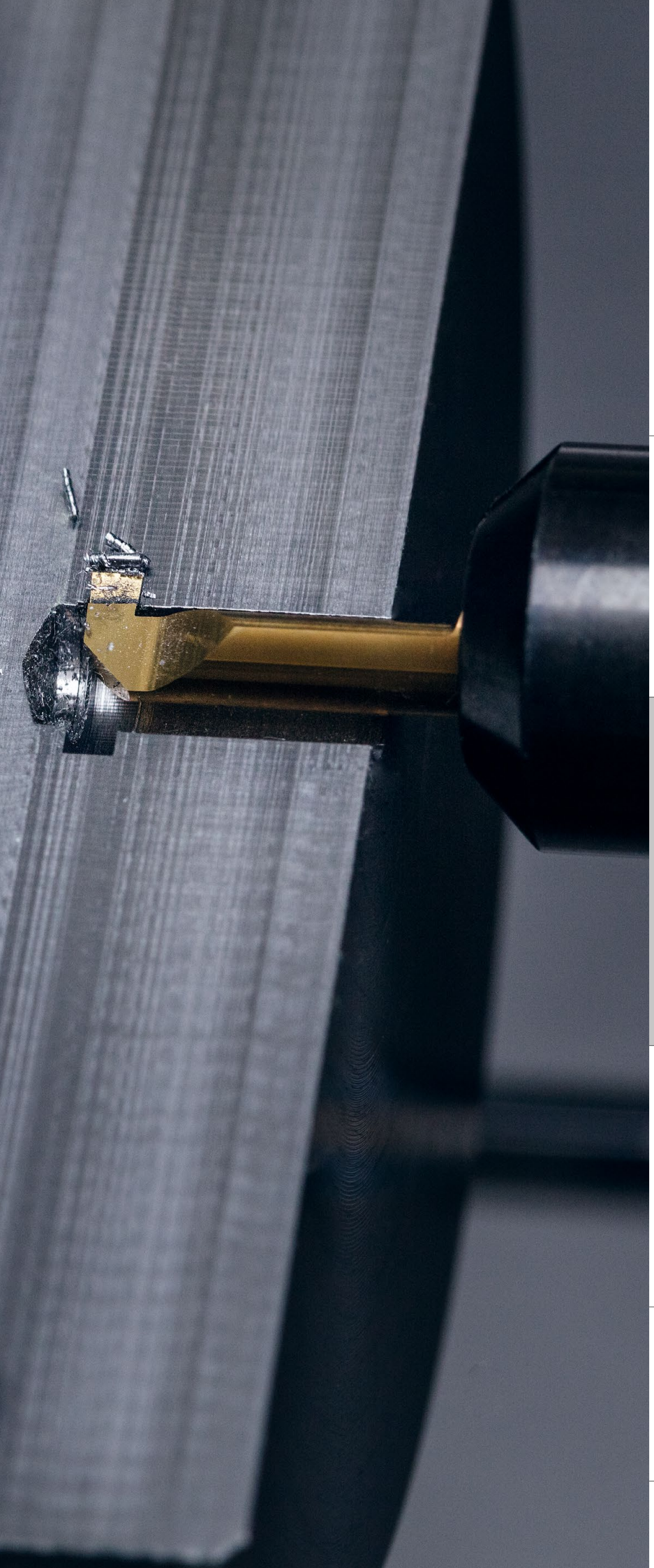
Recommended application:
The universal carbide grade for almost all materials

Application









Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools **12**

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Toolfinder	4+5
Product programme	
UltraMini	6–34
MiniCut	35–53
UltraMini + MiniCut Hard Turning	10+36
SlotCut – Broaching	54–57
Technical Information	
Cutting Data	58–61
Broaching – Recommendations for Correct Use	62
Symbol explanation, coatings and thread types	63

WNT \ Performance

Premium quality tools for high performance.

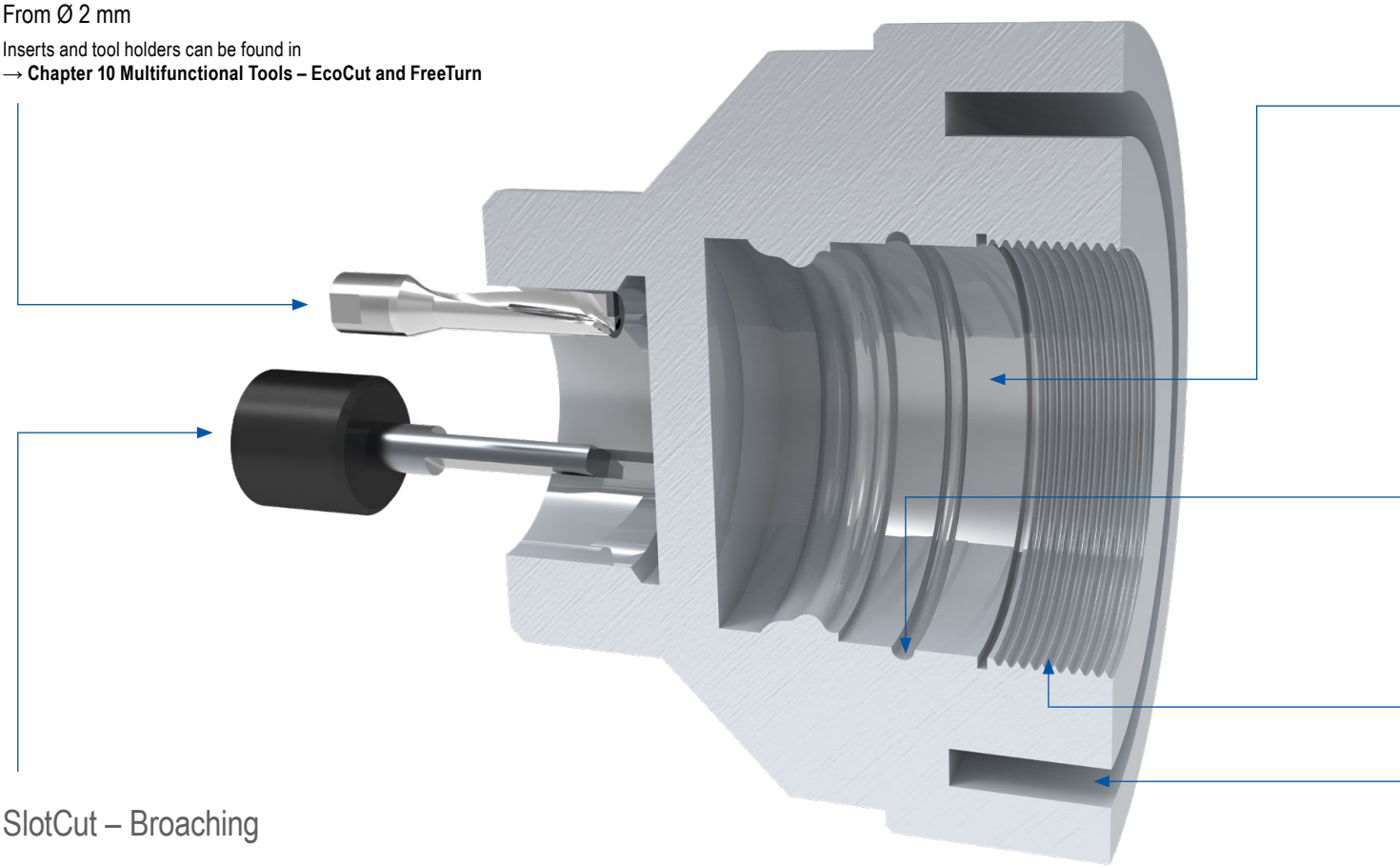
The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Toolfinder

EcoCut Mini

From Ø 2 mm

Inserts and tool holders can be found in
→ **Chapter 10 Multifunctional Tools – EcoCut and FreeTurn**



SlotCut – Broaching

Inserts + Holder DIN138 54–57

Symbol explanation

 Internal machining

 Internal grooving

 Internal thread turning

 Axial machining

System overview

UltraMini



- ▲ from Ø 0.5 mm
- ▲ flexible system
- ▲ ground inserts
- ▲ high repeatability
- ▲ coolant supply to the cutting edge

MiniCut



- ▲ from Ø 7.8 mm
- ▲ stable three-rib interface
- ▲ easy handling
- ▲ coolant supply to the cutting edge
- ▲ precise cutting edge position

SlotCut



- ▲ broaching directly on the machine
- ▲ usable from Ø 6 mm
- ▲ low machine load
- ▲ variety of tolerance classes

		UltraMini									MiniCut				
Hole diameter (mm)		**≥ 0,5**	**≥ 2**	**≥ 2,4**	**≥ 2,8**	**≥ 3**	**≥ 4**	**≥ 5**	**≥ 6**	**≥ 8**	**≥ 16**	**≥ 8**	**≥ 9**	**≥ 11**	**≥ 14**	**≥ 16**
Internal turning and profiling		6–9	6–9	6–9	6–9		6–9	6–9	6–9			35	35	35	35	35
Internal turning and profiling – hard turning			10		10		10	10	10			36		36	36	36
High-feed turning			11			11	11	11	11							
Internal turning					12		12	12				37	37	37	37	37
Back boring						13	13	13	13			38	38	38	38	
Turning and chamfering								14	14			38	38	38	38	
Pre-parting and chamfering							14	14	14			39	39	39	39	39
Internal Undercuts			18		18		18	18	18			42	42	42	42	42
Groove turning			15–17			15–17	15–17	15–17	15–17			40+41	40+41	40+41	40+41	40+41
Groove and profile turning							19	19	19			43	43	43	43	43
Internal thread turning				20–22			20–22	20–22	20–22			44–47	44–47	44–47	44–47	44–47
Axial grooving								23–28	23–28	23–28	23–28	48+49	48+49	48+49	48+49	48+49
suitable holder		31–34										50–53				
Sets		29+30														

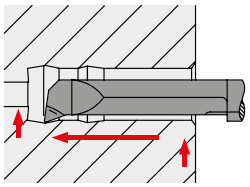
12

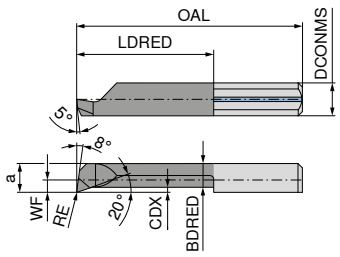
UltraMini – Inserts for internal turning and profiling

▲ CDX = Maximum depth of cut when turning outwards









Illustrations show right-hand versions

TiN



TiN



TiAlN



TiAlN



										Left-hand		Right-hand		Left-hand		Right-hand	
										73 005 ...		**73 004 ...**		**73 005 ...**		**73 004 ...**	
ISO designation	DCONMS $_{h6}$	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	£ Y5		£ Y5		£ Y5		£ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm								
R/L 050.05-2	4		0.5	0.4	20	2	0.03	0.32	0.02	82.20	**500**	82.20	**500**				
R/L 050.06-2	4		0.6	0.5	20	2	0.05	0.40	0.04	82.20	**510**	82.20	**510**				
R/L 050.06-3	4		0.6	0.5	20	3	0.05	0.40	0.04	84.87	**511**	84.87	**511**				
R/L 050.08-4	4		0.8	0.7	20	4	0.05	0.60	0.04					82.73	**812**	82.73	**812**
R/L 050.1-8	4		1.0	0.9	22	8	0.10	0.75	0.05					81.94	**813**	81.94	**813**
R/L 050.15-5	4		1.5	1.3	19	5	0.10	1.15	0.05	78.40	**515**	78.40	**515**				
R/L 050.15-10	4		1.5	1.3	24	10	0.10	1.15	0.05	79.15	**516**	79.15	**516**				
R/L 050.15-12	4		1.5	1.3	26	12	0.10	1.15	0.05					81.94	**818**	81.94	**818**
R/L 050.2-5	4		2.0	1.7	19	5	0.10	1.50	0.05	66.63	**520**	61.13	**520**				
R/L 050.2-10	4		2.0	1.7	24	10	0.10	1.50	0.05	67.40	**521**	66.63	**521**				
R/L 050.2-15	4		2.0	1.7	29	15	0.10	1.50	0.05	72.36	**522**	66.07	**522**				
R/L 050.3-10	4	0.6	2.8	2.6	24	10	0.20	2.30	0.10	72.36	**531**	70.26	**531**				
R/L 050.3-16	4	0.6	2.8	2.6	30	16	0.20	2.30	0.10	79.36	**530**	77.08	**530**				
R/L 050.3-20	4	0.6	2.8	2.6	34	20	0.20	2.30	0.10	75.37	**532**	76.97	**532**				
R/L 050.35-10	4	1.1	3.5	3.1	24	10	0.25	2.80	0.10					64.80	**835**	64.80	**835**
R/L 050.35-16	4	1.1	3.5	3.1	30	16	0.25	2.80	0.10					68.30	**836**	68.30	**836**
R/L 050.35-20	4	1.1	3.5	3.1	34	20	0.25	2.80	0.10					82.08	**837**	82.08	**837**
R/L 050.35-24	4	1.1	3.5	3.1	38	24	0.25	2.80	0.10					89.92	**838**	89.92	**838**
R/L 050.4-10	4	1.5	4.0	3.5	24	10	0.30	3.00	0.10	72.73	**541**	69.28	**541**	66.45	**841**	66.45	**841**
R/L 050.4-16	4	1.5	4.0	3.5	30	16	0.30	3.00	0.10	72.73	**540**	69.28	**540**	70.26	**840**	70.26	**840**
R/L 050.4-20	4	1.5	4.0	3.5	34	20	0.30	3.00	0.10	74.30	**542**	73.84	**542**	78.59	**842**	78.59	**842**
R/L 050.4-24	4	1.5	4.0	3.5	38	24	0.30	3.00	0.10	89.22	**545**	86.55	**545**	89.22	**845**	89.22	**845**
R/L 050.4-28	4	1.5	4.0	3.5	42	28	0.30	3.00	0.10	99.30	**546**	94.80	**546**	99.30	**846**	99.30	**846**
R/L 050.5-10	5	1.9	5.0	4.4	25	10	0.50	3.80	0.15	71.90	**551**	65.55	**551**	62.26	**851**	62.26	**851**
R/L 050.5-15	5	1.9	5.0	4.4	30	15	0.50	3.80	0.15	73.00	**552**	69.83	**552**	66.45	**852**	66.45	**852**
R/L 050.5-20	5	1.9	5.0	4.4	35	20	0.50	3.80	0.15	73.57	**550**	71.70	**550**	76.50	**850**	76.50	**850**
R/L 050.5-25	5	1.9	5.0	4.4	40	25	0.50	3.80	0.15	84.74	**553**	80.98	**553**	86.55	**853**	86.55	**853**
R/L 050.5-30	5	1.9	5.0	4.4	45	30	0.50	3.80	0.15	91.32	**554**	89.04	**554**	97.59	**854**	97.59	**854**
R/L 050.5-35	5	1.9	5.0	4.4	50	35	0.50	3.80	0.15	108.20	**556**	103.35	**556**	108.20	**856**	108.20	**856**
R/L 050.5-40	5	1.9	5.0	4.4	55	40	0.50	3.80	0.15					117.61	**857**	117.61	**857**
R/L 050.6-15	6	2.3	6.0	5.3	30	15	0.50	4.50	0.15	74.78	**561**	68.54	**561**	66.45	**861**	66.45	**861**
R/L 050.6-22	6	2.3	6.0	5.3	37	22	0.50	4.50	0.15	76.68	**560**	74.63	**560**	76.50	**860**	76.50	**860**
R/L 050.6-25	6	2.3	6.0	5.3	40	25	0.50	4.50	0.15	86.78	**562**	79.36	**562**	86.55	**862**	86.55	**862**
R/L 050.6-30	6	2.3	6.0	5.3	45	30	0.50	4.50	0.15	92.68	**563**	90.18	**563**	97.59	**863**	97.59	**863**
R/L 050.6-35	6	2.3	6.0	5.3	50	35	0.50	4.50	0.15	108.20	**564**	103.35	**564**	108.20	**864**	108.20	**864**
R/L 050.6-42	6	2.3	6.0	5.3	57	42	0.50	4.50	0.15	120.94	**565**	117.53	**565**	120.94	**865**	120.94	**865**
R/L 050.7-20	7	2.8	6.8	6.3	35	20	0.60	5.50	0.15	78.40	**572**	76.15	**572**	75.42	**872**	75.42	**872**
R/L 050.7-25	7	2.8	6.8	6.3	40	25	0.60	5.50	0.15	98.13	**573**	94.15	**573**	87.53	**873**	87.53	**873**
R/L 050.7-30	7	2.8	6.8	6.3	45	30	0.60	5.50	0.15	97.78	**574**	95.47	**574**	97.19	**874**	97.19	**874**
R/L 050.7-35	7	2.8	7.0	6.3	50	35	0.60	5.50	0.15	110.08	**575**	110.08	**575**	110.08	**875**	110.08	**875**
R/L 050.7-40	7	2.8	7.0	6.3	55	40	0.60	5.50	0.15	122.62	**576**	122.62	**576**	122.62	**876**	122.62	**876**
R/L 050.7-45	7	2.8	7.0	6.3	60	45	0.60	5.50	0.15	127.56	**577**	127.56	**577**	127.56	**877**	127.56	**877**
R/L 050.7-50	7	2.8	7.0	6.3	65	50	0.60	5.50	0.15	139.88	**578**	139.88	**578**	139.88	**878**	139.88	**878**

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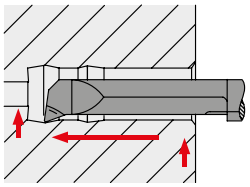
→ v_c Page 59

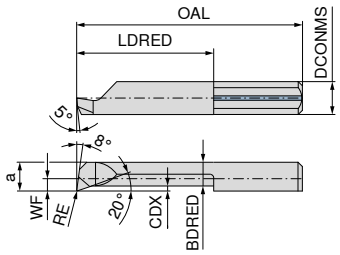
UltraMini – Inserts for internal turning and profiling

▲ CDX = Maximum depth of cut when turning outwards









K10F



Left-hand

K10F



Right-hand

ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	73 005 ... £ Y5		73 004 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 050.2-5	4		2.0	1.7	19	5	0.1	1.5	0.05	53.27	**020**	53.27	**020**
R/L 050.2-10	4		2.0	1.7	24	10	0.1	1.5	0.05	55.83	**021**	55.83	**021**
R/L 050.2-15	4		2.0	1.7	29	15	0.1	1.5	0.05	59.61	**022**	59.61	**022**
R/L 050.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.10	56.40	**031**	56.40	**031**
R/L 050.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.10	65.00	**030**	65.00	**030**
R/L 050.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.10	66.61	**032**	66.61	**032**
R/L 050.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.10	56.56	**041**	56.56	**041**
R/L 050.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.10	58.67	**040**	58.67	**040**
R/L 050.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.10	62.26	**042**	61.48	**042**
R/L 050.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	0.15	56.98	**051**	56.98	**051**
R/L 050.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	0.15	59.97	**052**	59.97	**052**
R/L 050.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	0.15	62.08	**050**	62.08	**050**
R/L 050.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	0.15	71.90	**053**	71.90	**053**
R 050.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	0.05			78.87	**054**
L 050.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	0.15	77.84	**054**		
R/L 050.6-15	6	2.3	6.0	5.3	30	15	0.5	4.5	0.15	61.48	**061**	61.48	**061**
R/L 050.6-22	6	2.3	6.0	5.3	37	22	0.5	4.5	0.15	62.57	**060**	62.57	**060**
R/L 050.6-25	6	2.3	6.0	5.3	40	25	0.5	4.5	0.15	74.30	**062**	74.30	**062**
R/L 050.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	0.15	80.12	**063**	78.96	**063**
R/L 050.7-20	7	2.8	6.8	6.3	35	20	0.6	5.5	0.15	66.07	**072**	66.07	**072**
R/L 050.7-25	7	2.8	6.8	6.3	40	25	0.6	5.5	0.15	75.42	**073**	75.42	**073**
R/L 050.7-30	7	2.8	6.8	6.3	45	30	0.6	5.5	0.15	88.07	**074**	80.98	**074**
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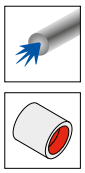
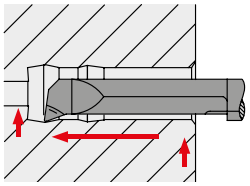
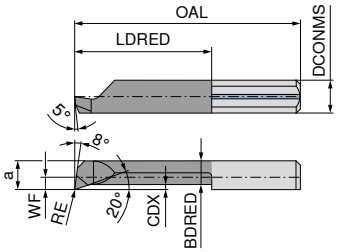
UltraMini – Inserts for internal turning and profiling

▲ with corner radius ≤ 0.05 mm
▲ CDX = Maximum depth of cut when turning outwards







Illustrations show right-hand versions

TiAlN | TiAlN | TiAlN | TiAlN



	Left-hand	Right-hand	Left-hand	Right-hand
	73 021 ...	**73 020 ...**	**73 023 ...**	**73 022 ...**

ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	£ Y5		£ Y5		£ Y5		£ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm								
R/L 053.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.03	71.76	**310**	71.76	**310**				
R/L 053.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.03	75.55	**316**	75.55	**316**				
R/L 053.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.03	87.90	**320**	87.90	**320**				
R/L 053.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.03	71.76	**410**	71.76	**410**				
R/L 053.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.03	75.55	**416**	75.55	**416**				
R/L 053.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.03	85.45	**420**	85.45	**420**				
R/L 053.4-24	4	1.5	4.0	3.5	38	24	0.3	3.0	0.03	94.55	**424**	94.55	**424**				
R/L 053.4-28	4	1.5	4.0	3.5	42	28	0.3	3.0	0.03	102.80	**428**	102.80	**428**				
R/L 055.2-10	4		2.0	1.7	24	10	0.1	1.5	0.05					72.46	**210**	72.46	**210**
R/L 055.2-15	4		2.0	1.7	29	15	0.1	1.5	0.05					77.45	**215**	77.45	**215**
R/L 055.2-5	4		2.0	1.7	19	5	0.1	1.5	0.05					71.76	**205**	71.76	**205**
R/L 055.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.05					71.76	**310**	71.76	**310**
R/L 055.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.05					75.55	**316**	75.55	**316**
R/L 055.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.05					89.79	**320**	89.79	**320**
R/L 055.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.05					71.76	**410**	71.76	**410**
R/L 055.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.05					75.55	**416**	75.55	**416**
R/L 055.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.05					85.45	**420**	85.45	**420**
R/L 055.4-24	4	1.5	4.0	3.5	38	24	0.3	3.0	0.05					94.55	**424**	94.55	**424**
R/L 055.4-28	4	1.5	4.0	3.5	42	28	0.3	3.0	0.05					102.80	**428**	102.80	**428**
R/L 055.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	0.05					67.74	**510**	64.56	**510**
R/L 055.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	0.05					71.76	**515**	71.76	**515**
R/L 055.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	0.05					81.64	**520**	81.64	**520**
R/L 055.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	0.05					90.31	**525**	90.31	**525**
R/L 055.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	0.05					102.73	**530**	102.73	**530**
R/L 055.5-35	5	1.9	5.0	4.4	50	35	0.5	3.8	0.05					113.51	**535**	113.51	**535**
R/L 055.6-15	6	2.3	6.0	5.3	30	15	0.5	4.5	0.05					71.76	**615**	71.76	**615**
R/L 055.6-22	6	2.3	6.0	5.3	37	22	0.5	4.5	0.05					79.90	**622**	79.90	**622**
R/L 055.6-25	6	2.3	6.0	5.3	40	25	0.5	4.5	0.05					90.31	**625**	90.31	**625**
R/L 055.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	0.05					102.73	**630**	102.73	**630**
R/L 055.6-35	6	2.3	6.0	5.3	50	35	0.5	4.5	0.05					113.51	**635**	113.51	**635**
R/L 055.6-42	6	2.3	6.0	5.3	57	42	0.5	4.5	0.05					123.84	**642**	123.84	**642**

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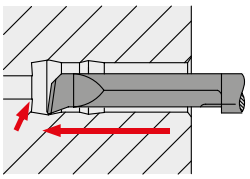
→ v_c Page 59

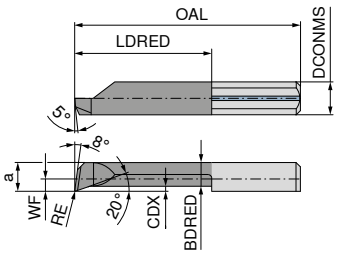
UltraMini – Inserts for internal turning and profiling

▲ with chip former
▲ CDX = Maximum depth of cut when turning outwards









Illustrations show right-hand versions

TiAlN



TiAlN



ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Left-hand 73 017 ... £ Y5		Right-hand 73 016 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 050.4-10C	4	1.5	4	3.5	24	10	0.3	3.0	0.2	66.45	**410**	66.45	**410**
R/L 050.4-16C	4	1.5	4	3.5	30	16	0.3	3.0	0.2	70.26	**416**	70.26	**416**
R/L 050.4-20C	4	1.5	4	3.5	34	20	0.3	3.0	0.2	78.59	**420**	78.59	**420**
R/L 050.4-24C	4	1.5	4	3.5	38	24	0.3	3.0	0.2	89.22	**424**	89.22	**424**
R/L 050.4-28C	4	1.5	4	3.5	42	28	0.3	3.0	0.2	99.30	**428**	99.30	**428**
R/L 050.5-10C	5	1.9	5	4.4	25	10	0.5	3.8	0.2	62.26	**510**	62.26	**510**
R/L 050.5-15C	5	1.9	5	4.4	30	15	0.5	3.8	0.2	66.45	**515**	66.45	**515**
R/L 050.5-20C	5	1.9	5	4.4	35	20	0.5	3.8	0.2	76.50	**520**	76.50	**520**
R/L 050.5-25C	5	1.9	5	4.4	40	25	0.5	3.8	0.2	86.55	**525**	86.55	**525**
R/L 050.5-30C	5	1.9	5	4.4	45	30	0.5	3.8	0.2	97.59	**530**	97.59	**530**
R/L 050.5-35C	5	1.9	5	4.4	50	35	0.5	3.8	0.2	108.20	**535**	108.20	**535**
R/L 050.6-15C	6	2.3	6	5.3	30	15	0.5	4.5	0.2	66.45	**615**	66.45	**615**
R/L 050.6-22C	6	2.3	6	5.3	37	22	0.5	4.5	0.2	76.50	**622**	76.50	**622**
R/L 050.6-25C	6	2.3	6	5.3	40	25	0.5	4.5	0.2	86.55	**625**	86.55	**625**
R/L 050.6-30C	6	2.3	6	5.3	45	30	0.5	4.5	0.2	97.59	**630**	97.59	**630**
R/L 050.6-35C	6	2.3	6	5.3	50	35	0.5	4.5	0.2	108.20	**635**	108.20	**635**
R/L 050.6-42C	6	2.3	6	5.3	57	42	0.5	4.5	0.2	120.94	**642**	120.94	**642**
R/L 050.7-20C	7	2.8	7	6.3	35	20	0.6	5.5	0.2	75.42	**720**	75.42	**720**
R/L 050.7-25C	7	2.8	7	6.3	40	25	0.6	5.5	0.2	87.53	**725**	87.53	**725**
R/L 050.7-30C	7	2.8	7	6.3	45	30	0.6	5.5	0.2	97.19	**730**	97.19	**730**
R/L 050.7-35C	7	2.8	7	6.3	50	35	0.6	5.5	0.2	110.08	**735**	110.08	**735**
R/L 050.7-40C	7	2.8	7	6.3	55	40	0.6	5.5	0.2	122.62	**740**	122.62	**740**
R/L 050.7-45C	7	2.8	7	6.3	60	45	0.6	5.5	0.2	127.56	**745**	127.56	**745**
R/L 050.7-50C	7	2.8	7	6.3	65	50	0.6	5.5	0.2	139.88	**750**	139.88	**750**

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→ v_c Page 59

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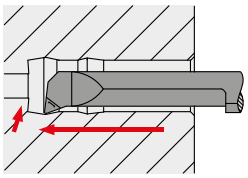
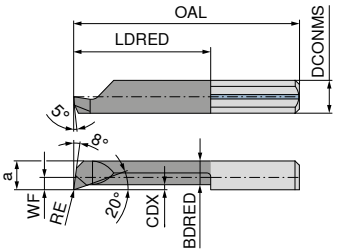
UltraMini – Inserts for internal turning and profiling – hard turning

▲ 46 to 65 HRC
▲ CDX = Maximum depth of cut when turning outwards









Illustrations show right-hand versions

TiAlN+



Left-hand

TiAlN+



Right-hand

ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	73 025 ... £		73 024 ... £	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Y5		Y5	
R/L 050.2-5	4		2.0	1.7	19	5	0.1	1.5	0.05	98.87	920	98.87	920
R/L 050.2-10	4		2.0	1.7	24	10	0.1	1.5	0.05	100.69	921	100.69	921
R/L 050.2-15	4		2.0	1.7	29	15	0.1	1.5	0.05	104.48	922	104.48	922
R/L 050.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.10	98.53	931	98.53	931
R/L 050.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.10	102.69	930	102.69	930
R/L 050.3-20	4	0.6	2.8	2.6	34	20	0.2	2.3	0.10	117.51	932	117.51	932
R/L 050.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.10	98.53	941	98.53	941
R/L 050.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.10	102.69	940	102.69	940
R/L 050.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	0.10	113.05	942	113.05	942
R/L 050.4-24	4	1.5	4.0	3.5	38	24	0.3	3.0	0.10	122.96	945	122.96	945
R/L 050.4-28	4	1.5	4.0	3.5	42	28	0.3	3.0	0.10	133.47	946	133.47	946
R/L 050.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	0.15	95.57	951	95.57	951
R/L 050.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	0.15	100.02	952	100.02	952
R/L 050.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	0.15	110.75	950	110.75	950
R/L 050.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	0.15	121.62	953	121.62	953
R/L 050.5-30	5	1.9	5.0	4.4	45	30	0.5	3.8	0.15	133.32	954	133.32	954
R/L 050.5-35	5	1.9	5.0	4.4	50	35	0.5	3.8	0.15	144.54	956	144.54	956
R/L 050.6-15	6	2.3	6.0	5.3	30	15	0.5	4.5	0.15	101.50	961	101.50	961
R/L 050.6-22	6	2.3	6.0	5.3	37	22	0.5	4.5	0.15	112.21	960	112.21	960
R/L 050.6-25	6	2.3	6.0	5.3	40	25	0.5	4.5	0.15	123.09	962	123.09	962
R/L 050.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	0.15	134.80	963	134.80	963
R/L 050.6-35	6	2.3	6.0	5.3	50	35	0.5	4.5	0.15	146.34	964	146.34	964
R/L 050.6-42	6	2.3	6.0	5.3	57	42	0.5	4.5	0.15	159.36	965	159.36	965
R/L 050.7-20	7	2.8	6.8	6.3	35	20	0.6	5.5	0.15	113.40	972	113.40	972
R/L 050.7-25	7	2.8	6.8	6.3	40	25	0.6	5.5	0.15	124.91	973	124.91	973
R/L 050.7-30	7	2.8	6.8	6.3	45	30	0.6	5.5	0.15	137.13	974	137.13	974
R/L 050.7-35	7	2.8	6.8	6.3	50	35	0.6	5.5	0.15	148.66	975	148.66	975
R/L 050.7-40	7	2.8	6.8	6.3	55	40	0.6	5.5	0.15	162.32	976	162.32	976
R/L 050.7-45	7	2.8	6.8	6.3	60	45	0.6	5.5	0.15	170.07	977	170.07	977
R/L 050.7-50	7	2.8	6.8	6.3	65	50	0.6	5.5	0.15	180.80	978	180.80	978
P										○		○	
M										○		○	
K										○		○	
N										○		○	
S										○		○	
H										●		●	
O										○		○	

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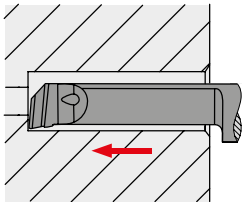
Machining with cooling is recommended.

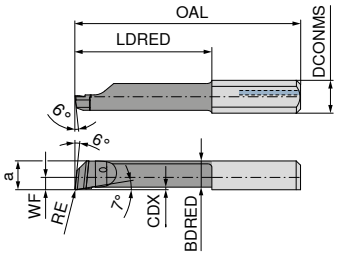
UltraMini – Inserts for internal turning

▲ with chip former
▲ High-feed internal turning
▲ CDX = Maximum depth of cut when turning outwards









Illustrations show right-hand versions

DPX77S
DRAGONSKIN



Left-hand

DPX77S
DRAGONSKIN



Right-hand

ISO designation	DCONMS $_{h6}$	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	73 001 ... £ Y5		73 000 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L X050.1-5	4		1.0	0.90	20	5	0.03	0.85	0.05	59.48	**121**	59.48	**121**
R/L X050.15-7	4		1.5	1.35	22	7	0.05	1.25	0.10	67.99	**233**	67.99	**233**
R/L X050.2-5	4		2.0	1.80	19	5	0.10	1.60	0.15	51.73	**245**	51.73	**245**
R/L X050.2-10	4		2.0	1.80	24	10	0.10	1.60	0.05	53.08	**215**	53.08	**215**
R/L X050.2-10	4		2.0	1.80	24	10	0.10	1.60	0.15	53.08	**241**	53.08	**241**
R/L X050.3-10	4	0.7	3.0	2.70	24	10	0.15	2.55	0.05	51.58	**341**	51.58	**341**
R/L X050.3-10	4	0.7	3.0	2.70	24	10	0.15	2.55	0.20	51.58	**347**	51.58	**347**
R/L X050.3-16	4	0.7	3.0	2.70	30	16	0.15	2.55	0.05	54.41	**371**	54.41	**371**
R/L X050.3-16	4	0.7	3.0	2.70	30	16	0.15	2.55	0.10	54.41	**373**	54.41	**373**
R/L X050.3-16	4	0.7	3.0	2.70	30	16	0.15	2.55	0.20	54.41	**377**	54.41	**377**
R/L X050.4-10	4	1.6	4.0	3.60	24	10	0.20	3.20	0.10	51.58	**403**	51.58	**403**
R/L X050.4-10	4	1.6	4.0	3.60	24	10	0.20	3.20	0.20	51.58	**407**	51.58	**407**
R/L X050.4-16	4	1.6	4.0	3.60	30	16	0.20	3.20	0.05	54.41	**431**	54.41	**431**
R/L X050.4-16	4	1.6	4.0	3.60	30	16	0.20	3.20	0.10	54.41	**433**	54.41	**433**
R/L X050.4-16	4	1.6	4.0	3.60	30	16	0.20	3.20	0.20	54.41	**437**	54.41	**437**
R/L X050.4-24	4	1.6	4.0	3.60	38	24	0.20	3.20	0.10	69.18	**463**	69.18	**463**
R/L X050.4-24	4	1.6	4.0	3.60	38	24	0.20	3.20	0.20	69.18	**467**	69.18	**467**
R/L X050.5-15	5	2.1	5.0	4.60	30	15	0.30	4.05	0.05	51.58	**511**	51.58	**511**
R/L X050.5-15	5	2.1	5.0	4.60	30	15	0.30	4.05	0.10	51.58	**513**	51.58	**513**
R/L X050.5-15	5	2.1	5.0	4.60	30	15	0.30	4.05	0.20	51.58	**517**	51.58	**517**
R/L X050.5-25	5	2.1	5.0	4.60	40	25	0.30	4.05	0.10	67.23	**543**	67.23	**543**
R/L X050.5-25	5	2.1	5.0	4.60	40	25	0.30	4.05	0.20	67.23	**547**	67.23	**547**
R/L X050.5-30	5	2.1	5.0	4.60	45	30	0.30	4.05	0.10	76.03	**553**	76.03	**553**
R/L X050.5-30	5	2.1	5.0	4.60	45	30	0.30	4.05	0.20	76.03	**557**	76.03	**557**
R/L X050.6-15	6	2.5	6.0	5.50	30	15	0.40	4.90	0.05	51.58	**611**	51.58	**611**
R/L X050.6-15	6	2.5	6.0	5.50	30	15	0.40	4.90	0.10	51.58	**613**	51.58	**613**
R/L X050.6-15	6	2.5	6.0	5.50	30	15	0.40	4.90	0.20	51.58	**617**	51.58	**617**
R/L X050.6-22	6	2.5	6.0	5.50	37	22	0.40	4.90	0.20	59.34	**637**	59.34	**637**
R/L X050.6-30	6	2.5	6.0	5.50	45	30	0.40	4.90	0.20	76.03	**657**	76.03	**657**
R/L X050.6-35	6	2.5	6.0	5.50	50	35	0.40	4.90	0.20	84.07	**667**	84.07	**667**
R/L X050.6-50	6	2.5	6.0	5.50	65	50	0.40	4.90	0.20	104.67	**697**	104.67	**697**
R/L X050.7-25	7	3.0	7.0	6.50	40	25	0.50	5.90	0.20	68.27	**747**	68.27	**747**
R/L X050.7-30	7	3.0	7.0	6.50	45	30	0.50	5.90	0.20	76.93	**757**	76.93	**757**

P	●	●
M	●	●
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

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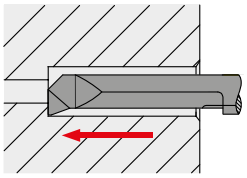
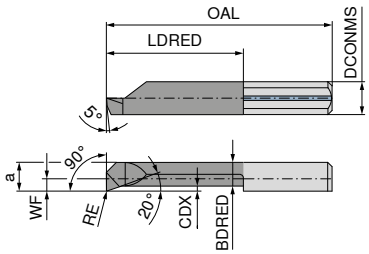
UltraMini – Inserts for internal turning

▲ CDX = Maximum depth of cut when turning outwards









Illustrations show right-hand versions

TiN



Left-hand

TiN



Right-hand

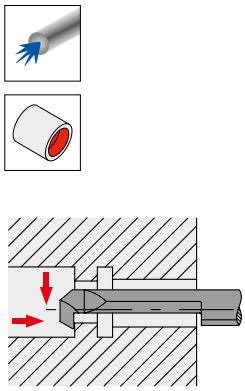
ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	£		£	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Y5	73 015 ...	Y5	73 014 ...
R/L 090.3-10	4	0.6	2.8	2.6	24	10	0.2	2.3	0.2	66.45	**541**	66.45	**541**
R/L 090.3-16	4	0.6	2.8	2.6	30	16	0.2	2.3	0.2	70.43	**542**	70.43	**542**
R/L 090.4-10	4	1.5	4.0	3.5	24	10	0.3	3.0	0.2	66.45	**545**	66.45	**545**
R/L 090.4-16	4	1.5	4.0	3.5	30	16	0.3	3.0	0.2	70.43	**546**	70.43	**546**
R/L 090.5-10	5	1.9	5.0	4.4	25	10	0.5	3.8	0.2	66.45	**550**	66.45	**550**
R/L 090.5-15	5	1.9	5.0	4.4	30	15	0.5	3.8	0.2	70.43	**551**	70.43	**551**
R/L 090.5-20	5	1.9	5.0	4.4	35	20	0.5	3.8	0.2	76.50	**552**	76.50	**552**

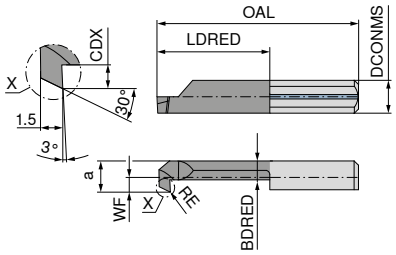
P	●	●
M	●	●
K	●	●
N	●	●
S	○	○
H	○	○
O	●	●

→ v_c Page 59

UltraMini – Inserts for back boring

▲ CDX = Maximum depth of cut when turning outwards





Illustrations show right-hand versions

TiN



Left-hand

TiN



Right-hand

ISO designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	73 013 ... £ Y5		73 012 ... £ Y5	
R/L 080.0003-15	4	0.6	3	2.6	29	15	0.5	2.0	0.10	81.23	542	81.23	542
R/L 080.0003-20	4	0.6	3	2.6	34	20	0.5	2.0	0.10	96.83	544	96.83	544
R/L 080.0004-15	4	1.5	4	3.5	29	15	0.8	2.4	0.15	81.23	546	81.23	546
R/L 080.0004-25	4	1.5	4	3.5	39	25	0.8	2.4	0.15	91.07	548	91.07	548
R/L 080.0005-20	5	1.9	5	4.4	35	20	1.0	3.3	0.20	83.00	554	83.00	554
R/L 080.0005-30	5	1.9	5	4.4	45	30	1.0	3.3	0.20	86.22	558	86.22	558
R/L 080.0006-20	6	2.3	6	5.3	35	20	1.8	3.4	0.20	86.55	564	86.55	564
R/L 080.0006-30	6	2.3	6	5.3	45	30	1.8	3.4	0.20	103.63	568	103.63	568
R/L 080.0007-20	7	2.7	7	6.3	35	20	2.5	3.8	0.20	86.55	574	86.55	574
R/L 080.0007-30	7	2.7	7	6.3	45	30	2.5	3.8	0.20	103.63	578	103.63	578
P										●		●	
M										●		●	
K										●		●	
N										●		●	
S										○		○	
H										○		○	
O										●		●	

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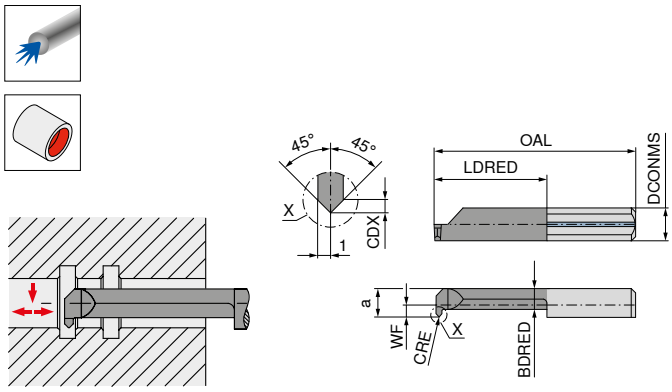
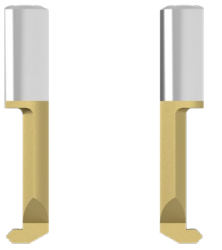
UltraMini – Inserts for internal turning and chamfering

▲ CDX = Maximum depth of cut when turning outwards



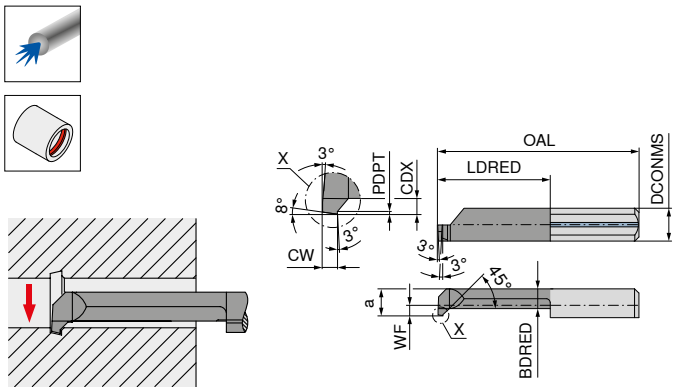
Illustrations show right-hand versions



ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CRE	Left-hand 73 007 ... £ Y5		Right-hand 73 006 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 060.5-15	5	1.9	5.0	4.4	30	15	0.7	3.3	0.2	67.40	**551**	62.63	**551**
R/L 060.5-20	5	1.9	5.0	4.4	35	20	0.7	3.3	0.2	70.01	**550**	69.71	**550**
R/L 060.7-20	7	2.7	6.8	6.3	35	20	0.7	3.8	0.2	78.59	**570**	72.73	**570**
P											●		●
M											●		●
K											●		●
N											●		●
S											○		○
H											○		○
O											●		●

→ v_c Page 59

UltraMini – Inserts for internal chamfering for subsequent parting off



Illustrations show right-hand versions



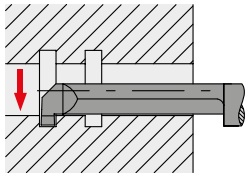
ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	PDPT	Left-hand 73 009 ... £ Y5		Right-hand 73 008 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 070.4-10	4	1.5	4	3.5	25	10	0.8	2.4	1	0.2	69.77	**410**	69.77	**410**
R/L 070.4-16	4	1.5	4	3.5	30	16	0.8	2.4	1	0.2	71.85	**416**	71.85	**416**
R/L 070.5-15	5	1.9	5	4.4	30	15	1.0	3.3	1	0.2	68.91	**551**	68.91	**551**
R/L 070.5-20	5	1.9	5	4.4	35	20	1.0	3.3	1	0.2	72.73	**550**	72.73	**550**
R/L 070.5-30	5	1.9	5	4.4	45	30	1.0	3.3	1	0.2	97.13	**530**	97.13	**530**
R/L 070.6-30	6	2.3	6	5.3	45	30	1.0	4.2	1	0.2	97.13	**630**	97.13	**630**
R/L 070.6-42	6	2.3	6	5.3	57	42	1.0	4.2	1	0.2	113.62	**642**	113.62	**642**
P												●		●
M												●		●
K												●		●
N												●		●
S												○		○
H												○		○
O												●		●

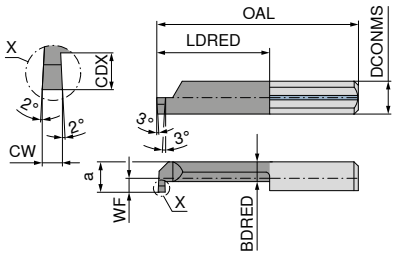
→ v_c Page 59

UltraMini – Inserts for Internal Grooving









Illustrations show right-hand versions





										Left-hand		Right-hand	
										73 003 ...		**73 002 ...**	
ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	£ Y5		£ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 004.0100-10	4	1.5	4.0	3.5	24	10	0.8	2.4	1.0	63.13	**540**	61.71	**540**
R/L 004.0100-16	4	1.5	4.0	3.5	30	16	0.8	2.4	1.0	77.45	**541**	75.37	**541**
R/L 004.0100-20	4	1.5	4.0	3.5	34	20	0.8	2.4	1.0	83.55	**542**	81.23	**542**
R/L 005.0100-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.0	64.56	**650**	60.72	**650**
R/L 005.0150-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.5	64.56	**654**	62.86	**654**
R/L 005.0200-10	5	1.9	5.0	4.4	25	10	1.0	3.3	2.0	64.56	**658**	62.86	**658**
R/L 005.0100-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.0	74.63	**651**	71.12	**651**
R/L 005.0150-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.5	74.63	**655**	71.12	**655**
R/L 005.0200-15	5	1.9	5.0	4.4	30	15	1.0	3.3	2.0	74.63	**659**	71.12	**659**
R/L 005.0100-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.0	80.98	**551**	80.52	**551**
R/L 005.0150-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.5	80.98	**552**	80.52	**552**
R/L 005.0200-20	5	1.9	5.0	4.4	35	20	1.0	3.3	2.0	80.98	**553**	80.52	**553**
R/L 005.0100-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.0	91.69	**652**	89.22	**652**
R/L 005.0150-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.5	91.69	**656**	89.22	**656**
R/L 005.0200-25	5	1.9	5.0	4.4	40	25	1.0	3.3	2.0	92.26	**750**	89.79	**750**
R/L 005.0100-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.0	102.13	**653**	99.30	**653**
R/L 005.0150-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.5	102.13	**657**	99.30	**657**
R/L 005.0200-30	5	1.9	5.0	4.4	45	30	1.0	3.3	2.0	102.73	**751**	100.05	**751**
R/L 005.0100-35	5	1.9	5.0	4.4	50	35	1.0	3.3	1.0	113.51	**680**	108.38	**680**
R/L 006.0100-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.0	63.70	**660**	61.84	**660**
R/L 006.0150-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.5	63.70	**664**	59.22	**664**
R/L 006.0200-10	6	2.3	6.0	5.3	25	10	1.8	3.4	2.0	63.70	**668**	61.84	**668**
R/L 006.0100-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.0	73.57	**661**	71.70	**661**
R/L 006.0150-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.5	73.57	**665**	71.70	**665**
R/L 006.0200-15	6	2.3	6.0	5.3	30	15	1.8	3.4	2.0	73.57	**669**	71.70	**669**
R/L 006.0100-22	6	2.3	6.0	5.3	37	22	1.8	3.4	1.0	81.76	**561**	81.09	**561**
R/L 006.0150-22	6	2.3	6.0	5.3	37	22	1.8	3.4	1.5	81.76	**562**	81.09	**562**
R/L 006.0200-22	6	2.3	6.0	5.3	37	22	1.8	3.4	2.0	81.76	**563**	81.09	**563**
R/L 006.0100-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.0	92.26	**662**	89.79	**662**
R/L 006.0150-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.5	92.26	**666**	89.79	**666**
R/L 006.0200-25	6	2.3	6.0	5.3	40	25	1.8	3.4	2.0	92.26	**760**	89.79	**760**
R/L 006.0100-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.0	102.73	**663**	100.05	**663**
R/L 006.0150-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.5	102.73	**667**	100.05	**667**
R/L 006.0200-30	6	2.3	6.0	5.3	45	30	1.8	3.4	2.0	102.73	**761**	100.05	**761**
R/L 006.0100-35	6	2.3	6.0	5.3	50	35	1.8	3.4	1.0	113.51	**682**	108.38	**682**
R/L 006.0150-35	6	2.3	6.0	5.3	50	35	1.8	3.4	1.5	113.51	**684**	108.38	**684**
R/L 006.0100-42	6	2.3	6.0	5.3	57	42	1.8	3.4	1.0	125.28	**685**	121.69	**685**
R/L 007.0100-10	7	2.7	6.8	6.3	25	10	2.5	3.8	1.0	64.26	**570**	62.86	**570**
R/L 007.0150-10	7	2.7	6.8	6.3	25	10	2.5	3.8	1.5	64.26	**575**	62.86	**575**
R/L 007.0200-10	7	2.7	6.8	6.3	25	10	2.5	3.8	2.0	64.26	**670**	62.86	**670**
R/L 007.0100-15	7	2.7	6.8	6.3	30	15	2.5	3.8	1.0	74.30	**571**	72.46	**571**
R/L 007.0150-15	7	2.7	6.8	6.3	30	15	2.5	3.8	1.5	74.30	**576**	72.46	**576**
R/L 007.0200-15	7	2.7	6.8	6.3	30	15	2.5	3.8	2.0	74.30	**671**	69.30	**671**
R/L 007.0100-22	7	2.7	6.8	6.3	37	22	2.5	3.8	1.0	83.62	**572**	82.77	**572**
R/L 007.0150-22	7	2.7	6.8	6.3	37	22	2.5	3.8	1.5	83.62	**577**	82.77	**577**
R/L 007.0200-22	7	2.7	6.8	6.3	37	22	2.5	3.8	2.0	83.62	**672**	82.77	**672**
R/L 007.0100-25	7	2.7	6.8	6.3	40	25	2.5	3.8	1.0	93.22	**573**	90.75	**573**
R/L 007.0150-25	7	2.7	6.8	6.3	40	25	2.5	3.8	1.5	93.22	**578**	90.75	**578**
R/L 007.0200-25	7	2.7	6.8	6.3	40	25	2.5	3.8	2.0	93.22	**673**	89.43	**673**
R/L 007.0100-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.0	102.80	**574**	101.75	**574**
R/L 007.0150-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.5	102.80	**579**	98.49	**579**
R/L 007.0200-30	7	2.7	6.8	6.3	45	30	2.5	3.8	2.0	102.80	**674**	95.47	**674**
R/L 007.0100-35	7	2.7	7.0	6.3	50	35	2.5	3.8	1.0	114.65	**688**	111.44	**688**
R/L 007.0150-35	7	2.7	7.0	6.3	50	35	2.5	3.8	1.5	114.65	**690**	111.44	**690**
R/L 007.0200-35	7	2.7	7.0	6.3	50	35	2.5	3.8	2.0	114.65	**692**	111.44	**692**
R/L 007.0100-40	7	2.7	7.0	6.3	55	40	2.5	3.8	1.0	127.18	**700**	123.57	**700**
R/L 007.0150-40	7	2.7	7.0	6.3	55	40	2.5	3.8	1.5	127.18	**702**	123.57	**702**
R/L 007.0100-45	7	2.7	7.0	6.3	60	45	2.5	3.8	1.0	138.01	**712**	134.23	**712**
R/L 007.0100-50	7	2.7	7.0	6.3	65	50	2.5	3.8	1.0	147.88	**714**	143.51	**714**

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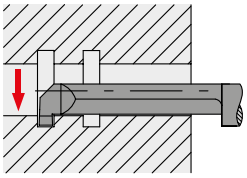
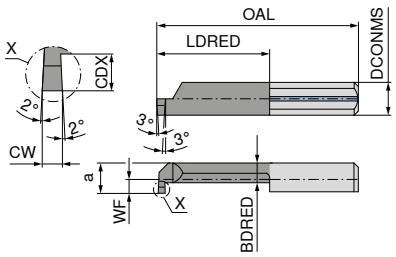
UltraMini – Inserts for Internal Grooving









Illustrations show right-hand versions

TiAlN



TiAlN



	Left-hand		Right-hand	
	73 003 ...		**73 002 ...**	
ISO designation	£ Y5		£ Y5	
R/L 002.0050-5	79.36	**820**	79.36	**820**
R/L 002.0050-10	79.90	**821**	79.90	**821**
R/L 002.0050-15	87.90	**822**	87.90	**822**
R/L 003.0070-5	73.57	**830**	73.57	**830**
R/L 003.0070-10	84.87	**831**	84.87	**831**
R/L 003.0070-16	94.55	**832**	94.55	**832**

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DCONMS $_{h6}$ mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm
4		2	1.8	19	5	0.4	1.2	0.5
4		2	1.8	24	10	0.4	1.2	0.5
4		2	1.8	29	15	0.4	1.2	0.5
4	0.7	3	2.7	19	5	0.6	1.9	0.7
4	0.7	3	2.7	24	10	0.6	1.9	0.7
4	0.7	3	2.7	30	16	0.6	1.9	0.7

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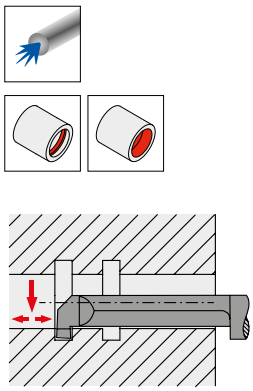
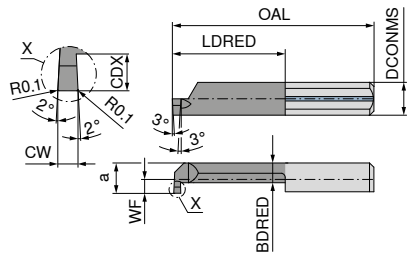
UltraMini – Inserts for Internal Grooving

▲ with corner radius
▲ CDX = Maximum depth of cut when turning outwards





Illustrations show right-hand versions

TiAlN



Left-hand

TiAlN



Right-hand

ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	CW	73 203 ... £ Y5		73 202 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 004M0100-10	4	1.5	4.0	3.5	24	10	0.8	2.4	1.0	67.84	800	67.84	800
R/L 004M0100-16	4	1.5	4.0	3.5	30	16	0.8	2.4	1.0	77.45	802	77.45	802
R/L 004M0100-20	4	1.5	4.0	3.5	34	20	0.8	2.4	1.0	85.30	804	85.30	804
R/L 005M0100-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.0	64.03	806	64.03	806
R/L 005M0150-10	5	1.9	5.0	4.4	25	10	1.0	3.3	1.5	64.03	816	64.03	816
R/L 005M0200-10	5	1.9	5.0	4.4	25	10	1.0	3.3	2.0	64.03	826	64.03	826
R/L 005M0100-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.0	73.41	808	73.41	808
R/L 005M0150-15	5	1.9	5.0	4.4	30	15	1.0	3.3	1.5	73.41	818	73.41	818
R/L 005M0200-15	5	1.9	5.0	4.4	30	15	1.0	3.3	2.0	73.41	828	73.41	828
R/L 005M0100-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.0	82.02	810	82.02	810
R/L 005M0150-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.5	82.02	820	82.02	820
R/L 005M0200-20	5	1.9	5.0	4.4	35	20	1.0	3.3	2.0	82.02	830	82.02	830
R/L 005M0100-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.0	89.08	812	89.08	812
R/L 005M0150-25	5	1.9	5.0	4.4	40	25	1.0	3.3	1.5	89.08	822	89.08	822
R/L 005M0200-25	5	1.9	5.0	4.4	40	25	1.0	3.3	2.0	89.08	832	89.08	832
R/L 005M0100-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.0	98.73	814	98.73	814
R/L 005M0150-30	5	1.9	5.0	4.4	45	30	1.0	3.3	1.5	98.73	824	98.73	824
R/L 005M0200-30	5	1.9	5.0	4.4	45	30	1.0	3.3	2.0	98.73	834	98.73	834
R/L 006M0100-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.0	64.03	836	64.03	836
R/L 006M0150-10	6	2.3	6.0	5.3	25	10	1.8	3.4	1.5	64.03	846	64.03	846
R/L 006M0200-10	6	2.3	6.0	5.3	25	10	1.8	3.4	2.0	64.03	856	64.03	856
R/L 006M0100-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.0	73.41	838	73.41	838
R/L 006M0150-15	6	2.3	6.0	5.3	30	15	1.8	3.4	1.5	73.41	848	73.41	848
R/L 006M0200-15	6	2.3	6.0	5.3	30	15	1.8	3.4	2.0	73.41	858	73.41	858
R/L 006M0100-20	6	2.3	6.0	5.3	35	22	1.8	3.4	1.0	82.02	840	82.02	840
R/L 006M0150-20	6	2.3	6.0	5.3	37	22	1.8	3.4	1.5	82.02	850	82.02	850
R/L 006M0200-20	6	2.3	6.0	5.3	37	22	1.8	3.4	2.0	82.02	860	82.02	860
R/L 006M0100-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.0	89.08	842	89.08	842
R/L 006M0150-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.5	89.08	852	89.08	852
R/L 006M0200-25	6	2.3	6.0	5.3	40	25	1.8	3.4	2.0	89.08	862	89.08	862
R/L 006M0100-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.0	98.73	844	98.73	844
R/L 006M0150-30	6	2.3	6.0	5.3	45	30	1.8	3.4	1.5	98.73	854	98.73	854
R/L 006M0200-30	6	2.3	6.0	5.3	45	30	1.8	3.4	2.0	98.73	864	98.73	864
R/L 007M0100-10	7	2.7	6.8	6.3	25	10	2.5	3.7	1.0	64.03	866	64.03	866
R/L 007M0150-10	7	2.7	6.8	6.3	25	10	2.5	3.7	1.5	64.03	876	64.03	876
R/L 007M0200-10	7	2.7	6.8	6.3	25	10	2.5	3.7	2.0	64.03	886	64.03	886
R/L 007M0100-15	7	2.7	6.8	6.3	30	15	2.5	3.7	1.0	73.41	868	73.41	868
R/L 007M0150-15	7	2.7	6.8	6.3	30	15	2.5	3.7	1.5	73.41	878	73.41	878
R/L 007M0200-15	7	2.7	6.8	6.3	30	15	2.5	3.7	2.0	73.41	888	73.41	888
R/L 007M0100-22	7	2.7	6.8	6.3	37	22	2.5	3.7	1.0	82.02	870	82.02	870
R/L 007M0150-22	7	2.7	6.8	6.3	37	22	2.5	3.7	1.5	82.02	880	82.02	880
R/L 007M0200-22	7	2.7	6.8	6.3	37	22	2.5	3.7	2.0	82.02	890	82.02	890
R/L 007M0100-25	7	2.7	6.8	6.3	40	25	2.5	3.7	1.0	89.08	872	89.08	872
R/L 007M0150-25	7	2.7	6.8	6.3	40	25	2.5	3.7	1.5	89.08	882	89.08	882
R/L 007M0200-25	7	2.7	6.8	6.3	40	25	2.5	3.7	2.0	89.08	892	89.08	892
R/L 007M0100-30	7	2.7	6.8	6.3	45	30	2.5	3.7	1.0	99.47	874	99.47	874
R/L 007M0150-30	7	2.7	6.8	6.3	45	30	2.5	3.7	1.5	99.47	884	99.47	884
R/L 007M0200-30	7	2.7	6.8	6.3	45	30	2.5	3.7	2.0	99.47	894	99.47	894

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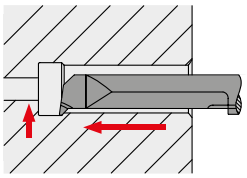
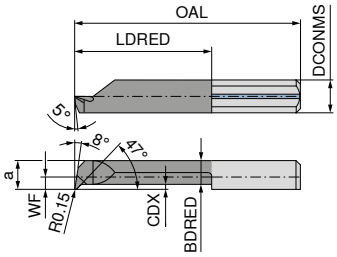
UltraMini – Inserts for internal undercuts

▲ CDX = Maximum depth of cut when turning outwards









Illustrations show right-hand versions

TiN	TiN	TiAlN	TiAlN
			
Left-hand	Right-hand	Left-hand	Right-hand
73 011 ...	**73 010 ...**	**73 011 ...**	**73 010 ...**

ISO designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	£		£		£		£	
	mm	mm	mm	mm	mm	mm	mm	mm	Y5		Y5		Y5		Y5	
R/L 047.2-10	4		2.0	1.7	24	10	0.4	1.2					74.71	**221**	74.71	**221**
R/L 047.3-15	4	0.6	2.8	2.6	29	15	0.6	1.9					77.77	**231**	77.77	**231**
R/L 047.4-10	4	1.5	4.0	3.5	24	10	0.6	2.8					71.22	**241**	71.22	**241**
R/L 047.T4-20	4	1.5	4.0	3.5	34	20	0.6	2.8					83.53	**242**	83.53	**242**
R/L 047.4-20	4	1.5	4.0	3.5	34	20	0.3	3.0	80.31	**542**	79.17	**542**				
R/L 047.5-15	5	1.9	5.0	4.4	30	15	0.8	3.5					80.15	**251**	80.15	**251**
R/L 047.T5-25	5	1.9	5.0	4.4	40	25	0.8	3.5					84.79	**252**	84.79	**252**
R/L 047.5-25	5	1.9	5.0	4.4	40	25	0.5	3.8	79.90	**552**	79.90	**552**				
R/L 047.T6-22	6	2.3	6.0	5.3	37	22	1.8	3.4					82.08	**262**	82.08	**262**
R/L 047.T6-30	6	2.3	6.0	5.3	45	30	1.8	3.4					109.28	**263**	86.74	**263**
R/L 047.6-30	6	2.3	6.0	5.3	45	30	0.5	4.5	81.76	**562**	83.00	**562**				
P									●		●		●		●	
M									●		●		●		●	
K									●		●		●		●	
N									●		●		●		●	
S									○		○		●		●	
H									○		○		●		●	
O									●		●		●		●	

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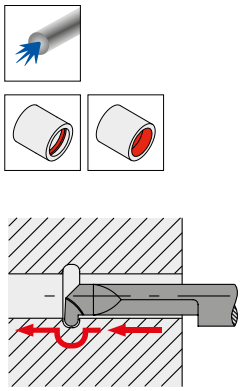
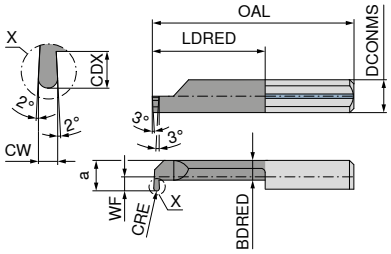
UltraMini – Inserts for internal grooving and turning

▲ CDX = Maximum depth of cut when turning outwards





Illustrations show right-hand versions

TiN



Left-hand

TiN



Right-hand

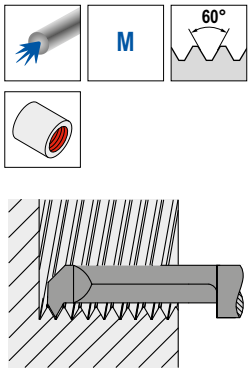
ISO designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	CRE mm	73 019 ... £ Y5		73 018 ... £ Y5	
R/L 006-0.75-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.5	0.75	84.29	**564**	84.29	**564**
R/L 004-0.50-16	4	1.5	4.0	3.5	30	16	0.8	2.4	1.0	0.50	78.00	**541**	74.63	**541**
R/L 005-0.50-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.0	0.50	82.40	**552**	82.40	**552**
R/L 005-0.75-20	5	1.9	5.0	4.4	35	20	1.0	3.3	1.5	0.75	82.40	**554**	82.40	**554**
R/L 005-1.00-20	5	1.9	5.0	4.4	35	20	1.0	3.3	2.0	1.00	82.40	**556**	82.40	**556**
R/L 006-0.50-25	6	2.3	6.0	5.3	40	25	1.8	3.4	1.0	0.50	84.29	**562**	84.29	**562**
R/L 006-1.00-25	6	2.3	6.0	5.3	40	25	1.8	3.4	2.0	1.00	84.29	**566**	83.00	**566**
R/L 007-0.50-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.0	0.50	86.94	**572**	82.88	**572**
R/L 007-0.75-30	7	2.7	6.8	6.3	45	30	2.5	3.8	1.5	0.75	86.94	**574**	86.94	**574**
R/L 007-1.00-30	7	2.7	6.8	6.3	45	30	2.5	3.8	2.0	1.00	86.94	**576**	86.94	**576**

P	●	●
M	●	●
K	●	●
N	●	●
S	○	○
H	○	○
O	●	●

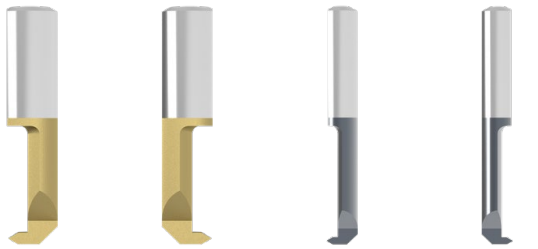
→ v_c Page 59

12

UltraMini – Inserts for internal threading (Partial profile)



Illustrations show right-hand versions

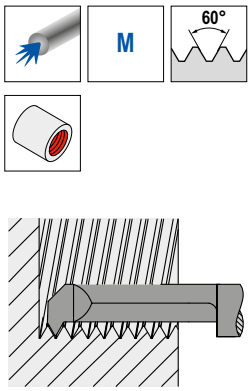


											Left-hand		Right-hand		Left-hand		Right-hand	
											73 101 ...		**73 100 ...**		**73 101 ...**		**73 100 ...**	
ISO designation	DCONMS	TP	WF	DMIN	a	OAL	LDRED	BDRED	PDPT	PDX	£ Y5		£ Y5		£ Y5		£ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm								
R/L 003.0105-8	4	0,5 - 0,7	0.30	2.4	2.3	22	8	1.8	0.27	0.33					75.51	**551**	75.51	**551**
R/L 004.0408-15	4	0,8 - 1,0	1.75	4.0	3.5	30	15	2.4	0.43	0.45					78.73	**552**	78.73	**552**
R/L 005.0510-20	5	1,0 - 1,25	1.90	4.8	4.4	35	20	3.3	0.55	0.55	72.80	**544**	72.52	**544**				
R/L 005.0510-15	5	1,0 - 1,25	1.90	4.8	4.4	30	15	3.3	0.55	0.55	71.81	**545**	69.60	**545**				
R/L 006.0612-22	6	1,25 - 1,5	2.30	6.0	5.3	37	22	3.4	0.68	0.65	73.78	**546**	71.99	**546**				
R/L 006.0612-15	6	1,25 - 1,5	2.30	6.0	5.3	30	15	3.4	0.68	0.65	70.39	**547**	69.60	**547**				
R/L 006.0815-15	6	1,5 - 1,75	2.30	6.0	5.3	30	15	3.4	0.81	0.75	71.81	**549**	70.51	**549**				
R/L 006.0815-22	6	1,5 - 1,75	2.30	6.0	5.3	37	22	3.4	0.81	0.75	73.78	**548**	71.99	**548**				
R/L 007.0815-15	7	1,5 - 1,75	2.70	7.0	6.3	30	15	3.8	0.81	0.75	71.37	**550**	71.99	**550**				

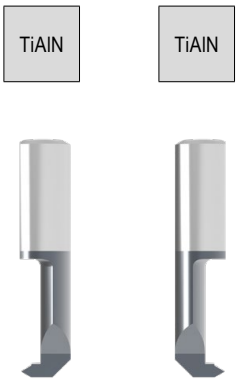
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	○	○	●	●
H	○	○	●	●
O	●	●	●	●

→ v_c Page 59

UltraMini – Inserts for Internal thread turning (Full profile)



Illustrations show right-hand versions



												Left-hand		Right-hand	
												73 209 ...		**73 208 ...**	
ISO designation	DCONMS	TP	WF	DMIN	a	OAL	LDRED	BDRED	PDPT	PDX	CW	£ Y5		£ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 105.0408-15	5	0.80	1.9	4.8	4.4	30	15	3.3	0.43	0.50	0.10	81.61	**799**	81.61	**799**
R/L 105.510-15	5	1.00	1.9	4.8	4.4	30	15	3.3	0.54	0.55	0.12	75.42	**800**	75.42	**800**
R/L 106.612-15	6	1.25	2.3	6.0	5.3	30	15	3.4	0.67	0.65	0.15	75.42	**802**	75.42	**802**
R/L 106.815-15	6	1.50	2.3	6.0	5.3	30	15	3.4	0.81	0.75	0.18	75.42	**804**	75.42	**804**
R/L 106.815-15	7	1.50	2.7	7.0	6.3	30	15	3.8	0.81	0.75	0.18	75.42	**806**	75.42	**806**

P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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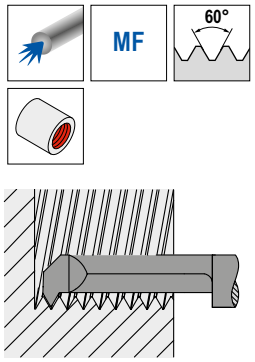
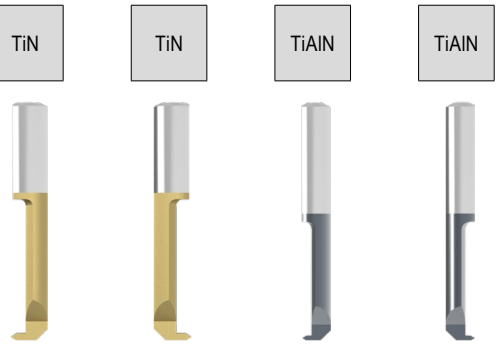
UltraMini – Inserts for internal thread turning (Partial profile)



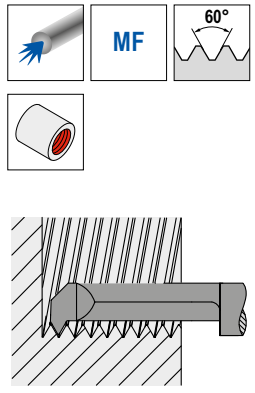


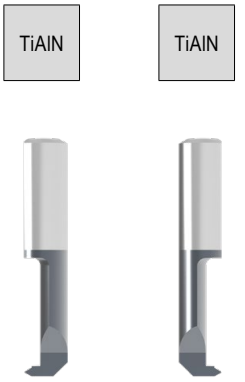
Illustrations show right-hand versions

											Left-hand		Right-hand		Left-hand		Right-hand	
											73 103 ...		73 102 ...		73 103 ...		73 102 ...	
ISO designation	DCONMS	TP	WF	DMIN	a	OAL	LDRED	BDRED	PDPT	PDX	£ Y5		£ Y5		£ Y5		£ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm								
R/L 004.0205-15	4	0,5 - 0,75	1.5	4.0	3.5	30	15	2.4	0.27	0.35	74.37	510	74.37	510				
R/L 004.0105-10	4	0,5 - 0,75	1.0	3.2	3.0	24	10	2.3	0.27	0.44					74.41	509	74.41	509
R/L 005.0205-15	5	0,5 - 0,75	1.9	5.0	4.4	30	15	3.3	0.27	0.35	71.81	539	71.81	539				
R/L 005.0205-20	5	0,5 - 0,75	1.9	5.0	4.4	35	20	3.3	0.27	0.35	72.80	540	72.80	540				
L 005.0407-15	5	0,75 - 1,0	1.9	5.0	4.4	30	15	3.3	0.40	0.45	71.81	541						
R 005.0407-15	5	0,75 - 1,0	1.9	5.0	4.4	30	15	3.3	0.40	0.45			71.81	541				
R/L 005.0407-20	5	0,75 - 1,0	1.9	5.0	4.4	35	20	3.3	0.40	0.45	72.80	542	72.80	542				
R/L 006.0510-22	6	1,0 - 1,25	2.3	6.0	5.3	37	22	3.4	0.55	0.55	73.78	544	73.78	544				
R/L 006.0510-15	6	1,0 - 1,25	2.3	6.0	5.3	30	15	3.4	0.55	0.55	71.81	543	71.81	543				
P											●		●		●		●	
M											●		●		●		●	
K											●		●		●		●	
N											●		●		●		●	
S											○		○		●		●	
H											○		○		●		●	
O											●		●		●		●	

→ v_c Page 59

UltraMini – Inserts for Internal thread turning (Full profile)





Illustrations show right-hand versions

												Left-hand		Right-hand	
												73 207 ...		73 206 ...	
ISO designation	DCONMS $_{h6}$	TP	WF	DMIN	a	OAL	LDRED	BDRED	PDPT	PDX	CW	£ Y5		£ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 104.0205-15	5	0.50	1.5	4	3.5	30	15	2.4	0.27	0.35	0.06	79.48	800	79.48	800
R/L 105.0205-15	5	0.50	1.9	5	4.4	30	15	3.3	0.27	0.35	0.06	75.42	802	75.42	802
R/L 105.0407-15	5	0.75	1.9	5	4.4	30	15	3.3	0.40	0.45	0.09	75.42	804	75.42	804
R/L 106.0510-15	6	1.00	2.3	6	5.3	30	15	3.4	0.54	0.55	0.12	75.42	806	75.42	806
P												●		●	
M												●		●	
K												●		●	
N												●		●	
S												●		●	
H												●		●	
O												●		●	

→ v_c Page 59

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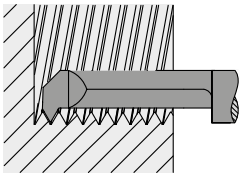
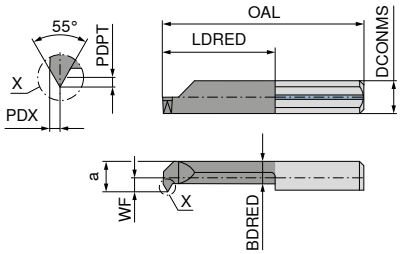
UltraMini – Inserts for internal thread turning (Partial profile)









Illustrations show right-hand versions

TiN



Left-hand

TiN



Right-hand

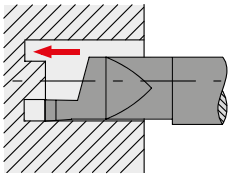
ISO designation	DCONMS $_{h6}$ mm	TPI 1/"	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	73 105 ... £ Y5		73 104 ... £ Y5	
R/L 005.5548-15	5	48 - 24	1.9	4.8	4.4	30	15	3.3	0.40	0.45	76.72	**552**	76.72	**552**
R/L 006.5548-15	6	48 - 24	2.3	6.0	5.3	30	15	3.4	0.40	0.45	76.72	**562**	76.72	**562**
R/L 006.5524-15	6	24 - 16	2.3	6.0	5.3	30	15	3.4	0.81	0.75	76.72	**563**	76.72	**563**
R/L 007.5524-15	7	24 - 16	2.7	7.0	6.3	30	15	3.8	0.81	0.75	76.72	**572**	76.72	**572**
P											●		●	
M											●		●	
K											●		●	
N											●		●	
S											○		○	
H											○		○	
O											●		●	

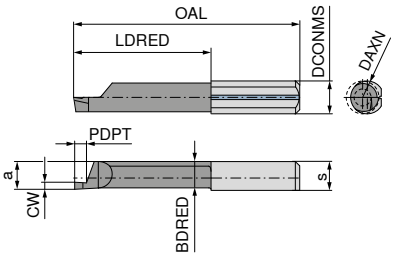
→ v_c Page 59

UltraMini – Inserts for axial grooving









Illustrations show right-hand versions

TiAlN



TiAlN



ISO designation	DCONMS h6	a	DAXN	s	OAL	LDRED	PDPT	BDRED	CW	Left-hand 73 053 ... £ Y5		Right-hand 73 052 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 010.1006-10	6	5.2	6	5.3	26	11	1.5	4.9	1.0	79.36	**561**	79.36	**561**
R/L 010.1506-10	6	5.2	6	5.3	26	11	2.0	4.9	1.5	79.36	**563**	79.36	**563**
R/L 010.1008-10	7	5.9	8	6.3	26	11	1.5	5.6	1.0	81.23	**571**	81.23	**571**
R/L 010.1008-20	7	5.9	8	6.3	35	20	1.5	5.6	1.0	86.78	**671**	86.78	**671**
R/L 010.1008-30	7	5.9	8	6.3	45	30	1.5	5.6	1.0	89.77	**771**	89.77	**771**
R/L 010.1508-10	7	5.9	8	6.3	26	11	2.5	5.6	1.5	81.23	**573**	81.23	**573**
R/L 010.1508-20	7	5.9	8	6.3	35	20	2.5	5.6	1.5	86.78	**673**	86.78	**673**
R/L 010.1508-30	7	5.9	8	6.3	45	30	2.5	5.6	1.5	89.77	**773**	89.77	**773**
R/L 010.2008-10	7	5.9	8	6.3	26	11	3.0	5.6	2.0	81.23	**575**	81.23	**575**
R/L 010.2008-20	7	5.9	8	6.3	35	20	3.0	5.6	2.0	86.78	**675**	86.78	**675**
R/L 010.2008-30	7	5.9	8	6.3	45	30	3.0	5.6	2.0	89.77	**775**	89.77	**775**
R/L 010.2508-10	7	5.9	8	6.3	26	11	3.5	5.6	2.5	81.23	**577**	81.23	**577**
R/L 010.2508-20	7	5.9	8	6.3	35	20	3.5	5.6	2.5	86.78	**677**	86.78	**677**
R/L 010.2508-30	7	5.9	8	6.3	45	30	3.5	5.6	2.5	89.77	**777**	89.77	**777**
R/L 010.3008-10	7	5.9	8	6.3	26	11	3.5	5.6	3.0	81.23	**579**	81.23	**579**
R/L 010.3008-20	7	5.9	8	6.3	35	20	3.5	5.6	3.0	86.78	**679**	86.78	**679**
R/L 010.3008-30	7	5.9	8	6.3	45	30	3.5	5.6	3.0	89.77	**779**	89.77	**779**
P										●		●	
M										●		●	
K										●		●	
N										●		●	
S										●		●	
H										●		●	
O										●		●	

→ v_c Page 59

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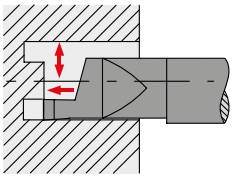
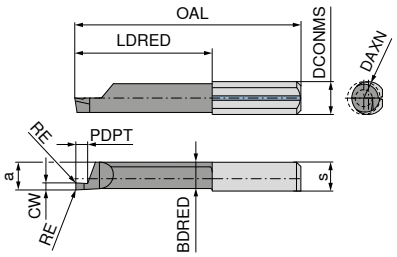
UltraMini – Inserts for axial grooving

▲ with corner radius









Illustrations show right-hand versions

TiAlN



Left-hand

TiAlN



Right-hand

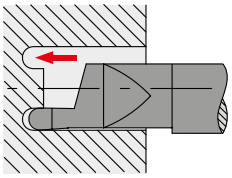
ISO designation	DCONMS $_{h6}$	a	DAXN	s	OAL	LDRED	PDPT	BDRED	CW	RE	73 253 ... £ Y5		73 252 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 510M1008-10	5	4.3	5	6.3	26	11	2	4.0	1.0	0.05	96.82	**510**	96.82	**510**
R/L 510M1008-20	5	4.3	5	6.3	35	20	2	4.0	1.0	0.05	102.25	**610**	102.25	**610**
R/L 510M1508-10	5	4.3	5	6.3	26	11	3	4.0	1.5	0.05	96.82	**515**	96.82	**515**
R/L 510M1508-20	5	4.3	5	6.3	35	20	3	4.0	1.5	0.05	102.25	**615**	102.25	**615**
R/L 510M2008-10	5	4.3	5	6.3	26	11	4	4.0	2.0	0.05	96.82	**520**	96.82	**520**
R/L 510M2008-20	5	4.3	5	6.3	35	20	4	4.0	2.0	0.05	102.25	**620**	102.25	**620**
R/L 010M1008-10	7	5.9	8	6.3	26	11	2	5.6	1.0	0.10	89.58	**800**	89.58	**800**
R/L 010M1008-20	7	5.9	8	6.3	35	20	2	5.6	1.0	0.10	94.64	**810**	94.64	**810**
R/L 010M1008-30	7	5.9	8	6.3	45	30	2	5.6	1.0	0.10	98.95	**820**	98.95	**820**
R/L 010M1508-10	7	5.9	8	6.3	26	11	3	5.6	1.5	0.10	89.58	**802**	89.58	**802**
R/L 010M1508-20	7	5.9	8	6.3	35	20	3	5.6	1.5	0.10	94.64	**812**	94.64	**812**
R/L 010M1508-30	7	5.9	8	6.3	45	30	3	5.6	1.5	0.10	98.95	**822**	98.95	**822**
R/L 010M2008-10	7	5.9	8	6.3	26	11	4	5.6	2.0	0.10	89.58	**804**	89.58	**804**
R/L 010M2008-20	7	5.9	8	6.3	35	20	4	5.6	2.0	0.10	94.64	**814**	94.64	**814**
R/L 010M2008-30	7	5.9	8	6.3	45	30	4	5.6	2.0	0.10	98.95	**824**	98.95	**824**
R/L 010M2508-10	7	5.9	8	6.3	26	11	5	5.6	2.5	0.10	89.58	**806**	89.58	**806**
R/L 010M2508-20	7	5.9	8	6.3	35	20	5	5.6	2.5	0.10	94.64	**816**	94.64	**816**
R/L 010M2508-30	7	5.9	8	6.3	45	30	5	5.6	2.5	0.10	98.95	**826**	98.95	**826**
R/L 010M3008-10	7	5.9	8	6.3	26	11	6	5.6	3.0	0.10	89.58	**808**	89.58	**808**
R/L 010M3008-20	7	5.9	8	6.3	35	20	6	5.6	3.0	0.10	94.64	**818**	94.64	**818**
R/L 010M3008-30	7	5.9	8	6.3	45	30	6	5.6	3.0	0.10	98.95	**828**	98.95	**828**
P											●		●	
M											●		●	
K											●		●	
N											●		●	
S											●		●	
H											●		●	
O											●		●	

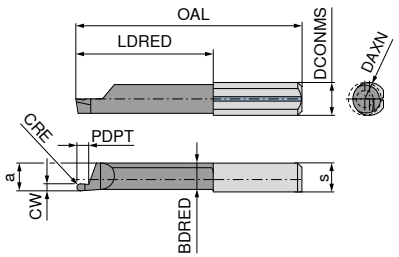
→ v_c Page 59

UltraMini – Inserts for axial grooving (Full radius)









Illustrations show right-hand versions

TiAlN



TiAlN



											Left-hand		Right-hand	
											73 059 ...		**73 058 ...**	
ISO designation	DCONMS $_{h6}$	a	DAXN	s	OAL	LDRED	PDPT	BDRED	CW	CRE	£ Y5		£ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 610.1005-10	6	5.2	6	5.3	26	11	2	4.9	1.0	0.50	98.54	**071**	98.54	**071**
R/L 610.1005-20	6	5.2	6	5.3	35	20	2	4.9	1.0	0.50	104.33	**171**	104.33	**171**
R/L 610.1608-10	6	5.2	6	5.3	26	11	3	4.9	1.6	0.80	98.54	**073**	98.54	**073**
R/L 610.1608-20	6	5.2	6	5.3	35	20	3	4.9	1.6	0.80	104.33	**173**	104.33	**173**
R/L 610.2010-10	6	5.2	6	5.3	26	11	4	4.9	2.0	1.00	98.54	**075**	98.54	**075**
R/L 610.2010-20	6	5.2	6	5.3	35	20	4	4.9	2.0	1.00	104.33	**175**	104.33	**175**
R/L 610.2512-10	6	5.2	6	5.3	26	11	5	4.9	2.5	1.25	98.54	**077**	98.54	**077**
R/L 610.2512-20	6	5.2	6	5.3	35	20	5	4.9	2.5	1.25	104.33	**177**	104.33	**177**
R/L 610.3015-10	6	5.2	6	5.3	26	11	6	4.9	3.0	1.50	98.54	**079**	98.54	**079**
R/L 610.3015-20	6	5.2	6	5.3	35	20	6	4.9	3.0	1.50	104.33	**179**	104.33	**179**
R/L 010.1005-10	7	5.9	8	6.3	26	11	2	5.6	1.0	0.50	94.55	**571**	94.55	**571**
R/L 010.1005-20	7	5.9	8	6.3	35	20	2	5.6	1.0	0.50	100.05	**671**	100.05	**671**
R/L 010.1608-10	7	5.9	8	6.3	26	11	3	5.6	1.6	0.80	94.55	**573**	94.55	**573**
R/L 010.1608-20	7	5.9	8	6.3	35	20	3	5.6	1.6	0.80	100.05	**673**	100.05	**673**
R/L 010.2010-10	7	5.9	8	6.3	26	11	4	5.6	2.0	1.00	94.55	**575**	94.55	**575**
R/L 010.2010-20	7	5.9	8	6.3	35	20	4	5.6	2.0	1.00	100.05	**675**	100.05	**675**
R/L 010.2512-10	7	5.9	8	6.3	26	11	5	5.6	2.5	1.25	94.55	**577**	94.55	**577**
R/L 010.2512-20	7	5.9	8	6.3	35	20	5	5.6	2.5	1.25	100.05	**677**	100.05	**677**
R/L 010.3015-10	7	5.9	8	6.3	26	11	6	5.6	3.0	1.50	94.55	**579**	94.55	**579**
R/L 010.3015-20	7	5.9	8	6.3	35	20	6	5.6	3.0	1.50	100.05	**679**	100.05	**679**
P											●		●	
M											●		●	
K											●		●	
N											●		●	
S											●		●	
H											●		●	
O											●		●	

→ v_c Page 59

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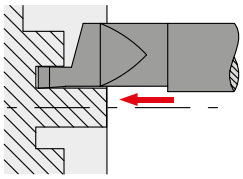
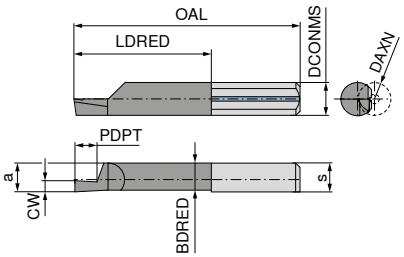
UltraMini – Inserts for axial grooving over a spigot



Illustrations show right-hand versions

TiAlN



Left-hand

TiAlN



Right-hand

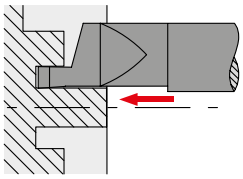
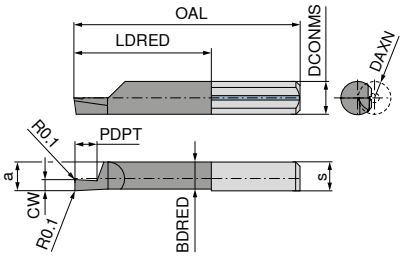
ISO designation	DCONMS $_{h6}$ mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	73 061 ... £ Y5		73 060 ... £ Y5	
R/L 620.1006-20	6	5.2	6	5.3	35	20	2	4.9	1.0	100.05	**561**	100.05	**561**
R/L 620.1506-20	6	5.2	6	5.3	35	20	3	4.9	1.5	100.05	**563**	100.05	**563**
R/L 620.2006-20	6	5.2	6	5.3	35	20	4	4.9	2.0	100.05	**565**	100.05	**565**
R/L 620.2506-20	6	5.2	6	5.3	35	20	5	4.9	2.5	100.05	**567**	100.05	**567**
R/L 620.3006-20	6	5.2	6	5.3	35	20	6	4.9	3.0	100.05	**569**	100.05	**569**
P										●		●	
M										●		●	
K										●		●	
N										●		●	
S										●		●	
H										●		●	
O										●		●	

→ v_c Page 59

UltraMini – Inserts for axial grooving over a spigot

▲ with corner radius



Illustrations show right-hand versions

TiAlN



Left-hand

TiAlN



Right-hand

ISO designation	DCONMS $_{h6}$ mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	73 261 ... £ Y5		73 260 ... £ Y5	
R/L 620M1006-20	6	5.2	6	5.3	35	20	2	4.9	1.0	95.68	**800**	95.68	**800**
R/L 620M1506-20	6	5.2	6	5.3	35	20	3	4.9	1.5	95.68	**802**	95.68	**802**
R/L 620M2006-20	6	5.2	6	5.3	35	20	4	4.9	2.0	95.68	**804**	95.68	**804**
R/L 620M2506-20	6	5.2	6	5.3	35	20	5	4.9	2.5	95.68	**806**	95.68	**806**
R/L 620M3006-20	6	5.2	6	5.3	35	20	6	4.9	3.0	95.68	**808**	95.68	**808**
P										●		●	
M										●		●	
K										●		●	
N										●		●	
S										●		●	
H										●		●	
O										●		●	

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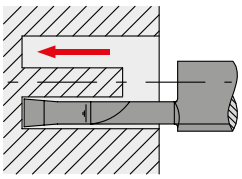
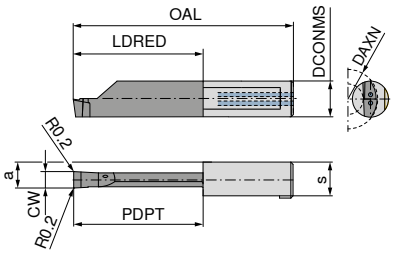
UltraMini – Inserts for axial grooving

▲ up to 70 bar
▲ dual cooling channel









Illustrations show right-hand versions

TiAlN



Left-hand

TiAlN



Right-hand

ISO designation	DCONMS h6	a	DAXN	s	OAL	LDRED	PDPT	CW	73 263 ... £ Y5		73 262 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm				
R/L 012.0200-10	8	5.00	12	7.3	30	10	10	2.0	88.53	**700**	88.53	**700**
R/L 012.0200-15	8	5.00	12	7.3	35	15	15	2.0	90.26	**702**	90.26	**702**
R/L 012.0250-10	8	5.25	12	7.3	30	10	10	2.5	88.53	**704**	88.53	**704**
R/L 012.0250-20	8	5.25	12	7.3	40	20	20	2.5	91.87	**706**	91.87	**706**
R/L 016.0300-10	8	5.50	16	7.3	30	10	10	3.0	125.52	**800**	125.52	**800**
R/L 016.0300-20	8	5.50	16	7.3	40	20	20	3.0	128.86	**802**	128.86	**802**
R/L 020.0300-25	8	5.50	20	7.3	45	25	25	3.0	130.61	**804**	130.61	**804**
R/L 020.0300-30	8	5.50	20	7.3	50	30	30	3.0	130.61	**806**	130.61	**806**
R/L 020.0300-35	8	5.50	20	7.3	55	35	35	3.0	133.64	**808**	133.64	**808**
R/L 020.0300-40	8	5.50	20	7.3	60	40	40	3.0	133.64	**810**	133.64	**810**
R/L 016.0400-10	8	6.00	16	7.3	30	10	10	4.0	125.52	**812**	125.52	**812**
R/L 016.0400-20	8	6.00	16	7.3	40	20	20	4.0	128.86	**814**	128.86	**814**
R/L 020.0400-25	8	6.00	20	7.3	45	25	25	4.0	130.61	**816**	130.61	**816**
R/L 020.0400-30	8	6.00	20	7.3	50	30	30	4.0	130.61	**818**	130.61	**818**
R/L 020.0400-35	8	6.00	20	7.3	55	35	35	4.0	133.64	**820**	133.64	**820**
R/L 020.0400-40	8	6.00	20	7.3	60	40	40	4.0	133.64	**822**	133.64	**822**
R/L 020.0500.20	8	6.50	20	7.3	40	20	20	5.0	125.52	**824**	125.52	**824**
R/L 020.0500.25	8	6.50	20	7.3	45	25	25	5.0	127.05	**826**	127.05	**826**
R/L 020.0500.30	8	6.50	20	7.3	50	30	30	5.0	127.05	**828**	127.05	**828**
R/L 020.0500.35	8	6.50	20	7.3	55	35	35	5.0	130.61	**830**	130.61	**830**
R/L 020.0500.40	8	6.50	20	7.3	60	40	40	5.0	127.01	**832**	127.01	**832**
P									●		●	
M									●		●	
K									●		●	
N									●		●	
S									●		●	
H									●		●	
O									●		●	

12

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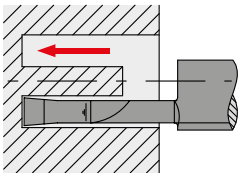
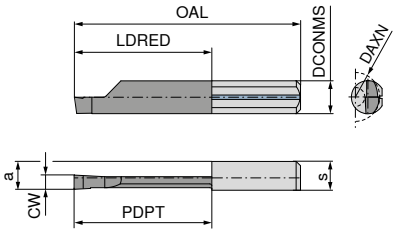
UltraMini – Inserts for axial grooving



Illustrations show right-hand versions





ISO designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Left-hand 73 057 ... £ Y5		Right-hand 73 056 ... £ Y5	
R/L 015.2515-20	7	5.9	15	6.3	35	20	20	2.5	108.96	572	108.96	572
R/L 015.3015-20	7	5.9	15	6.3	35	20	20	3.0	108.96	574	108.96	574
R/L 015.3015-30	7	5.9	15	6.3	45	30	30	3.0	120.15	674	120.15	674

P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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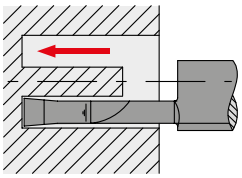
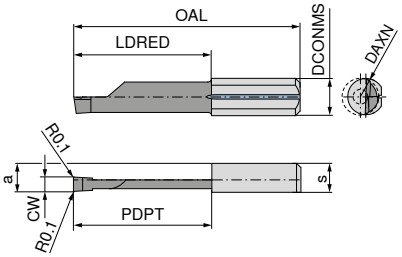
UltraMini – Inserts for axial grooving

▲ with corner radius



Illustrations show right-hand versions





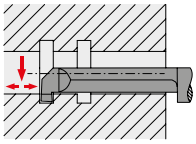
ISO designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Left-hand 73 257 ... £ Y5		Right-hand 73 256 ... £ Y5	
R/L 015M2515-20	7	5.9	8	6.3	35	20	20	2.5	104.80	800	104.80	800
R/L 015M3015-20	7	5.9	8	6.3	35	20	20	3.0	104.80	802	104.80	802
R/L 015M3015-30	7	5.9	8	6.3	45	30	30	3.0	114.65	804	114.65	804

P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

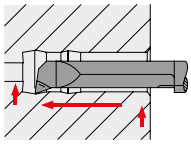
→ v_c Page 59

UltraMini – Set: Internal turning, grooving and chamfering, right hand

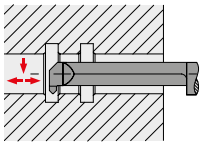
▲ extensive assortment of right-hand tools
▲ K10F – TiN



Grooving (E)



Profile turn (A)



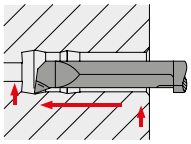
Chamfers (F)



Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	fig.	73 085 ... £ Y5	
Inserts	**R 004.0100-16**	**73 002 541**	4	16	0,8	1,0	1	E		
Inserts	**R 005.0150-20**	**73 002 552**	5	20	1,0	1,5	1	E		
Inserts	**R 005.0200-20**	**73 002 553**	5	20	1,0	2,0	1	E		
Inserts	**R 006.0150-22**	**73 002 562**	6	22	1,8	1,5	1	E		
Inserts	**R 006.0200-22**	**73 002 563**	6	22	1,8	2,0	1	E		
Inserts	**R 050.3-16**	**73 004 530**	3	16			1	A	1,269.71	**999**
Inserts	**R 050.4-16**	**73 004 540**	4	16			1	A		
Inserts	**R 050.5-20**	**73 004 550**	5	20			1	A		
Inserts	**R 050.6-22**	**73 004 560**	6	22			1	A		
Inserts	**R 060.5-20**	**73 006 550**	5	20			1	F		
Tool holder	**645.0016-D**	**73 080 164**					1			
Tool holder	**676.0016-D**	**73 080 166**					1			
Tightening Key	**110.645**	**70 950 175**					1			

UltraMini – Set: Internal Turning

▲ extensive assortment of right-hand tools
▲ K10F – TiN





Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Piece	73 085 ... £ Y5	
Inserts	R 050.3-16	73 004 530	3	16	1		
Inserts	R 050.4-16	73 004 540	4	16	1		
Inserts	R 050.5-20	73 004 550	5	20	1	798.01	**994**
Inserts	R 050.6-22	73 004 560	6	22	1		
Tool holder	645.0016-D	73 080 164			1		
Tool holder	676.0016-D	73 080 166			1		
Tightening Key	110.645	70 950 175			1		

12

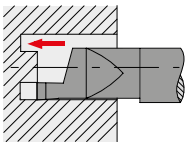
UltraMini – Set: Holder



Tool	Designation	Article no.	for cutting insert Ø mm	Piece	73 085 ... £ Y5	
Tool holder	**645.0016-D**	**73 080 164**	3 / 4 / 5	1		
Tool holder	**676.0016-D**	**73 080 166**	6 / 7	1	497.54	**990**
Tightening Key	**110.645**	**70 950 175**		1		

UltraMini – Set: Axial Grooving

▲ extensive assortment of right-hand tools
▲ K10F – TiN





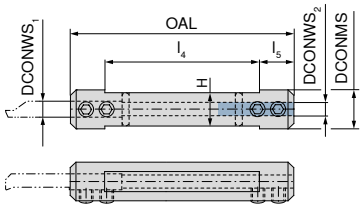
73 085 ...

Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	£ Y5	
Inserts	**R 010.1008-10**	**73 050 571**	8	10	1,5	1,0	1		
Inserts	**R 010.1508-10**	**73 050 573**	8	10	2,5	1,5	1		
Inserts	**R 010.2008-10**	**73 050 575**	8	10	3,0	2,0	1	644.25	**996**
Inserts	**R 010.2508-20**	**73 050 677**	8	20	3,5	2,5	1		
Inserts	**R 010.3008-20**	**73 050 679**	8	20	3,5	3,0	1		
Tool holder	**676.0016-D**	**73 080 166**					1		
Tightening Key	**110.645**	**70 950 175**					1		

UltraMini – Standard tool holder for cutting inserts

▲ double ended
▲ Machining diameter from Ø 0.5 mm

Scope of supply:
Tool holder with allen key





Designation	$DCONWS_1$ mm	$DCONWS_2$ mm	DCONMS mm	OAL mm	l_4 mm	l_5 mm	H mm	73 080 ... £ Y5	
645.0012-D	4	5	12.00	75	55	10	10.3	230.44	**163**
645.0016-D	4	5	16.00	75	55	10	14.0	242.05	**164**
645.001905-D	4	5	19.05	90	70	10	17.2	201.66	**170**
645.0020-D	4	5	20.00	90	70	10	18.0	260.65	**165**
645.0022-D	4	5	22.00	90	70	10	20.0	210.29	**171**
645.00254-D	4	5	25.40	95	75	10	23.4	223.26	**172**
676.0016-D	6	7	16.00	75	55	10	14.0	242.05	**166**
676.001905-D	6	7	19.05	90	70	10	17.2	201.66	**173**
676.0020-D	6	7	20.00	90	70	10	18.0	260.65	**167**
676.0022-D	6	7	22.00	90	70	10	20.0	210.29	**174**
676.00254-D	6	7	25.40	95	75	10	23.4	223.26	**175**
687.0016-D	7	8	16.00	75	55	10	14.0	280.69	**168**
687.0020-D	7	8	20.00	90	70	10	18.0	300.42	**169**


Key I


Clamping screw

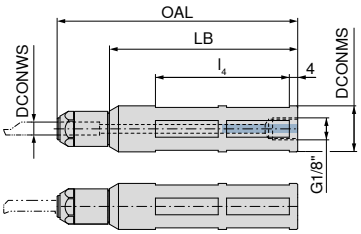
Spare parts for Article no.	70 950 ...	£ 2A/28		73 082 ...	£ Y5	
73 080 163	SW2,5	2.97	**175**	M5x4	9.32	**013**
73 080 164	SW2,5	2.97	**175**	M5x6	7.65	**001**
73 080 170	SW2,5	2.97	**175**	M5x6	7.65	**001**
73 080 165	SW2,5	2.97	**175**	M5x8	9.28	**008**
73 080 171	SW2,5	2.97	**175**	M5x8	9.28	**008**
73 080 172	SW2,5	2.97	**175**	M5x8	9.28	**008**
73 080 166	SW2,5	2.97	**175**	M5x6	7.65	**001**
73 080 173	SW2,5	2.97	**175**	M5x6	7.65	**001**
73 080 167	SW2,5	2.97	**175**	M5x8	9.28	**008**
73 080 174	SW2,5	2.97	**175**	M5x8	9.28	**008**
73 080 175	SW2,5	2.97	**175**	M5x8	9.28	**008**
73 080 168	SW2,5	2.97	**175**	M6x6	10.89	**014**
73 080 169	SW2,5	2.97	**175**	M6x6	10.89	**014**

UltraMini – Quick change tool holder for cutting inserts

Scope of supply:

Tool holder, lock nut and clamping wedge







Designation	DCONWS mm	DCONMS mm	OAL mm	LB mm	l_4 mm	73 089 ... £ Y5	
UM600H.0012.4	4	12.00	115	90	64	434.99	**124**
UM600H.0016.4	4	16.00	115	90	64	394.64	**164**
UM600H.001905.4	4	19.05	115	90	64	423.47	**194**
UM600H.0020.4	4	20.00	115	90	64	417.71	**204**
UM600H.0022.4	4	22.00	115	90	64	424.91	**224**
UM600H.0025.4	4	25.00	115	90	64	433.55	**254**
UM600H.00254.4	4	25.40	115	90	64	442.20	**264**
UM600H.0028.4	4	28.00	115	90	64	442.20	**284**
UM600H.0012.5	5	12.00	115	90	64	434.99	**125**
UM600H.0016.5	5	16.00	115	90	64	394.64	**165**
UM600H.001905.5	5	19.05	115	90	64	423.47	**195**
UM600H.0020.5	5	20.00	115	90	64	417.71	**205**
UM600H.0022.5	5	22.00	115	90	64	424.91	**225**
UM600H.0025.5	5	25.00	115	90	64	433.55	**255**
UM600H.00254.5	5	25.40	115	90	64	442.20	**265**
UM600H.0028.5	5	28.00	115	90	64	442.20	**285**
UM600H.0012.6	6	12.00	115	90	64	434.99	**126**
UM600H.0016.6	6	16.00	115	90	64	394.64	**166**
UM600H.001905.6	6	19.05	115	90	64	423.47	**196**
UM600H.0020.6	6	20.00	115	90	64	417.71	**206**
UM600H.0022.6	6	22.00	115	90	64	424.91	**226**
UM600H.0025.6	6	25.00	115	90	64	433.55	**256**
UM600H.00254.6	6	25.40	115	90	64	442.20	**266**
UM600H.0028.6	6	28.00	115	90	64	442.20	**286**
UM600H.0012.7	7	12.00	115	90	64	434.99	**127**
UM600H.0016.7	7	16.00	115	90	64	394.64	**167**
UM600H.001905.7	7	19.05	115	90	64	423.47	**197**
UM600H.0020.7	7	20.00	115	90	64	417.71	**207**
UM600H.0022.7	7	22.00	115	90	64	424.91	**227**
UM600H.0025.7	7	25.00	115	90	64	433.55	**257**
UM600H.00254.7	7	25.40	115	90	64	442.20	**267**
UM600H.0028.7	7	28.00	115	90	64	442.20	**287**

Avoid pulling cuts. Ensure a suitable clamping force is used when using thro' coolant supply. Can be tightened using a key.

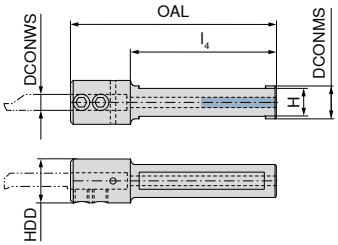
Spare parts DCONWS		 Lock nut UM600H 73 950 ... £ Y5		 Clamping wedge UM600H 73 950 ... £ Y5	
4	M4	97.95	**104**	63.38	**111**
5	M5	97.95	**105**	63.38	**111**
6	M6	97.95	**106**	63.38	**111**
7	M7	97.95	**107**	63.38	**111**

UltraMini – Toolholder for inserts

▲ single ended

Scope of supply:

Tool holder with allen key





Designation	DCONWS	HDD	DCONMS	OAL	l_4	H	73 081 ... £ Y5	
	mm	mm	mm	mm	mm	mm		
640.0012-D	4	16	12	75	53	10.2	237.66	**264**
650.0012-D	5	16	12	75	53	10.2	237.66	**265**
660.0012-D	6	16	12	75	53	10.2	339.83	**266**
670.0012-D	7	16	12	75	53	10.2	339.83	**267**
680.0012-D	8	16	12	75	53	10.2	339.83	**268**



Key I



Clamping screw

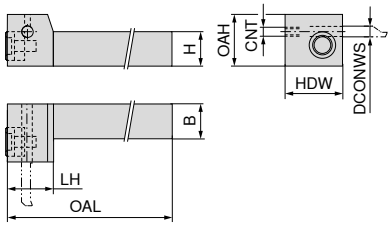
Spare parts DCONWS	70 950 ...			73 082 ...		
		£ 2A/28			£ Y5	
4	SW2,5	2.97	**175**	M5x0,5x6	6.13	**010**
5	SW2,5	2.97	**175**	M5x0,5x6	6.13	**010**
6	SW2,5	2.97	**175**	M5x0,5x6	6.13	**010**
7	SW2,5	2.97	**175**	M5x0,5x6	6.13	**010**
8	SW2,5	2.97	**175**	M5x0,5x6	6.13	**010**

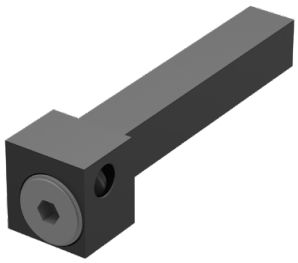
UltraMini – Toolholder for inserts

Scope of supply:

Tool holder with allen key







ISO designation	DCONWS	OAL	LH	B	HDW	H	OAH	CNT	Left-hand 73 083 ... £ Y5		Right-hand 73 084 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm					
R/L .IK.UHCM.1212.4	4	90	17	12	20	12	18	M5	432.01	**124**	432.01	**124**
R/L .IK.UHCM.1212.5	5	90	17	12	20	12	18	M5	432.01	**125**	432.01	**125**
R/L .IK.UHCM.1212.6	6	90	17	12	20	12	21	M5	432.01	**126**	432.01	**126**
R/L .IK.UHCM.1212.7	7	90	17	12	20	12	21	M5	432.01	**127**	432.01	**127**

Suitable coolant connections can be found in our sliding head tooling catalogue.


Clamping key – T

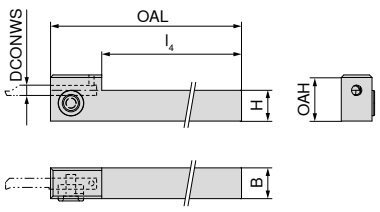

Clamping screw

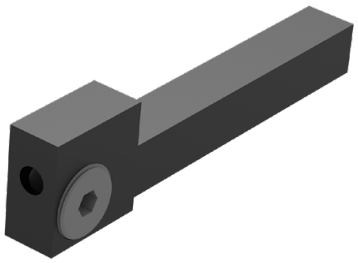
Spare parts DCONWS		80 397 ... £ Y7			73 082 ... £ Y5	
4	SW5	8.11	**050**	UM 12	51.26	**011**
5	SW5	8.11	**050**	UM 12	51.26	**011**
6	SW5	8.11	**050**	UM 16	51.26	**012**
7	SW5	8.11	**050**	UM 16	51.26	**012**

UltraMini – Toolholder for inserts

Scope of supply:

Tool holder with allen key





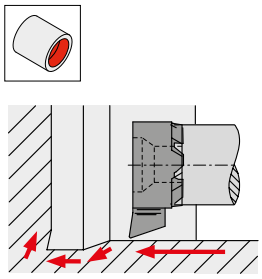
Designation	DCONWS	OAL	l_4	B	H	OAH	73 086 ... £ Y5	
	mm	mm	mm	mm	mm	mm		
UM.1010.4	4	100	75	10	10	20	432.01	**104**
UM.1010.5	5	100	75	10	10	20	432.01	**105**
UM.1212.4	4	100	75	12	12	22	432.01	**124**
UM.1212.5	5	100	75	12	12	22	432.01	**125**
UM.1212.6	6	100	75	12	12	22	432.01	**126**

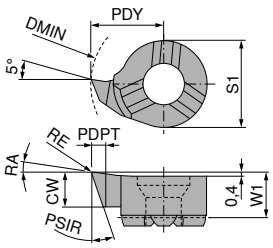

Clamping key – T


Clamping screw

Spare parts DCONWS		80 397 ... £ Y7			73 082 ... £ Y5	
4	SW5	8.11	**050**	UM 12	51.26	**011**
5	SW5	8.11	**050**	UM 12	51.26	**011**
6	SW5	8.11	**050**	UM 16	51.26	**012**

MiniCut – Insert for turning and profiling





CWX500 CWX500



Illustrations show right-hand versions

Size	ISO designation	DMIN	CW	W1	PDY	S1	RE	PDPT	PSIR	RA	Left-hand 73 324 ... £ Y5		Right-hand 73 322 ... £ Y5	
		mm	mm	mm	mm	mm	mm	mm	°	°				
08	8,00. R/L .3,30.18°	7.8	3.3	3.5	4.65	6.0	0.20	0.6	18	8	49.37	033	49.37	033
	8,00. R/L .3,50.18°	7.8	3.5	3.5	4.65	6.0	0.05	0.6	18	8	53.60	035	53.60	035
	8,00. R/L .3,50.20°	7.8	3.5	3.5	4.65	6.0	0.20	0.6	20	20	51.84	135	51.84	135
09	9,00. R/L .3,60.18°	9.0	3.6	3.6	5.50	6.2	0.20	0.8	18	8	46.70	136	46.70	136
	9,00. R/L .3,60.20°	9.0	3.6	3.6	5.50	6.2	0.20	0.8	20	20	52.80	236	52.80	236
11	9,80. R/L .3,90.18°	9.8	3.9	4.2	5.50	8.0	0.20	1.0	18	8	49.37	139	49.37	139
	11,00. R/L .3,90.18°	11.0	3.9	4.2	6.70	8.0	0.20	1.0	18	8	48.81	339	48.81	339
	11,00. R/L .4,20.20°	11.0	4.2	4.2	6.70	8.0	0.20	1.0	20	20	52.80	342	52.80	342
14	14,00. R/L .5,00.18°	13.8	5.0	5.1	8.70	9.0	0.20	1.5	18	8	48.81	550	48.81	550
	14,00. R/L .5,30.20°	14.0	5.3	5.3	8.70	9.0	0.20	1.5	20	20	52.80	553	52.80	553
16	15,50. R/L .5,00.18°	15.5	5.0	5.4	9.70	11.0	0.20	1.5	18	8	53.34	750	53.34	750
P												●		●
M												●		●
K												●		●
N												●		●
S												●		●
H												●		●
O												●		●

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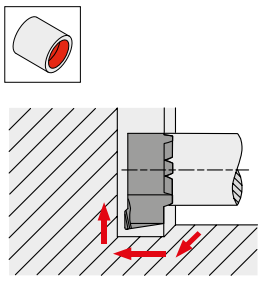
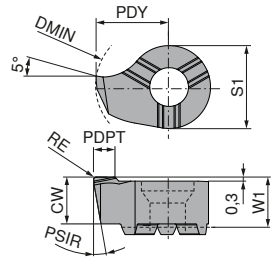
MiniCut – Insert for copy turning

▲ with chip breaker





CWX500 CWX500



Illustrations show right-hand versions

Size	ISO designation	DMIN	CW	W1	PDY	S1	RE	PDPT	PSIR	Left-hand 73 388 ... £ Y5		Right-hand 73 386 ... £ Y5	
		mm	mm	mm	mm	mm	mm	mm	°				
08	8,00. R/L .3,40.10°	8	3.4	3.5	4.65	6.0	0.2	0.5	10	41.26	13400	41.26	13400
09	9,00. R/L .3,50.10°	9	3.5	3.6	5.50	6.2	0.2	0.5	10	42.98	136	42.98	136
11	11,00. R .4,10.10°	11	4.1	4.2	6.70	8.0	0.2	0.5	10	41.26	14100	41.26	14100
P											●		●
M											●		●
K											●		●
N											●		●
S											●		●
H											●		●
O											●		●

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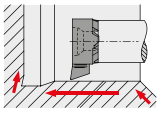
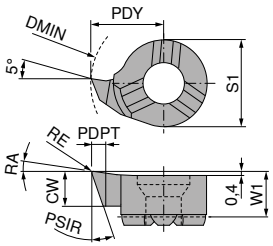
MiniCut – CBN insert for profiling – hard turning

▲ 56 to 65 HRC









Illustrations show right-hand versions

Size	ISO designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	RA °	Left-hand CBN 73 368 ... £ Y5		Right-hand CBN 73 366 ... £ Y5	
08	8,00. R/L .3,30.18°	7.8	3.3	3.5	4.65	6	0.2	0.39	18	8	223.21	033	223.21	033
11	11,00. R/L .3,90.18°	11.0	3.9	4.2	6.70	8	0.2	0.55	18	8	233.61	139	233.61	139
14	14,00. R/L .5,00.18°	13.8	5.0	5.3	8.70	9	0.2	0.69	18	8	247.52	550	247.52	550
16	16,00. R/L .5,00.18°	15.5	5.0	5.4	9.70	11	0.2	0.77	18	8	258.10	750	258.10	750
P														
M														
K														
N														
S												○		○
H												●		●
O														

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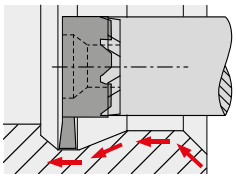
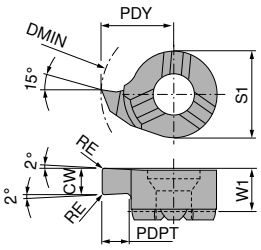
MiniCut – Internal turning insert

▲ CDX = ap_{max}

CWX500 CWX500









Illustrations show right-hand versions

Size	ISO designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	RE mm	CDX mm	Left-hand 73 316 ... £ Y5		Right-hand 73 314 ... £ Y5	
08	8,00. R/L .1,50.1,0	8	1.5	1.0	3.3	4.8	6.0	0.2	0.2	49.94	015	49.94	015
	8,00. R/L .2,00.1,0	8	2.0	1.0	3.3	4.8	6.0	0.2	0.2	47.67	020	47.67	020
09	9,00. R/L .1,50.2,0	9	1.5	2.0	3.6	5.5	6.2	0.2	0.2	51.04	115	51.04	115
	9,00. R/L .1,50.3,0	10	1.5	3.0	3.6	6.5	6.2	0.2	0.2	51.04	121	51.04	121
	9,00. R/L .2,00.2,0	9	2.0	2.0	3.6	5.5	6.2	0.2	0.2	45.26	120	45.26	120
	9,00. R/L .2,00.3,0	10	2.0	3.0	3.6	6.5	6.2	0.2	0.2	45.26	122	45.26	122
11	11,00. R/L .1,50.2,3	11	1.5	2.3	4.2	6.7	8.0	0.2	0.2	52.58	315	52.58	315
	11,00. R/L .2,00.2,3	11	2.0	2.3	4.2	6.7	8.0	0.2	0.2	49.37	320	49.37	320
14	14,00. R/L .1,50.4,0	14	1.5	4.0	5.3	9.0	9.0	0.2	0.2	48.21	515	48.21	515
	14,00. R/L .1,50,5,5	16	1.5	5.5	5.2	10.5	9.0	0.2	0.2	61.35	516	61.35	516
	14,00. R/L .1,50.6,5	17	1.5	6.5	5.2	11.5	9.0	0.2	0.2	61.35	517	61.35	517
	14,00. R/L .2,00.4,0	14	2.0	4.0	5.3	9.0	9.0	0.2	0.2	49.37	520	49.37	520
	14,00. R/L .2,00.5,5	16	2.0	5.5	5.2	10.5	9.0	0.2	0.2	61.35	521	61.35	521
	14,00. R/L .2,00.6,5	17	2.0	6.5	5.2	11.5	9.0	0.2	0.2	61.35	522	61.35	522
	14,00. R/L .2,50.5,5	16	2.5	5.5	5.2	10.5	9.0	0.2	0.2	61.35	525	61.35	525
	14,00. R/L .2,50.6,5	17	2.5	6.5	5.2	11.5	9.0	0.2	0.2	61.35	526	61.35	526
	14,00. R/L .3,00.5,5	16	3.0	5.5	5.2	10.5	9.0	0.2	0.2	61.35	530	61.35	530
	14,00. R/L .3,00.6,5	17	3.0	6.5	5.2	11.5	9.0	0.2	0.2	61.35	531	61.35	531
16	16,00. R/L .2,00.4,3	16	2.0	4.3	5.4	10.2	11.0	0.2	0.2	53.82	720	53.82	720
P											●		●
M											●		●
K											●		●
N											●		●
S											●		●
H											●		●
O											●		●

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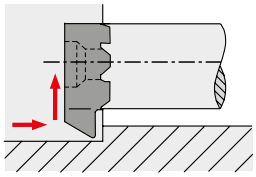
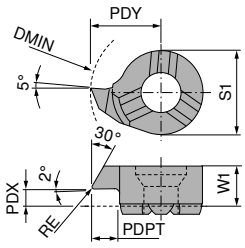
MiniCut – Back boring insert

▲ CDX = ap_{max}







CWX500 CWX500



Illustrations show right-hand versions

Size	ISO designation	DMIN mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	RE mm	CDX mm	Left-hand 73 332 ... £ Y5		Right-hand 73 330 ... £ Y5	
08	8,00. R/L .30°.1,3	7.8	1.3	3.50	1.0	4.65	6.0	0.2	0.6	56.79	013	56.79	013
09	9,00. R/L .30°.1,7	9.0	1.7	3.55	1.2	5.50	6.2	0.2	0.8	51.84	117	51.84	117
	9,00. R/L .30°.2,3	10.0	2.3	3.55	1.2	6.50	6.2	0.2	0.8	51.84	123	51.84	123
11	11,00. R/L .30°.2,3	11.0	2.3	4.30	1.6	6.70	8.0	0.2	1.0	55.62	323	55.62	323
14	14,00. R/L .30°.3,5	13.8	3.5	5.40	2.4	8.70	9.0	0.2	1.5	56.79	535	56.79	535
P										●		●	
M										●		●	
K										●		●	
N										●		●	
S										●		●	
H										●		●	
O										●		●	

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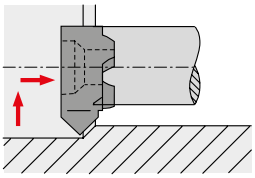
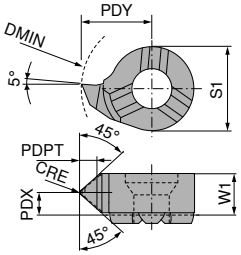
MiniCut – Internal turning and chamfering insert

▲ CDX = ap_{max}







CWX500 CWX500



Illustrations show right-hand versions

Size	ISO designation	DMIN mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	CRE mm	CDX mm	Left-hand 73 336 ... £ Y5		Right-hand 73 334 ... £ Y5	
08	8,00. R/L .45°.1,4	8	1.4	3.50	1.8	4.8	6.0	0.2	0.6	47.45	010	47.45	010
09	9,00. R/L .45°.1,3	9	1.3	3.55	1.8	5.5	6.2	0.2	0.8	44.46	110	44.46	110
11	11,00. R/L .45°.1,5	11	1.5	4.30	2.2	6.7	8.0	0.2	1.0	47.45	310	47.45	310
14	14,00. R/L .45°.1,5	14	1.5	5.40	2.8	9.0	9.0	0.2	1.2	51.25	510	51.25	510
P										●		●	
M										●		●	
K										●		●	
N										●		●	
S										●		●	
H										●		●	
O										●		●	

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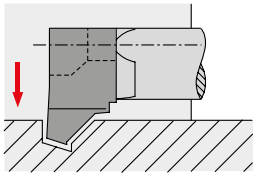
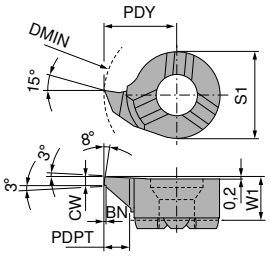
MiniCut – Insert for pregrooving and chamfering







CWX500 CWX500



Illustrations show right-hand versions

Size	ISO designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	BN mm	Left-hand 73 340 ... £ Y5		Right-hand 73 338 ... £ Y5	
08	8,00. R/L .1,00.45°	8	1	1.0	3.3	4.8	6.0	0.2	48.22	100	48.22	100
09	9,00. R/L .1,00.45°	9	1	1.5	3.6	5.5	6.2	0.2	45.93	215	45.93	215
11	11,00. R/L .1,00.45°	11	1	1.5	4.2	6.7	8.0	0.2	48.22	315	48.22	315
14	14,00. R/L .1,00.45°	14	1	1.5	5.3	9.0	9.0	0.2	48.22	515	48.22	515
16	16,00. R/L .1,00.45°	16	1	1.5	5.4	10.2	11.0	0.2	48.22	715	48.22	715
P									●		●	
M									●		●	
K									●		●	
N									●		●	
S									●		●	
H									●		●	
O									●		●	

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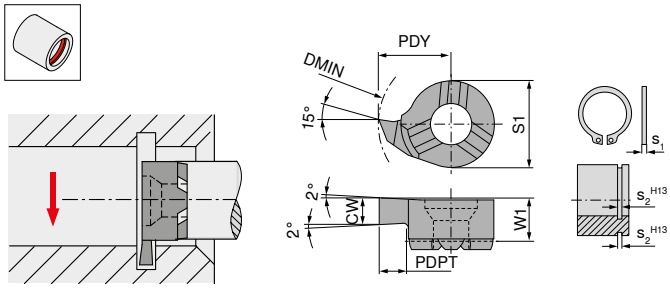
MiniCut – Grooving insert

CWX500 CWX500





Illustrations show right-hand versions

Size	ISO designation	DMIN	CW	PDPT	W1	s_1	$s_{2\ H13}$	PDY	S1	Left-hand 73 312 ... £ Y5		Right-hand 73 310 ... £ Y5	
		mm	mm	mm	mm	mm	mm	mm	mm				
08	8,00. R/L .0,73.1,0	8	0.73	1.0	3.3	0.6	0.7	4.8	6.0	42.65	073	42.65	073
	8,00. R/L .0,83.1,0	8	0.83	1.0	3.3	0.7	0.8	4.8	6.0	42.65	083	42.65	083
	8,00. R/L .0,93.1,0	8	0.93	1.0	3.3	0.8	0.9	4.8	6.0	42.65	093	42.65	093
	8,00. R/L .1,00.1,0	8	1.00	1.0	3.3			4.8	6.0	42.65	110	42.65	110
	8,00. R/L .1,20.1,0	8	1.20	1.0	3.3	1.0	1.1	4.8	6.0	42.65	112	42.65	112
	8,00. R/L .1,40.1,0	8	1.40	1.0	3.3	1.2	1.3	4.8	6.0	42.65	114	42.65	114
	8,00. R/L .1,50.1,0	8	1.50	1.0	3.3			4.8	6.0	42.65	115	42.65	115
	8,00. R/L .1,70.1,0	8	1.70	1.0	3.3	1.5	1.6	4.8	6.0	42.65	117	42.65	117
	8,00. R/L .2,00.1,0	8	2.00	1.0	3.3			4.8	6.0	42.65	120	42.65	120
09	9,00. R/L .0,73.1,2	9	0.73	1.2	3.6	0.6	0.7	5.5	6.2	41.60	173	41.60	173
	9,00. R/L .0,83.1,3	9	0.83	1.3	3.6	0.7	0.8	5.5	6.2	41.60	183	41.60	183
	9,00. R/L .0,93.1,5	9	0.93	1.5	3.6	0.8	0.9	5.5	6.2	41.60	193	41.60	193
	9,00. R/L .1,00.1,8	9	1.00	1.8	3.6			5.5	6.2	41.60	210	41.60	210
	9,00. R/L .1,20.1,8	9	1.20	1.8	3.6	1.0	1.1	5.5	6.2	41.60	212	41.60	212
	9,00. R/L .1,40.1,8	9	1.40	1.8	3.6	1.2	1.3	5.5	6.2	41.60	214	41.60	214
	9,00. R/L .1,50.1,8	9	1.50	1.8	3.6			5.5	6.2	41.60	215	41.60	215
	9,00. R/L .1,70.1,8	9	1.70	1.8	3.6	1.5	1.6	5.5	6.2	41.60	217	41.60	217
	9,00. R/L .2,00.1,8	9	2.00	1.8	3.6			5.5	6.2	41.60	220	41.60	220
	9,00. R/L .2,50.1,8	9	2.50	1.8	3.6			5.5	6.2	41.60	225	41.60	225
	9,00. R/L .3,00.1,8	9	3.00	1.8	3.6			5.5	6.2	41.60	230	41.60	230
11	11,00. R/L .0,73.1,2	11	0.73	1.2	4.2	0.6	0.7	6.7	8.0	42.65	373	42.65	373
	11,00. R/L .0,83.1,3	11	0.83	1.3	4.2	0.7	0.8	6.7	8.0	42.65	383	42.65	383
	11,00. R .0,93.1,5	11	0.93	1.5	4.2	0.9	0.9	6.7	8.0			42.65	393
	11,00. L .0,93.1,5	11	0.93	1.5	4.2	0.8	0.9	6.7	8.0	42.65	393		
	11,00. R/L .1,00.2,3	11	1.00	2.3	4.2			6.7	8.0	42.65	310	42.65	310
	11,00. R/L .1,20.2,3	11	1.20	2.3	4.2	1.0	1.1	6.7	8.0	42.65	312	42.65	312
	11,00. R/L .1,40.2,3	11	1.40	2.3	4.2	1.2	1.3	6.7	8.0	42.65	314	42.65	314
	11,00. R/L .1,50.2,3	11	1.50	2.3	4.2			6.7	8.0	42.65	315	42.65	315
	11,00. R/L .1,70.2,3	11	1.70	2.3	4.2	1.5	1.6	6.7	8.0	42.65	317	42.65	317
	11,00. R/L .2,00.2,3	11	2.00	2.3	4.2			6.7	8.0	42.65	320	42.65	320
	11,00. R/L .2,50.2,3	11	2.50	2.3	4.2			6.7	8.0	42.65	325	42.65	325
	11,00. R/L .3,00.2,3	11	3.00	2.3	4.2			6.7	8.0	42.65	330	42.65	330
14	14,00. R/L .0,73.1,2	14	0.73	1.2	5.3	0.6	0.7	9.0	9.0	42.65	573	42.65	573
	14,00. R/L .0,83.1,3	14	0.83	1.3	5.3	0.7	0.8	9.0	9.0	42.65	583	42.65	583
	14,00. R/L .0,93.1,5	14	0.93	1.5	5.3	0.8	0.9	9.0	9.0	42.65	593	42.65	593
	14,00. R/L .1,20.4,0	14	1.20	4.0	5.3	1.0	1.1	9.0	9.0	42.65	512	42.65	512
	14,00. R/L .1,40.4,0	14	1.40	4.0	5.3	1.2	1.3	9.0	9.0	42.65	514	42.65	514
	14,00. R/L .1,50.4,0	14	1.50	4.0	5.3			9.0	9.0	42.65	515	42.65	515
	14,00. R/L .1,70.4,0	14	1.70	4.0	5.3	1.5	1.6	9.0	9.0	42.65	517	42.65	517
	14,00. R/L .2,00.4,0	14	2.00	4.0	5.3			9.0	9.0	42.65	520	42.65	520
	14,00. R/L .2,50.4,0	14	2.50	4.0	5.3			9.0	9.0	42.65	525	42.65	525
	14,00. R/L .3,00.4,0	14	3.00	4.0	5.3			9.0	9.0	42.65	530	42.65	530
16	16,00. R/L .0,73.1,2	16	0.73	1.2	5.4	0.6	0.7	10.2	11.0	51.96	773	51.96	773
	16,00. R/L .0,83.1,3	16	0.83	1.3	5.4	0.7	0.8	10.2	11.0	51.96	783	51.96	783
	16,00. R/L .0,93.1,5	16	0.93	1.5	5.4	0.8	0.9	10.2	11.0	51.96	793	51.96	793
	16,00. R/L .1,20.4,3	16	1.20	4.3	5.4	1.0	1.1	10.2	11.0	46.92	712	46.92	712
	16,00. R/L .1,40.4,3	16	1.40	4.3	5.4	1.2	1.3	10.2	11.0	46.92	714	46.92	714
	16,00. R/L .1,50.4,3	16	1.50	4.3	5.4			10.2	11.0	46.92	715	46.92	715
	16,00. R/L .1,70.4,3	16	1.70	4.3	5.4	1.5	1.6	10.2	11.0	46.92	717	46.92	717
	16,00. R/L .2,00.4,3	16	2.00	4.3	5.4			10.2	11.0	46.92	720	46.92	720
	16,00. R/L .2,50.4,3	16	2.50	4.3	5.4			10.2	11.0	46.92	725	46.92	725
	16,00. R/L .3,00.4,3	16	3.00	4.3	5.4			10.2	11.0	46.92	730	46.92	730
	16,00. R/L .3,50.4,3	16	3.50	4.3	5.4			10.2	11.0	46.92	735	46.92	735
	16,00. R/L .4,00.4,3	16	4.00	4.3	5.4			10.2	11.0	46.92	740	46.92	740

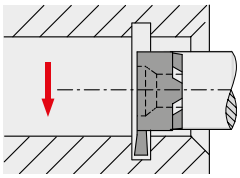
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

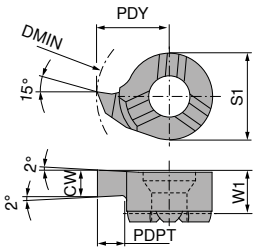
→ v_c Page 59

MiniCut – Grooving insert

▲ large groove depth ($T_{max.}$ 5.5 mm)







CWX500 CWX500



Illustrations show right-hand versions

Size	ISO designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	Left-hand 73 372 ... £ Y5		Right-hand 73 370 ... £ Y5	
14	14,00. R/L .1,50.5,5	16	1.5	5.5	5.2	10.5	9	49.52	715	49.52	715
	14,00. R/L .2,00.5,5	16	2.0	5.5	5.2	10.5	9	49.52	720	49.52	720
	14,00. R/L .2,50.5,5	16	2.5	5.5	5.2	10.5	9	49.52	725	49.52	725
	14,00. R/L .3,00.5,5	16	3.0	5.5	5.2	10.5	9	49.52	730	49.52	730

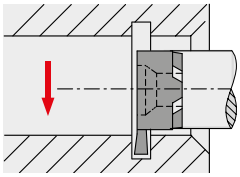
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

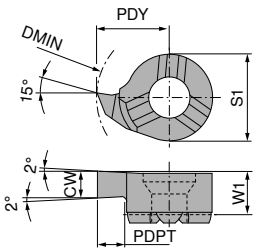
→ v_c Page 59

MiniCut – Grooving insert

▲ large groove depth ($T_{max.}$ 6.5 mm)







CWX500 CWX500



Illustrations show right-hand versions

Size	ISO designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	Left-hand 73 384 ... £ Y5		Right-hand 73 382 ... £ Y5	
14	14,00. R/L .1,50.6,5	17	1.5	6.5	5.2	11.5	9	49.52	515	49.52	515
	14,00. R/L .2,00.6,5	17	2.0	6.5	5.2	11.5	9	49.52	520	49.52	520
	14,00. R/L .2,50.6,5	17	2.5	6.5	5.2	11.5	9	49.52	525	49.52	525
	14,00. R/L .3,00.6,5	17	3.0	6.5	5.2	11.5	9	49.52	530	49.52	530

P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

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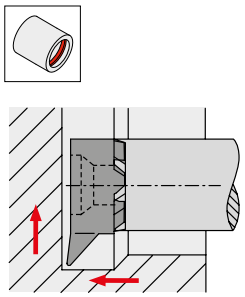
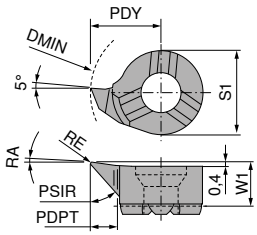
MiniCut – Internal undercut insert

▲ CDX = ap_{max}

CWX500 CWX500







Illustrations show right-hand versions

Size	ISO designation	DMIN mm	PDPT mm	W1 mm	PDY mm	S1 mm	RE mm	CDX mm	PSIR °	RA °	Left-hand 73 328 ... £ Y5		Right-hand 73 326 ... £ Y5	
08	8,00. R/L .30°.1,0	7.8	1.0	3.5	4.65	6.0	0.2	0.4	30	3	57.01	010	57.01	010
	8,00. R/L .47°.1,2	7.8	1.2	3.5	4.65	6.0	0.2	0.4	47	3	49.52	012	49.52	012
09	9,00. R/L .47°.1,5	9.0	1.5	3.6	5.50	6.2	0.2	0.5	47	3	45.93	115	45.93	115
11	11,00. R/L .30°.2,3	11.0	2.3	4.2	6.70	8.0	0.2	0.6	30	3	55.68	423	55.68	423
	11,00. R/L .47°.2,3	11.0	2.3	4.2	6.70	8.0	0.2	0.6	47	3	48.22	323	48.22	323
14	13,70. R/L .47°.3,0	13.7	3.0	5.3	8.70	9.0	0.2	0.8	47	3	49.52	530	49.52	530
	13,70. R/L .30°.4,0	13.7	4.0	5.3	8.70	9.0	0.2	0.8	30	3	57.01	540	57.01	540
16	15,80. R/L .30°.4,3	15.8	4.3	5.4	10.20	11.0	0.2	1.0	30	3	55.33	744	55.33	744
P												●		●
M												●		●
K												●		●
N												●		●
S												●		●
H												●		●
O												●		●

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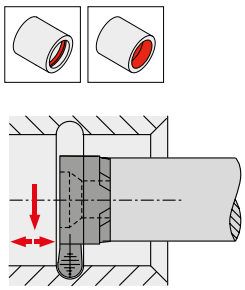
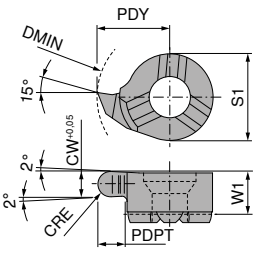
MiniCut – Full radius grooving and turning insert





CWX500 CWX500



Illustrations show right-hand versions

Size	ISO designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	CRE mm	Left-hand 73 320 ... £ Y5		Right-hand 73 318 ... £ Y5	
08	8,00. R/L .0,80.1,0	8	0.8	1.0	3.3	4.8	6.0	0.4	53.17	008	53.17	008
	8,00. R/L .1,20.1,0	8	1.2	1.0	3.3	4.8	6.0	0.6	53.17	012	53.17	012
	8,00. R/L .1,80.1,0	8	1.8	1.0	3.3	4.8	6.0	0.9	53.17	018	53.17	018
	8,00. R/L .2,00.1,0	8	2.0	1.0	3.3	4.8	6.0	1.0	49.27	020	49.27	020
09	9,00. R/L .0,80.1,6	9	0.8	1.6	3.6	5.5	6.2	0.4	51.04	108	51.04	108
	9,00. R/L .1,20.1,6	9	1.2	1.6	3.6	5.5	6.2	0.6	51.04	112	51.04	112
	9,00. R/L .1,80.1,6	9	1.8	1.6	3.6	5.5	6.2	0.9	51.04	118	51.04	118
	9,00. R/L .2,00.1,6	9	2.0	1.6	3.6	5.5	6.2	1.0	51.04	120	51.04	120
11	11,00. R/L .0,80.2,3	11	0.8	2.3	4.2	6.7	8.0	0.4	53.82	308	53.82	308
	11,00. R/L .1,20.2,3	11	1.2	2.3	4.2	6.7	8.0	0.6	53.82	312	53.82	312
	11,00. R/L .1,60.2,3	11	1.6	2.3	4.2	6.7	8.0	0.8	51.04	316	51.04	316
	11,00. R/L .1,80.2,3	11	1.8	2.3	4.2	6.7	8.0	0.9	53.82	318	53.82	318
	11,00. R/L .2,00.2,3	11	2.0	2.3	4.2	6.7	8.0	1.0	53.82	320	53.82	320
	11,00. R/L .2,40.2,3	11	2.4	2.3	4.2	6.7	8.0	1.2	51.04	324	51.04	324
	11,00. R/L .3,00.2,3	11	3.0	2.3	4.2	6.7	8.0	1.5	53.82	330	53.82	330
14	14,00. R/L .0,80.4,0	14	0.8	4.0	5.3	9.0	9.0	0.4	53.12	508	53.12	508
	14,00. R/L .1,20.4,0	14	1.2	4.0	5.3	9.0	9.0	0.6	56.98	512	56.98	512
	14,00. R/L .1,80.4,0	14	1.8	4.0	5.3	9.0	9.0	0.9	56.98	518	56.98	518
	14,00. R/L .2,00.4,0	14	2.0	4.0	5.3	9.0	9.0	1.0	56.98	520	56.98	520
	14,00. R/L .2,20.4,0	14	2.2	4.0	5.3	9.0	9.0	1.1	56.98	522	56.98	522
	14,00. R/L .3,00.4,0	14	3.0	4.0	5.3	9.0	9.0	1.5	56.98	530	56.98	530
16	16,00. R/L .1,60.4,3	16	1.6	4.3	5.4	10.2	11.0	0.8	54.56	716	54.56	716
	16,00. R/L .1,80.4,3	16	1.8	4.3	5.4	10.2	11.0	0.9	57.56	718	57.56	718
	16,00. R/L .2,00.4,3	16	2.0	4.3	5.4	10.2	11.0	1.0	54.56	720	54.56	720
	16,00. R/L .2,20.4,3	16	2.2	4.3	5.4	10.2	11.0	1.1	57.56	722	57.56	722
	16,00. R/L .2,40.4,3	16	2.4	4.3	5.4	10.2	11.0	1.2	54.56	724	54.56	724
	16,00. R/L .3,00.4,3	16	3.0	4.3	5.4	10.2	11.0	1.5	57.56	730	57.56	730
	16,00. R/L .3,20.4,3	16	3.2	4.3	5.4	10.2	11.0	1.6	54.56	732	54.56	732
	16,00. R/L .4,00.4,3	16	4.0	4.3	5.4	10.2	11.0	2.0	57.56	740	57.56	740
P									●		●	
M									●		●	
K									●		●	
N									●		●	
S									●		●	
H									●		●	
O									●		●	

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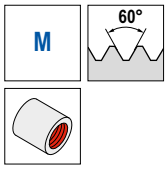
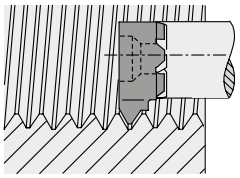
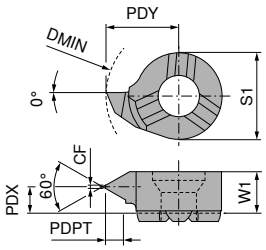
MiniCut – Threading insert (Partial profile)











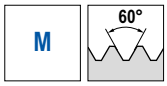


Illustrations show right-hand versions

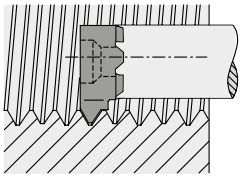
Size	ISO designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 344 ... £ Y5		Right-hand 73 342 ... £ Y5	
08	8,00. R/L .0,5/0,75.60°	8	0,5 - 0,75	0.06	0.43	3.50	2.7	4.8	6.0	57.56	012	57.56	012
	8,00. R/L .1,0/1,25.60°	8	1,0 - 1,25	0.12	0.70	3.50	2.7	4.8	6.0	57.56	014	57.56	014
	8,00. R/L .1,5/1,75.60°	8	1,5 - 1,75	0.18	0.95	3.50	2.5	4.8	6.0	57.56	010	57.56	010
09	9,00. R/L .0,5/0,75.60°	9	0,5 - 0,75	0.06	0.27	3.55	3.2	5.5	6.2	54.56	112	54.56	112
	9,00. R/L .1,0/1,25.60°	9	1,0 - 1,25	0.12	0.54	3.55	3.0	5.5	6.2	54.56	114	54.56	114
	9,00. R/L .1,5/1,75.60°	9	1,5 - 1,75	0.18	0.81	3.55	2.8	5.5	6.2	54.56	116	54.56	116
	9,00. R/L .1,75/2,0.60°	9	1,75 - 2,0	0.20	0.95	3.55	2.6	5.5	6.2	54.56	118	54.56	118
	9,00. R/L .2,0/2,5.60°	9	2,0 - 2,5	0.25	1.08	3.55	2.5	5.5	6.2	54.56	120	54.56	120
	9,00. R/L .2,5/3,0.60°	9	2,5 - 3,0	0.31	1.35	3.55	2.1	5.5	6.2	54.56	122	54.56	122
	9,00. R/L .3,0/3,5.60°	9	3,0 - 3,5	0.37	1.62	3.55	1.9	5.5	6.2	54.56	124	54.56	124
11	11,00. R/L .0,5/0,75.60°	11	0,5 - 0,75	0.06	0.75	4.30	3.5	6.7	8.0	57.56	312	57.56	312
	11,00. R/L .1,0/1,25.60°	11	1,0 - 1,25	0.12	0.55	4.30	3.5	6.7	8.0	57.56	314	57.56	314
	11,00. R/L .1,5/1,75.60°	11	1,5 - 1,75	0.18	0.81	4.30	3.5	6.7	8.0	57.56	316	57.56	316
	11,00. R/L .2,0/2,5.60°	11	2,0 - 2,5	0.25	1.08	4.30	3.0	6.7	8.0	57.56	310	57.56	310
	11,00. R/L .2,5/3,0.60°	11	2,5 - 3,0	0.31	1.35	4.30	3.0	6.7	8.0	57.56	320	57.56	320
14	14,00. R/L .1,0/1,25.60°	14	1,0 - 1,25	0.12	0.55	5.40	4.7	9.0	9.0	57.56	512	57.56	512
	14,00. R/L .1,5/1,75.60°	14	1,5 - 1,75	0.18	0.81	5.40	4.5	9.0	9.0	57.56	514	57.56	514
	14,00. R/L .2,0/2,5.60°	14	2,0 - 2,5	0.25	1.08	5.40	4.2	9.0	9.0	57.56	510	57.56	510
	14,00. R/L .2,5/3,0.60°	14	2,5 - 3,0	0.31	1.35	5.40	4.7	9.0	9.0	57.56	520	57.56	520
16	16,00. R/L .1,0/1,25.60°	16	1,0 - 1,25	0.12	0.55	5.50	4.7	10.2	11.0	57.56	712	57.56	712
	16,00. R/L .1,5/1,75.60°	16	1,5 - 1,75	0.18	0.81	5.50	4.5	10.2	11.0	57.56	714	57.56	714
	16,00. R/L .2,0/2,5.60°	16	2,0 - 2,5	0.25	1.08	5.50	4.2	10.2	11.0	57.56	716	57.56	716
	16,00. R/L .2,5/3,0.60°	16	2,5 - 3,0	0.31	1.35	5.50	4.2	10.2	11.0	57.56	710	57.56	710
P											●		●
M											●		●
K											●		●
N											●		●
S											●		●
H											●		●
O											●		●

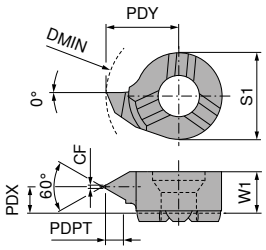
→ v_c Page 59

MiniCut – Threading insert (Full profile)















Illustrations show right-hand versions

Size	ISO designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 348 ... £ Y5		Right-hand 73 346 ... £ Y5	
09	9,00. R/L .0,5.60°	9	0.50	0.06	0.27	3.55	3.25	5.5	6.2	60.81	405	60.81	405
	9,00. R/L .1,0.60°	9	1.00	0.12	0.54	3.55	3.00	5.5	6.2	60.81	410	60.81	410
	9,00. R/L .1,5.60°	9	1.50	0.18	0.81	3.55	2.80	5.5	6.2	60.81	415	60.81	415
	9,00. R/L .1,75.60°	9	1.75	0.20	0.95	3.55	2.70	5.5	6.2	60.81	418	60.81	418
	9,00. R/L .2,0.60°	9	2.00	0.25	1.08	3.55	2.60	5.5	6.2	60.81	420	60.81	420
	9,00. R/L .2,5.60°	9	2.50	0.31	1.35	3.55	2.50	5.5	6.2	60.81	425	60.81	425
	9,00. R/L .3,0.60°	9	3.00	0.37	1.62	3.55	2.20	5.5	6.2	60.81	430	60.81	430
11	11,00. R/L .1,0.60°	11	1.00	0.12	0.54	4.30	3.50	6.7	8.0	65.30	314	65.30	314
	11,00. R/L .1,5.60°	11	1.50	0.18	0.81	4.30	3.50	6.7	8.0	64.26	316	65.30	316
	11,00. R/L .2,0.60°	11	2.00	0.25	1.08	4.30	3.20	6.7	8.0	65.30	310	65.30	310
	11,00. R/L .2,5.60°	11	2.50	0.31	1.35	4.30	3.00	6.7	8.0	65.30	320	65.30	320
	11,00. R/L .3,0.60°	11	3.00	0.37	1.62	4.30	2.90	6.7	8.0	65.30	330	65.30	330
14	14,00. R/L .0,5.60°	14	0.50	0.06	0.27	5.40	3.50	9.0	9.0	66.12	510	66.12	510
	14,00. R/L .1,0.60°	14	1.00	0.12	0.54	5.40	3.50	9.0	9.0	60.18	512	60.18	512
	14,00. R/L .1,5.60°	14	1.50	0.18	0.81	5.40	3.30	9.0	9.0	60.18	514	60.18	514
	14,00. R/L .2,0.60°	14	2.00	0.25	1.08	5.40	4.20	9.0	9.0	60.18	610	60.18	610
	14,00. R/L .2,5.60°	14	2.50	0.31	1.35	5.40	4.70	9.0	9.0	60.18	520	60.18	520
16	16,00. R/L .1,0.60°	16	1.00	0.12	0.54	5.50	4.70	10.2	11.0	72.73	712	72.73	712
	16,00. R/L .1,5.60°	16	1.50	0.18	0.81	5.50	4.50	10.2	11.0	72.73	714	72.73	714
	16,00. R/L .2,0.60°	16	2.00	0.25	1.08	5.50	4.20	10.2	11.0	72.73	716	72.73	716
	16,00. R/L .2,5.60°	16	2.50	0.31	1.35	5.50	4.20	10.2	11.0	72.73	710	72.73	710
	16,00. R/L .3,0.60°	16	3.00	0.37	1.62	5.50	4.00	10.2	11.0	72.73	720	72.73	720
	16,00. R/L .3,5.60°	16	3.50	0.43	1.89	5.50	3.80	10.2	11.0	72.73	730	72.73	730
	16,00. R/L .4,0.60°	16	4.00	0.50	2.16	5.50	3.60	10.2	11.0	72.73	740	72.73	740

P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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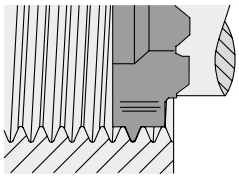
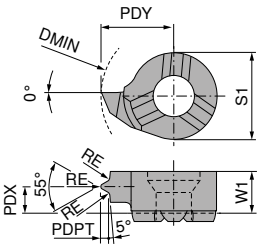
12

MiniCut – Threading insert (Full profile)











Illustrations show right-hand versions

Size	ISO designation	DMIN mm	TP mm	TPI 1/"	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	RE mm	Left-hand 73 352 ... £ Y5		Right-hand 73 350 ... £ Y5	
11	11,00. R/L .1,814.55°	11	1.814	14	1.16	4.30	3.0	6.7	8	0.24	84.74	306	84.74	306
	11,00. R/L .1,337.55°	11	1.337	19	0.85	4.30	2.7	6.7	8	0.18	84.74	304	84.74	304
14	14,00. R/L .1,814.55°	14	1.814	14	1.16	5.35	3.6	9.0	9	0.24	83.62	506	83.62	506
	14,00. R/L .1,337.55°	14	1.337	19	0.85	5.35	3.8	9.0	9	0.18	83.62	504	83.62	504
16	16,00. R/L .2,309.55°	16	2.309	11	1.48	5.50	3.5	10.2	11	0.31	92.26	708	92.26	708
	16,00. R/L .1,814.55°	16	1.814	14	1.16	5.50	3.9	10.2	11	0.24	92.26	706	92.26	706

P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

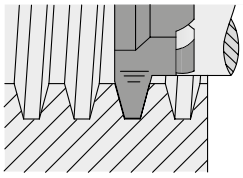
MiniCut – Threading insert (Partial profile)

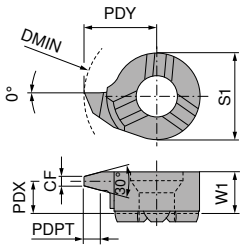
▲ Trapezoidal thread DIN 103

















Illustrations show right-hand versions

Size	ISO designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 356 ... £ Y5		Right-hand 73 354 ... £ Y5	
09	9,00. R/L .1,5.30°	9	1.5	0.47	0.90	3.55	3.00	5.5	6.2	56.16	415	56.16	415
	9,00. R/L .2,0.30°	9	2.0	0.60	1.25	3.55	2.85	5.5	6.2	56.16	420	56.16	420
	9,00. R/L .3,0.30°	9	3.0	0.96	1.75	3.55	2.25	5.5	6.2	56.16	430	56.16	430
	9,00. R/L .4,0.30°	10	4.0	1.33	2.25	3.55	2.25	5.5	6.2	56.16	440	56.16	440
11	11,00. R/L .1,5.30°	11	1.5	0.47	0.90	4.30	3.70	6.7	8.0	59.44	315	59.44	315
	11,00. R/L .2,0.30°	11	2.0	0.60	1.25	4.30	3.50	6.7	8.0	59.44	320	59.44	320
	11,00. R/L .3,0.30°	11	3.0	0.96	1.75	4.30	3.20	6.7	8.0	59.44	330	59.44	330
	11,00. R/L .4,0.30°	11	4.0	1.33	2.25	3.95	2.60	6.7	8.0	56.79	340	56.79	340
14	14,00. R/L .2,0.30°	14	2.0	0.60	1.25	5.30	4.30	9.0	9.0	59.61	520	59.61	520
	14,00. R/L .3,0.30°	14	3.0	0.96	1.75	5.30	4.00	9.0	9.0	59.61	530	59.61	530
	14,00. R/L .4,0.30°	14	4.0	1.33	2.25	5.30	3.60	9.0	9.0	59.61	540	59.61	540
	14,00. R/L .5,0.30°	14	5.0	1.69	2.75	5.30	3.30	9.0	9.0	59.61	550	59.61	550
16	16,00. R/L .2,0.30°	16	2.0	0.60	1.25	5.50	4.50	9.7	11.0	68.91	720	68.91	720
	16,00. R/L .3,0.30°	16	3.0	0.96	1.75	5.50	4.30	9.7	11.0	68.91	730	68.91	730
	16,00. R/L .4,0.30°	16	4.0	1.33	2.25	5.50	4.00	9.7	11.0	68.91	740	68.91	740
	16,00. R/L .5,0.30°	16	5.0	1.69	2.75	5.50	3.55	9.7	11.0	64.42	750	64.42	750
	16,00. R/L .6,0.30°	16	6.0	1.92	3.50	5.50	3.30	10.2	11.0	60.24	760	60.24	760
P											●		●
M											●		●
K											●		●
N											●		●
S											●		●
H											●		●
O											●		●

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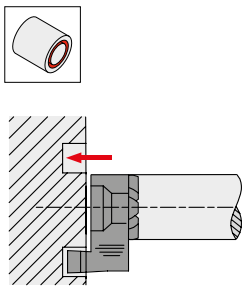
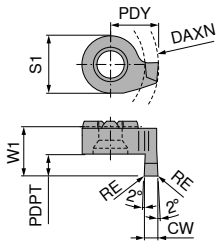
MiniCut – Axial grooving insert





CWX500 CWX500



Illustrations show right-hand versions

Size	ISO designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand 73 364 ... £ Y5		Right-hand 73 362 ... £ Y5	
14	14,00. R/L .1,0.1,5	14	1.0	1.5	8.3	9		9	46.38	510	46.38	510
	14,00. R/L .1,5.2,5	14	1.5	2.5	8.3	9	0.2	9	46.38	515	46.38	515
	14,00. R/L .2,0.3,0	14	2.0	3.0	8.3	9	0.2	9	46.38	520	46.38	520
	14,00. R/L .2,0.5,0	14	2.0	5.0	10.3	9	0.2	9	53.82	620	53.82	620
	14,00. R/L .2,5.3,0	14	2.5	3.0	8.3	9	0.2	9	46.38	525	46.38	525
	14,00. R/L .2,5.5,0	14	2.5	5.0	10.3	9	0.2	9	53.82	625	53.82	625
	14,00. R/L .3,0.3,0	14	3.0	3.0	8.3	9	0.2	9	46.38	530	46.38	530
	14,00. R/L .3,0.5,0	14	3.0	5.0	10.3	9	0.2	9	53.82	630	53.82	630

P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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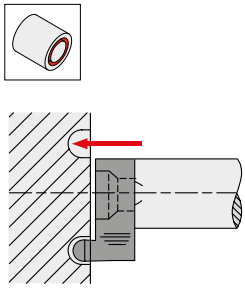
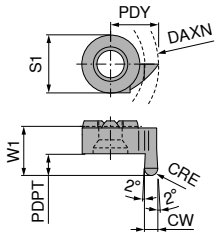
MiniCut – Full radius axial grooving insert





CWX500 CWX500



Illustrations show right-hand versions

Size	ISO designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	CRE mm	S1 mm	Left-hand 73 376 ... £ Y5		Right-hand 73 374 ... £ Y5	
14	14,00. R/L . 1,0.1,5	14	1.0	1.5	8.3	9	0.5	9	53.60	510	53.60	510
	14,00. R/L . 1,6.2,5	14	1.6	2.5	8.3	9	0.8	9	53.60	516	53.60	516
	14,00. R/L . 2,0.3,0	14	2.0	3.0	8.3	9	1.0	9	53.60	520	53.60	520
	14,00. R/L . 2,5.3,0	14	2.5	3.0	8.3	9	1.2	9	53.60	525	53.60	525
	14,00. R/L . 3,0.3,0	14	3.0	3.0	8.3	9	1.5	9	53.60	530	53.60	530

P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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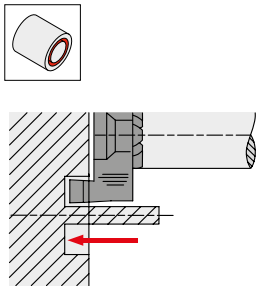
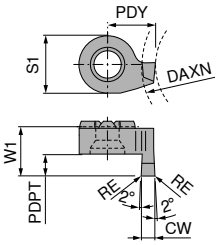
MiniCut – Axial grooving insert over a spigot





CWX500 CWX500



Illustrations show right-hand versions

Size	ISO designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand 73 360 ... £ Y5		Right-hand 73 358 ... £ Y5	
14	14/12. R/L .1,0.1,5	12	1.0	1.5	8.3	7.0		9	48.22	310	48.22	310
	14/12. R/L .1,5.2,5	12	1.5	2.5	8.3	7.5	0.2	9	49.37	315	49.37	315
	14/12. R/L .2,0.3,0	12	2.0	3.0	8.3	8.0	0.2	9	49.37	320	49.37	320
	14/12. R/L .2,0.5,0	12	2.0	5.0	10.3	8.0	0.2	9	57.55	420	57.55	420
	14/12. R/L .2,5.3,0	12	2.5	3.0	8.3	8.5	0.2	9	49.37	325	49.37	325
	14/12. R/L .2,5.5,0	12	2.5	5.0	10.3	8.5	0.2	9	57.55	425	57.55	425
	14/12. R/L .3,0.3,0	12	3.0	3.0	8.3	9.0	0.2	9	49.37	330	49.37	330
	14/12. R/L .3,0.5,0	12	3.0	5.0	10.3	9.0	0.2	9	57.55	430	57.55	430

P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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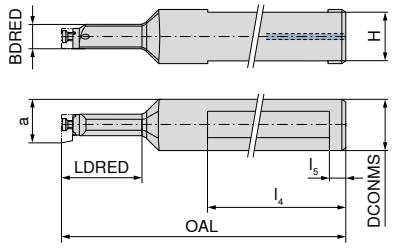
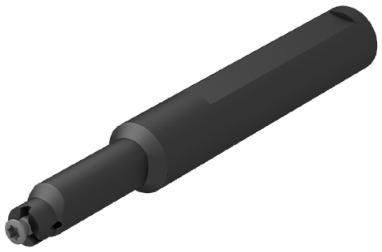
MiniCut – Steel Tool holder

Scope of supply:
Holder with clamping screw





Size	Designation	a mm	DCONMS mm	OAL mm	l_4 mm	LDRED mm	BDRED mm	H mm	l_5 mm	73 522 ... £ Y5	
08	8,00/16.N.12.1,0	7.8	16	80	60	12		15.0	5	255.11	012
	8,00/16.N.22.1,0	7.8	16	90	60	22	7.0	15.0	5	292.72	122
09	9,00/16.N.14.1,8	8.6	16	95	60	14	7.4	15.0	5	231.37	014
	9,00/16.N.25.1,8	8.6	16	105	60	25	7.4	15.0	5	265.29	125
11	11,00/16.N.16.2,3	10.7	16	97	60	16		14.5	5	255.11	016
	11,00/16.N.29.2,3	10.7	16	110	60	29	9.5	14.5	5	292.72	129
14	14,00/16.N.18.4,0	13.8	16	100	60	18	11.0	14.5	5	292.72	018
	14,00/16.N.38.4,0	13.8	16	120	60	38	11.0	14.5	5	292.72	138
16	16,00/16.N.22.4,3	15.7	16	100	60	22		14.5	5	255.11	022
	16,00/16.N.42.4,3	15.7	16	120	60	42	13.5	14.5	5	292.72	142

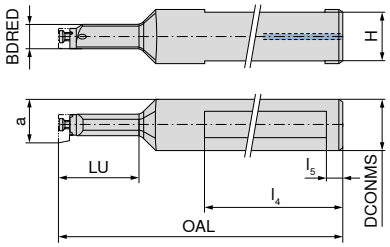

Key D

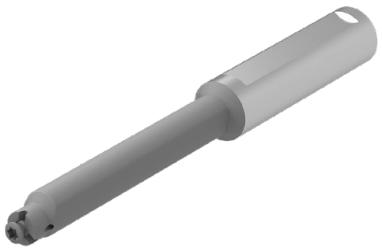

Clamping screw

Spare parts Size	80 950 ... £ Y7		73 082 ... £ Y5	
08	T08	13.73 110	M2,6	9.52 002
09	T08	13.73 110	M2,6	9.52 002
11	T10	16.05 112	M3,5	9.52 003
14	T15	16.32 113	M4	9.52 004
16	T20	17.48 114	M5	9.52 005

MiniCut – Solid Carbide Tool holder – vibration damped

Scope of supply:
Holder with clamping screw





Size	Designation	a	DCONMS	OAL	l_4	LU	BDRED	H	l_5	73 520 ... £ Y5	
		mm	mm	mm	mm	mm	mm	mm	mm		
08	8,00/12.N.21.1,0 HM	7.8	12	80	50	22.60		11.0	5	412.70	021
	8,00/12.N.30.1,0 HM	7.8	12	90	54	30.80		11.0	5	446.29	030
	8,00/12.N.42.1,0 HM	7.8	12	100	54	42.80		11.0	5	525.05	042
	8,00/12.N.50.1,0 HM	7.8	12	115	48	51.60	7.2	11.0	5	599.83	050
09	9,00/12.N.22.1,0 HM	8.6	12	90	60	23.60	7.4	11.0	5	414.74	222
	9,00/12.N.30.2,0 HM	8.6	12	98	60	30.54	7.4	11.0	5	483.84	230
	9,00/12.N.42.3,0 HM	8.6	12	110	60	43.60	7.4	11.0	5	544.32	242
	9,00/12.N.56.4,0 HM	8.6	12	122	56	57.60	7.4	11.0	5	616.32	256
11	11,00/12.N.29.2,3 HM	10.7	12	95	60	26.40		10.5	5	412.70	129
	11,00/12.N.42.2,3 HM	10.7	12	110	56	42.50		10.5	5	446.29	142
	11,00/12.N.56.2,3 HM	10.7	12	120	56	57.60		10.5	5	525.05	156
	11,00/12.N.64.2,3 HM	10.7	12	130	56	65.60	9.5	10.5	5	599.83	164
14	14,00/12.N.34.4,0 HM	13.8	12	100	59	35.00	11.0	10.5	5	502.26	234
	14,00/12.N.45.4,0 HM	13.8	12	110	59	46.25	11.0	10.5	5	566.04	245
	14,00/12.N.64.4,0 HM	13.8	12	130	60	65.25	11.0	10.5	5	667.41	264
	14,00/16.N.34.4,0 HM	13.8	16	100	59	35.60	11.0	14.5	5	588.65	334
	14,00/16.N.45.4,0 HM	13.8	16	110	56	46.60	11.0	14.5	5	671.03	345
	14,00/16.N.64.4,0 HM	13.8	16	130	59	65.40	11.0	14.5	5	771.82	364
	14,00/16.N.75.4,0 HM	13.8	16	145	56	81.60	11.0	14.5	5	824.56	375
16	16,00/12.N.40.4,3 HM	15.7	12	130	60	41.25		10.5	5	532.45	440
	16,00/12.N.56.4,3 HM	15.7	12	130	60	57.25		10.5	5	566.04	456
	16,00/12.N.80.4,3 HM	15.7	12	150	60	81.06		10.5	5	667.41	480
	16,00/16.N.56.4,3 HM	15.7	16	130	60	57.60		14.5	5	671.03	556
	16,00/16.N.40.4,3 HM	15.7	16	130	60	41.60		14.5	5	648.64	540
	16,00/16.N.80.4,3 HM	15.7	16	150	60	81.60		14.5	5	771.82	580

12



Key D



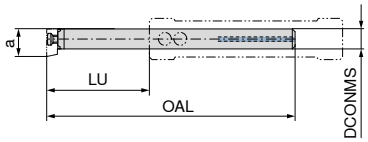
Clamping screw

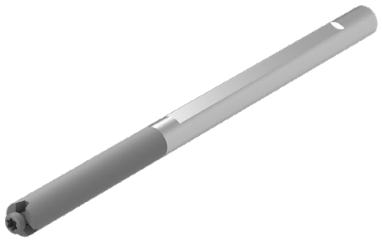
Spare parts Size		80 950 ... £ Y7			73 082 ... £ Y5	
08	T08	13.73	110	M2,6	9.52	002
09	T08	13.73	110	M2,6	9.52	002
11	T10	16.05	112	M3,5	9.52	003
14	T15	16.32	113	M4	9.52	004
16	T20	17.48	114	M5	9.52	005

MiniCut – HM – Flexoholder

Scope of supply:
Holder with clamping screw







Size	Designation	DCONMS mm	OAL mm	LU mm	a mm	73 525 ... £ Y5	
08	8,0/6.N16/2	6	65	18	8	584.65	818
	8,0/6.N40/4	6	103	40	8	665.28	840
11	11,0/8.N20/2	8	79	20	11	740.17	120 1)
	11,0/8.N50/4	8	129	50	11	840.97	150 1)

1) with thro' coolant

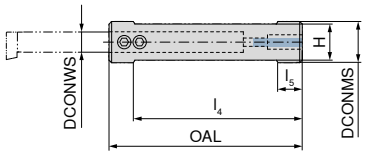

Key D


Clamping screw

Spare parts Size		80 950 ... £ Y7			73 082 ... £ Y5	
08	T08	13.73	110	M2,6	9.52	002
11	T10	16.05	112	M3,5	9.52	003

MiniCut – Base holder for solid carbide Flexoholder

Scope of supply:
Holder with clamping screw





Size	Designation	DCONWS mm	DCONMS mm	H mm	OAL mm	l_4 mm	l_5 mm	73 526 ... £ Y5	
08	8/16.75	6	16	14	75	55	10	351.37	816
	8/20.75	6	20	18	75	70	10	351.37	820
11	11/16.75	8	16	14	75	55	10	351.37	116
	11/20.75	8	20	18	75	70	10	351.37	120


Key I

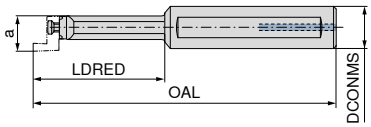

Clamping screw

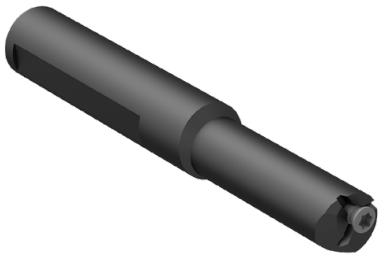
Spare parts for Article no.		70 950 ... £ 2A/28			73 082 ... £ Y5	
73 526 816	SW2,5	2.97	175	M5x0,5x6	6.13	010
73 526 820	SW2,5	2.97	175	M5x0,5x6	6.13	010
73 526 116	SW2,5	2.97	175	M5x0,5x4	6.13	009
73 526 120	SW2,5	2.97	175	M5x0,5x6	6.13	010

MiniCut – Steel holder

▲ for axial machining

Scope of supply:
Holder with clamping screw





Size	Designation	a	DCONMS	OAL	LDRED	Left-hand 73 523 ... £ Y5		Right-hand 73 524 ... £ Y5	
		mm	mm	mm	mm				
14	14,0/16. L .25.1,0	13.5	16	90	25	313.92	025		
	14,0/16. R .25.1,0	13.5	16	90	25			313.92	025
	14,0/16. L .45.1,0	13.5	16	110	45	334.08	145		
	14,0/16. R .45.1,0	13.5	16	110	45			334.08	145



Key D



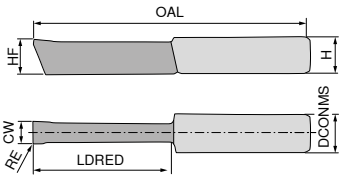
Clamping screw

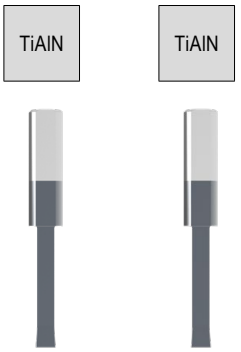
Spare parts Size		Key D 80 950 ... £ Y7			Clamping screw 73 082 ... £ Y5	
14	T15	16.32	113	M4	9.52	004

12

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width





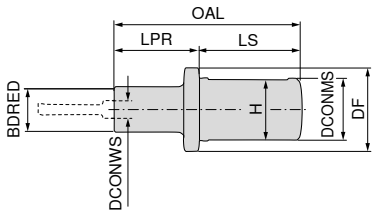
Designation	$b_{1\ P9/JS9}$	CW	HF	RE	OAL	LDRED	DMIN	DCONMS	H	73 601 ... £ Y5		73 602 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
NPU.0198.01.1	2	1.98	5.5	0.1	38	12.5	6	7	6.3			108.20	**099**
NPU.0200.01.1	2	2.01	5.5	0.1	38	12.5	6	7	6.3	108.20	**099**		
NPU.0298.01.1	3	2.98	6.2	0.1	38	12.5	7	7	6.3			108.20	**100**
NPU.0300.01.1	3	3.01	6.2	0.1	38	12.5	7	7	6.3	108.20	**100**		
NPU.0398.01.1	4	3.98	6.2	0.1	40	15.0	7	7	6.3			94.93	**101**
NPU.0398.02.2	4	3.98	6.2	0.2	50	25.0	7	7	6.3			124.56	**102**
NPU.0400.01.1	4	4.01	6.2	0.1	40	15.0	7	7	6.3	94.93	**101**		
NPU.0400.02.1	4	4.01	6.2	0.2	40	15.0	7	7	6.3	94.93	**102**		
NPU.0400.02.2	4	4.01	6.2	0.2	50	25.0	7	7	6.3	124.56	**103**		
NPU.0498.02.2	5	4.98	5.8	0.2	50	25.0	7	7	6.3			124.56	**103**
NPU.0500.02.2	5	5.01	5.8	0.2	50	25.0	8	7	6.3	124.56	**104**		

Tolerance **JS 9** for 73 601, Tolerance **P 9** for 73 602

SlotCut – Toolholder for broaching inserts

Scope of supply:

Tool holder with clamping screw, without insert





Designation	DCONWS	BDRED	DCONMS	DF	OAL	LS	LPR	H	73 610 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm		
NHU.25	7	18	25	33	73	40	33	23	518.63	**025**
NHU.32	7	20	32	40	73	40	33	30	543.47	**032**



Key I

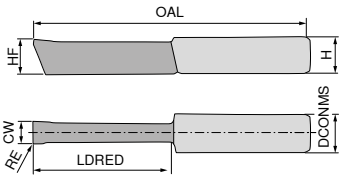


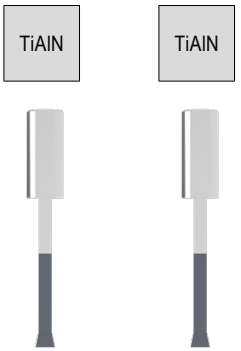
Clamping screw

Spare parts DCONMS		70 950 ... £ 2A/28			73 082 ... £ Y5	
25	SW2,5	2.97	**175**	M5x6	7.65	**001**
32	SW2,5	2.97	**175**	M5x6	7.65	**001**

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width





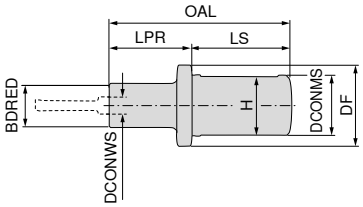
Designation	$b_{1\ JS\ 9/P\ 9}$	CW	HF	RE	OAL	LDRED	DMIN	DCONMS	H	73 607 ...		73 608 ...	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	£ Y5		£ Y5	
NP10.398.02.2	4	3.98	9	0.2	50	25	10	10	9.2	151.87	**101**		
NP10.398.02.3	4	3.98	9	0.2	66	41	10	10	9.2	189.83	**102**		
NP10.400.02.2	4	4.01	9	0.2	50	25	10	10	9.2			151.87	**101**
NP10.400.02.3	4	4.01	9	0.2	66	41	10	10	9.2			189.83	**102**
NP10.498.02.2	5	4.98	9	0.2	50	25	10	10	9.2	151.87	**103**		
NP10.498.02.3	5	4.98	9	0.2	66	41	10	10	9.2	189.83	**104**		
NP10.500.02.2	5	5.01	9	0.2	50	25	10	10	9.2			151.87	**103**
NP10.500.02.3	5	5.01	9	0.2	66	41	10	10	9.2			189.83	**104**

Tolerance **P 9** for 73 607, Tolerance **JS 9** for 73 608

SlotCut – Toolholder for Cutting Inserts

Scope of supply:

Tool holder with clamping screw, without insert





Designation	DCONWS	BDRED	DCONMS	DF	OAL	LS	LPR	H	73 612 ...	
	mm	mm	mm	mm	mm	mm	mm	mm	£ Y5	
NH10.0025.1	10	20	25	33	73	40	33	23	590.36	**025**
NH10.0032.1	10	20	32	40	73	40	33	30	590.36	**032**





Spare parts DCONMS		70 950 ... £ 2A/28			70 950 ... £ Y5	
25	SW3	2.97	**176**	M6x5,5	9.52	**031**
32	SW3	2.97	**176**	M6x5,5	9.52	**031**

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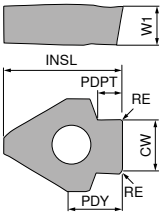
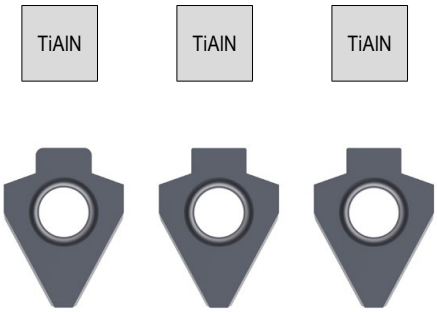
SlotCut – Inserts – DIN 138

▲ b_1 = Groove width





Designation	b_1 P 9/JS 9/C 11	CW	RE	PDY	INSL	PDPT	DMIN	W1	clamping holder	73 603 ... £ Y5		73 604 ... £ Y5		73 605 ... £ Y5	
	mm	mm	mm	mm	mm	mm	mm	mm							
NV15.0398.02	4	3.98	0.20	6.5	13.0	2.3	15	3.2	NHV 15					99.69	110
NV15.0401.02	4	4.01	0.20	6.5	13.0	2.3	15	3.2	NHV 15			99.69	110		
NV15.0410.050	4	4.10	0.50	6.5	13.0	2.2	15	3.2	NHV 15	99.69	108				
NV15.0498.02	5	4.98	0.20	6.5	13.0	2.8	15	3.2	NHV 15					99.69	111
NV15.0501.02	5	5.01	0.20	6.5	13.0	2.8	15	3.2	NHV 15			99.69	111		
NV15.0510.050	5	5.10	0.50	6.5	13.0	2.5	15	3.2	NHV 15	99.69	109				
NV15.0598.02	6	5.98	0.20	6.5	13.0	3.3	15	3.2	NHV 15					99.69	112
NV15.0601.02	6	6.01	0.20	6.5	13.0	3.3	15	3.2	NHV 15			99.69	112		
NV15.0612.085	6	6.12	0.85	6.5	13.0	2.6	15	3.2	NHV 15	99.69	110				
NPV.0498.02	5	4.98	0.20	8.0	17.3	2.7	22	5.3	NHV 22					96.83	100
NPV.0501.02	5	5.01	0.20	8.0	17.3	2.7	22	5.3	NHV 22			96.83	100		
NPV.0598.02	6	5.98	0.20	8.0	17.3	3.4	22	5.3	NHV 22					87.70	101
NPV.0601.02	6	6.01	0.20	8.0	17.3	3.4	22	5.3	NHV 22			87.70	101		
NPV.0612.085	6	6.12	0.85	8.0	17.3	2.6	22	5.3	NHV 22	87.70	101				
NPV.0713.085	7	7.13	0.85	8.0	17.3	3.3	22	5.3	NHV 22	87.70	102				
NPV.0798.02	8	7.98	0.20	8.0	17.3	4.1	22	5.3	NHV 22/30					87.70	102
NPV.0801.02	8	8.01	0.20	8.0	17.3	4.1	22	5.3	NHV 22/30			87.70	102		
NPV.0813.105	8	8.13	1.05	8.0	17.3	3.4	22	5.3	NHV 22/30	87.70	103				
NPV.0998.03	10	9.98	0.30	8.0	17.3	4.2	30	5.3	NHV 30					87.70	103
NPV.1001.03	10	10.01	0.30	8.0	17.3	4.2	30	5.3	NHV 30			87.70	103		
NPV.1013.105	10	10.13	1.05	10.9	20.2	4.2	40	5.3	NHV 38	87.70	104				
NPV.1197.03	12	11.97	0.30	10.9	20.2	5.7	40	5.3	NHV 38					96.83	104
NPV.1202.03	12	12.02	0.30	10.9	20.2	5.7	40	5.3	NHV 38			96.83	104		
NPV.1202.05	20	12.02	0.50	10.9	20.2	8.5	40	5.3	NHV 38			96.83	105		
NPV.1215.135	12	12.15	1.35	10.9	20.2	5.1	40	5.3	NHV 38	96.83	105				
NPV.1215.175	16	12.15	1.75	10.9	20.2	6.6	40	5.3	NHV 38	96.83	106				
NPV.1215.225	24	12.15	2.25	10.9	20.2	8.5	40	5.3	NHV 38	96.83	107				
NPV.1397.03	14	13.97	0.30	10.9	20.1	7.5	45	5.3	NHV 45					112.95	106
NPV.1402.03	14	14.02	0.30	10.9	20.1	7.5	45	5.3	NHV 45			112.95	106		
NPV.1597.03	16	15.97	0.30	10.9	20.1	7.5	45	5.3	NHV 45					112.95	107
NPV.1602.03	16	16.02	0.30	10.9	20.1	7.5	45	5.3	NHV 45			112.95	107		
NPV.1797.05	18	17.97	0.50	10.9	20.1	9.5	45	5.3	NHV 45					112.95	108
NPV.1802.05	18	18.02	0.50	10.9	20.1	9.5	45	5.3	NHV 45			112.95	108		
NPV.1997.05	20	19.97	0.50	10.9	20.1	10.0	45	5.3	NHV 45					112.95	109
NPV.2002.05	20	20.02	0.50	10.9	20.1	10.0	45	5.3	NHV 45			112.95	109		

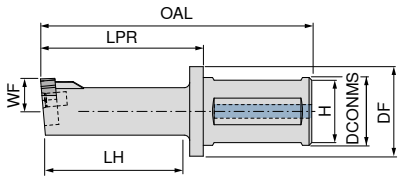
Tolerance **C 11** for 73 603, Tolerance **JS 9** for 73 604, Tolerance **P 9** for 73 605

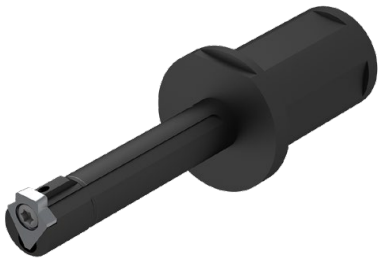
SlotCut – Toolholder for inserts

Scope of supply:

Tool holder with clamping screw, without insert







Designation	DCONMS mm	DMIN mm	DF mm	OAL mm	LH mm	LPR mm	H mm	WF mm	73 613 ... £ Y5	
NHV.15.1	25	15	33	75	25	35	23	8.4	506.89	**025**
NHV.15.2	25	15	33	90	40	50	23	8.4	555.83	**125**
NHV.15.3	25	15	33	110	60	70	23	8.4	633.61	**225**


Key D

80 950 ...


Clamping screw

73 950 ...

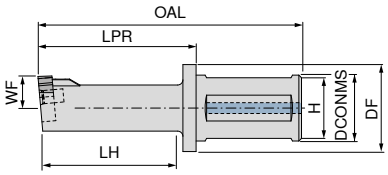
Spare parts DCONMS		80 950 ... £ Y7			73 950 ... £ Y5	
25	T15	16.32	**113**	M4x10	12.97	**029**

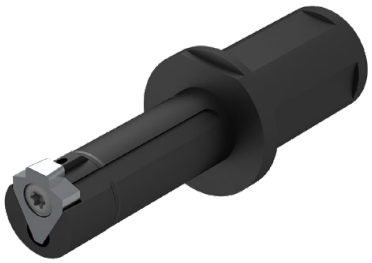
SlotCut – Toolholder for inserts

Scope of supply:

Tool holder with clamping screw, without insert







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Designation	DCONMS mm	DMIN mm	DF mm	OAL mm	LH mm	LPR mm	H mm	WF mm	73 611 ... £ Y5	
NHV.22	25	22	33	100	50	60	23	12.0	486.31	**025**
NHV.30	32	30	45	100	50	60	30	16.5	486.31	**032**
NHV.30	32	30	45	125	75	85	30	16.5	554.32	**532**
NHV.38	32	38	45	100	50	60	30	22.0	486.31	**132**
NHV.38	32	38	45	125	75	85	30	22.0	554.32	**632**
NHV.45	40	45	55	175	105	115	38	24.0	1,013.74	**140**
NHV.45	40	45	55	120	50	60	38	24.0	748.82	**040**
NHV.45	40	45	55	225	155	165	38	24.0	1,143.36	**240**


Key D

80 950 ...


Clamping screw

73 082 ...

Spare parts DCONMS		80 950 ... £ Y7			73 082 ... £ Y5	
25	T20	17.48	**114**	M5x13	10.00	**007**
32	T20	17.48	**114**	M5x13	10.00	**007**
40	T20	17.48	**114**	M5x13	10.00	**007**

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values

Index	UltraMini K10F uncoated	UltraMini TiN	UltraMini TiAlN	UltraMini DPX 57S	UltraMini TiAlN+	MiniCut CWX500	MiniCut CBN
	v_c in m/min						
P.1.1		**90**	**110**	110	110	**160**	
P.1.2		**80**	**100**	100	100	**140**	
P.1.3		**60**	**80**	80	80	**140**	
P.1.4		**60**	**80**	80	80	**110**	
P.1.5		**60**	**60**	60	60	**100**	
P.2.1		**60**	**80**	80	80	**110**	
P.2.2		**60**	**60**	60	60	**100**	
P.2.3		**50**	**60**	60	60	**90**	
P.2.4		**50**	**60**	60	60	**80**	
P.3.1		**50**	**60**	60	60	**80**	
P.3.2		**30**	**50**	**50**	50	**70**	
P.3.3		**30**	**30**	**30**	30	**50**	
P.4.1		**60**	**70**	**70**	70	**100**	
P.4.2		**50**	**60**	**60**	60	**90**	
M.1.1		**60**	**80**	**80**	80	**80**	
M.2.1		**50**	**60**	**60**	60	**70**	
M.3.1		**40**	**50**	**50**	50	**60**	
K.1.1		**80**	**100**	100	100	**90**	
K.1.2		**60**	**70**	70	70	**100**	
K.2.1		**60**	**60**	60	60	**80**	
K.2.2		**50**	**60**	60	60	**70**	
K.3.1		**80**	**100**	100	100	**120**	
K.3.2		**70**	**80**	80	80	**100**	
N.1.1	100	**200**	**230**	230	230	**290**	
N.1.2	100	**180**	**220**	220	220	**280**	
N.2.1	90	**160**	**190**	190	190	**240**	
N.2.2	70	**140**	**170**	170	170	**200**	
N.2.3	50	**80**	**100**	100	100	**120**	
N.3.1	80	**140**	**170**	170	170	**210**	
N.3.2	70	**120**	**140**	140	140	**180**	
N.3.3	50	**100**	**120**	120	120	**130**	
N.4.1	50	**100**	**120**	120	120	**100**	
S.1.1		30	**50**	50	50	**50**	
S.1.2		30	**30**	30	30	**30**	30
S.2.1		30	**50**	50	50	**50**	50
S.2.2		30	**30**	30	30	**40**	30
S.2.3			**30**	30	30	**30**	30
S.3.1		30	**50**	50	50	**50**	
S.3.2		20	**30**	30	30	**40**	
S.3.3			**20**	20	20	**30**	20
H.1.1		30	**40**	40	**40**	**50**	**40**
H.1.2			30	30	**30**	40	**30**
H.1.3				20	**30**		**30**
H.1.4							
H.2.1							
H.3.1		20	**30**	30	**30**	**40**	**30**
O.1.1	**50**	**90**	**110**	110	110	**150**	
O.1.2	**50**	**100**	**120**	120	120	**150**	
O.2.1		**90**	**110**	110	110	**130**	
O.2.2		**60**	**80**	80	80	**100**	
O.3.1	50	**100**	**120**	120	120	**150**	

	UltraMini	MiniCut
	f in mm/rev.	
Internal turning and profiling	0,02–0,05	0,03–0,10
Internal turning and profiling – hard turning	0,02–0,06	0,03–0,10
Turning and profile turning – super alloys	0,02–0,08	
Internal turning	0,02–0,05	0,01–0,03
Back boring	0,02–0,04	0,03–0,10
Turning and chamfering	0,01–0,03	0,03–0,10
Pre-parting and chamfering	0,01–0,02	0,01–0,03
Groove turning	0,01–0,02	0,01–0,03
Internal Undercuts	0,01–0,03	0,03–0,08
Groove and profile turning	0,01–0,02	0,01–0,03
Axial grooving	0,02–0,05	0,02–0,05

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values – 73 000 ... / 73 001 ...

		Roughing										
	UltraMini DPX77S	Ø ≤ 2 mm Corner radius in mm			Ø 2,5–4 mm Corner radius in mm				Ø ≥ 5 mm Corner radius in mm			
Index		0,05	0,1	0,15	0,05	0,1	0,15	0,2 / 0,4	0,05	0,1	0,15	0,2 / 0,4
	v_c in m/min	f in mm/rev.			f in mm/rev.				f in mm/rev.			
P.1.1	110	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.2	100	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.3	80	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.4	80	0,023–0,065	0,025–0,071	0,026–0,076	0,046–0,13	0,05–0,142	0,053–0,151	0,055–0,158	0,085–0,244	0,093–0,266	0,099–0,284	0,104–0,297
P.1.5	60	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
P.2.1	80	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
P.2.2	60	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
P.2.3	60	0,019–0,054	0,021–0,059	0,022–0,063	0,038–0,109	0,042–0,119	0,044–0,127	0,046–0,132	0,071–0,204	0,078–0,222	0,083–0,238	0,087–0,248
P.2.4	60	0,018–0,051	0,02–0,056	0,021–0,06	0,036–0,103	0,039–0,112	0,042–0,12	0,044–0,125	0,067–0,193	0,074–0,21	0,079–0,224	0,082–0,235
P.3.1	60	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
P.3.2	50	0,02–0,057	0,022–0,063	0,023–0,067	0,04–0,115	0,044–0,125	0,047–0,134	0,049–0,14	0,075–0,215	0,082–0,235	0,088–0,251	0,092–0,262
P.3.3	30	0,016–0,045	0,017–0,049	0,018–0,053	0,032–0,091	0,035–0,099	0,037–0,106	0,039–0,11	0,06–0,17	0,065–0,185	0,069–0,198	0,072–0,207
P.4.1	70	0,022–0,064	0,024–0,069	0,026–0,074	0,044–0,127	0,048–0,138	0,052–0,148	0,054–0,155	0,083–0,238	0,091–0,26	0,097–0,277	0,101–0,29
P.4.2	60	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
M.1.1	80	0,015–0,042	0,016–0,046	0,017–0,049	0,03–0,085	0,032–0,092	0,034–0,099	0,036–0,103	0,056–0,159	0,061–0,173	0,065–0,185	0,068–0,193
M.2.1	60	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
M.3.1	50	0,014–0,039	0,015–0,043	0,016–0,046	0,028–0,079	0,03–0,086	0,032–0,092	0,033–0,096	0,052–0,147	0,056–0,161	0,06–0,172	0,063–0,179
K.1.1	100	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
K.1.2	70	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
K.2.1	60	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
K.2.2	60	0,021–0,059	0,022–0,064	0,024–0,069	0,041–0,118	0,045–0,129	0,048–0,137	0,05–0,144	0,077–0,221	0,084–0,241	0,09–0,257	0,094–0,269
K.3.1	100	0,025–0,073	0,028–0,079	0,03–0,084	0,051–0,145	0,055–0,158	0,059–0,169	0,062–0,177	0,095–0,272	0,104–0,297	0,111–0,317	0,116–0,331
K.3.2	80	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
N.1.1	230	0,032–0,091	0,035–0,099	0,037–0,106	0,064–0,181	0,069–0,198	0,074–0,211	0,077–0,221	0,119–0,34	0,13–0,371	0,139–0,396	0,145–0,414
N.1.2	220	0,031–0,089	0,034–0,097	0,036–0,104	0,062–0,178	0,068–0,194	0,073–0,208	0,076–0,217	0,117–0,335	0,128–0,365	0,136–0,389	0,142–0,407
N.2.1	190	0,03–0,085	0,032–0,092	0,034–0,099	0,059–0,169	0,065–0,185	0,069–0,197	0,072–0,206	0,111–0,318	0,121–0,346	0,129–0,37	0,135–0,386
N.2.2	170	0,029–0,083	0,032–0,091	0,034–0,097	0,058–0,166	0,063–0,181	0,068–0,194	0,071–0,202	0,109–0,312	0,119–0,34	0,127–0,363	0,133–0,38
N.2.3	100	0,029–0,082	0,031–0,089	0,033–0,095	0,057–0,163	0,062–0,178	0,067–0,19	0,07–0,199	0,107–0,306	0,117–0,334	0,125–0,356	0,13–0,373
N.3.1	170	0,03–0,085	0,032–0,092	0,034–0,099	0,059–0,169	0,065–0,185	0,069–0,197	0,072–0,206	0,111–0,318	0,121–0,346	0,129–0,37	0,135–0,386
N.3.2	140	0,028–0,08	0,031–0,087	0,033–0,093	0,056–0,16	0,061–0,175	0,065–0,187	0,068–0,195	0,105–0,301	0,115–0,328	0,122–0,35	0,128–0,366
N.3.3	120	0,027–0,077	0,029–0,084	0,031–0,09	0,054–0,154	0,059–0,168	0,063–0,18	0,066–0,188	0,101–0,289	0,11–0,315	0,118–0,337	0,123–0,352
N.4.1	120	0,027–0,077	0,029–0,084	0,031–0,09	0,054–0,154	0,059–0,168	0,063–0,18	0,066–0,188	0,101–0,289	0,11–0,315	0,118–0,337	0,123–0,352
S.1.1	50	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
S.1.2	30	0,019–0,053	0,02–0,058	0,022–0,062	0,037–0,106	0,04–0,115	0,043–0,123	0,045–0,129	0,069–0,198	0,076–0,216	0,081–0,231	0,085–0,242
S.2.1	50	0,018–0,051	0,02–0,056	0,021–0,06	0,036–0,103	0,039–0,112	0,042–0,12	0,044–0,125	0,067–0,193	0,074–0,21	0,079–0,224	0,082–0,235
S.2.2	30	0,014–0,039	0,015–0,043	0,016–0,046	0,028–0,079	0,03–0,086	0,032–0,092	0,033–0,096	0,052–0,147	0,056–0,161	0,06–0,172	0,063–0,179
S.2.3	30	0,015–0,042	0,016–0,046	0,017–0,049	0,03–0,085	0,032–0,092	0,034–0,099	0,036–0,103	0,056–0,159	0,061–0,173	0,065–0,185	0,068–0,193
S.3.1	50	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
S.3.2	30	0,019–0,054	0,021–0,059	0,022–0,063	0,038–0,109	0,042–0,119	0,044–0,127	0,046–0,132	0,071–0,204	0,078–0,222	0,083–0,238	0,087–0,248
S.3.3	20	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
H.1.1	40	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
H.1.2	30	0,011–0,03	0,012–0,033	0,012–0,035	0,021–0,06	0,023–0,066	0,025–0,07	0,026–0,074	0,036–0,102	0,039–0,111	0,042–0,119	0,043–0,124
H.1.3												
H.1.4												
H.2.1	30	0,014–0,041	0,016–0,044	0,017–0,048	0,029–0,082	0,031–0,089	0,033–0,095	0,035–0,099	0,054–0,153	0,058–0,167	0,062–0,178	0,065–0,186
H.3.1	30	0,013–0,036	0,014–0,04	0,015–0,042	0,025–0,073	0,028–0,079	0,03–0,084	0,031–0,088	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166
O.1.1	110	0,031–0,089	0,034–0,097	0,036–0,104	0,062–0,178	0,068–0,194	0,073–0,208	0,076–0,217	0,117–0,335	0,128–0,365	0,136–0,389	0,142–0,407
O.1.2	120	0,028–0,079	0,03–0,086	0,032–0,092	0,055–0,157	0,06–0,171	0,064–0,183	0,067–0,191	0,103–0,295	0,112–0,321	0,12–0,343	0,126–0,359
O.2.1	110	0,017–0,05	0,019–0,054	0,02–0,058	0,035–0,1	0,038–0,109	0,041–0,116	0,043–0,121	0,065–0,187	0,071–0,204	0,076–0,218	0,08–0,228
O.2.2	80	0,017–0,048	0,018–0,053	0,02–0,056	0,034–0,097	0,037–0,105	0,039–0,113	0,041–0,118	0,064–0,181	0,069–0,198	0,074–0,211	0,077–0,221
O.3.1	120											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Index	Finishing												
	Ø ≤ 2 mm Corner radius in mm			Ø 2,5–4 mm Corner radius in mm					Ø ≥ 5 mm Corner radius in mm				
	0,05	0,1	0,15	0,05	0,1	0,15	0,2	0,4	0,05	0,1	0,15	0,2	0,4
	f in mm/rev.			f in mm/rev.					f in mm/rev.				
P.1.1	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.2	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.3	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.4	0,006–0,016	0,007–0,019	0,008–0,022	0,015–0,042	0,017–0,05	0,02–0,056	0,022–0,061	0,028–0,079	0,023–0,065	0,027–0,077	0,03–0,086	0,033–0,095	0,043–0,122
P.1.5	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
P.2.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
P.2.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
P.2.3	0,005–0,014	0,006–0,016	0,006–0,018	0,012–0,036	0,015–0,042	0,016–0,047	0,018–0,051	0,023–0,066	0,019–0,055	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102
P.2.4	0,005–0,013	0,005–0,015	0,006–0,017	0,012–0,034	0,014–0,039	0,015–0,044	0,017–0,049	0,022–0,063	0,018–0,052	0,021–0,061	0,024–0,068	0,026–0,075	0,034–0,097
P.3.1	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
P.3.2	0,005–0,014	0,006–0,017	0,007–0,019	0,013–0,038	0,015–0,044	0,017–0,049	0,019–0,054	0,025–0,07	0,02–0,058	0,024–0,068	0,027–0,076	0,029–0,084	0,038–0,108
P.3.3	0,004–0,011	0,005–0,013	0,005–0,015	0,01–0,03	0,012–0,035	0,014–0,039	0,015–0,043	0,019–0,055	0,016–0,046	0,019–0,053	0,021–0,06	0,023–0,066	0,03–0,085
P.4.1	0,006–0,016	0,007–0,019	0,007–0,021	0,015–0,041	0,017–0,049	0,019–0,055	0,021–0,06	0,027–0,078	0,022–0,064	0,026–0,075	0,029–0,084	0,032–0,092	0,042–0,119
P.4.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
M.1.1	0,004–0,011	0,004–0,012	0,005–0,014	0,01–0,028	0,011–0,032	0,013–0,036	0,014–0,04	0,018–0,052	0,015–0,043	0,017–0,05	0,02–0,056	0,022–0,062	0,028–0,08
M.2.1	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
M.3.1	0,003–0,01	0,004–0,012	0,005–0,013	0,009–0,026	0,011–0,03	0,012–0,034	0,013–0,037	0,017–0,048	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074
K.1.1	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
K.1.2	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
K.2.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
K.2.2	0,005–0,015	0,006–0,017	0,007–0,02	0,013–0,039	0,016–0,045	0,018–0,051	0,02–0,056	0,025–0,072	0,021–0,059	0,024–0,069	0,027–0,078	0,03–0,086	0,039–0,111
K.3.1	0,006–0,018	0,007–0,021	0,008–0,024	0,017–0,047	0,019–0,056	0,022–0,062	0,024–0,069	0,031–0,089	0,026–0,073	0,03–0,085	0,034–0,096	0,037–0,106	0,048–0,136
K.3.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
N.1.1	0,008–0,023	0,009–0,027	0,011–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.1.2	0,008–0,022	0,009–0,026	0,01–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.1	0,007–0,021	0,009–0,025	0,01–0,028	0,019–0,055	0,023–0,065	0,025–0,073	0,028–0,08	0,036–0,103	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.2	0,007–0,021	0,009–0,024	0,01–0,028	0,019–0,054	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.3	0,007–0,021	0,008–0,024	0,009–0,027	0,019–0,053	0,022–0,062	0,025–0,07	0,027–0,077	0,035–0,1	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.1	0,007–0,021	0,009–0,025	0,01–0,028	0,019–0,055	0,023–0,065	0,025–0,073	0,028–0,08	0,036–0,103	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.2	0,007–0,02	0,008–0,024	0,009–0,027	0,018–0,052	0,021–0,061	0,024–0,069	0,027–0,076	0,034–0,098	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.3	0,007–0,019	0,008–0,023	0,009–0,026	0,018–0,05	0,021–0,059	0,023–0,066	0,026–0,073	0,033–0,094	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.4.1	0,007–0,019	0,008–0,023	0,009–0,026	0,018–0,05	0,021–0,059	0,023–0,066	0,026–0,073	0,033–0,094	0,027–0,078	0,032–0,091	0,036–0,102	0,039–0,112	0,051–0,145
S.1.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
S.1.2	0,005–0,013	0,005–0,016	0,006–0,018	0,012–0,035	0,014–0,04	0,016–0,046	0,018–0,05	0,023–0,065	0,019–0,053	0,022–0,062	0,025–0,07	0,027–0,077	0,035–0,099
S.2.1	0,005–0,013	0,005–0,015	0,006–0,017	0,012–0,034	0,014–0,039	0,015–0,044	0,017–0,049	0,022–0,063	0,018–0,052	0,021–0,061	0,024–0,068	0,026–0,075	0,034–0,097
S.2.2	0,003–0,01	0,004–0,012	0,005–0,013	0,009–0,026	0,011–0,03	0,012–0,034	0,013–0,037	0,017–0,048	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074
S.2.3	0,004–0,011	0,004–0,012	0,005–0,014	0,01–0,028	0,011–0,032	0,013–0,036	0,014–0,04	0,018–0,052	0,015–0,043	0,017–0,05	0,02–0,056	0,022–0,062	0,028–0,08
S.3.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
S.3.2	0,005–0,014	0,006–0,016	0,006–0,018	0,012–0,036	0,015–0,042	0,016–0,047	0,018–0,051	0,023–0,066	0,019–0,055	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102
S.3.3	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
H.1.1	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
H.1.2	0,003–0,008	0,003–0,009	0,004–0,01	0,007–0,02	0,008–0,023	0,009–0,026	0,01–0,029	0,013–0,037	0,011–0,03	0,012–0,036	0,014–0,04	0,015–0,044	0,02–0,057
H.1.3													
H.1.4													
H.2.1	0,004–0,01	0,004–0,012	0,005–0,014	0,009–0,027	0,011–0,031	0,012–0,035	0,014–0,039	0,017–0,05	0,014–0,041	0,017–0,048	0,019–0,054	0,021–0,059	0,027–0,077
H.3.1	0,003–0,009	0,004–0,011	0,004–0,012	0,008–0,024	0,01–0,028	0,011–0,031	0,012–0,034	0,016–0,044	0,013–0,036	0,015–0,043	0,017–0,048	0,018–0,053	0,024–0,068
O.1.1	0,008–0,022	0,009–0,026	0,01–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
O.1.2	0,007–0,02	0,008–0,023	0,009–0,026	0,018–0,051	0,021–0,06	0,024–0,068	0,026–0,074	0,034–0,096	0,028–0,079	0,032–0,093	0,036–0,104	0,04–0,114	0,052–0,148
O.2.1	0,004–0,013	0,005–0,015	0,006–0,017	0,011–0,033	0,013–0,038	0,015–0,043	0,017–0,047	0,021–0,061	0,018–0,05	0,021–0,059	0,023–0,066	0,025–0,073	0,033–0,094
O.2.2	0,004–0,012	0,005–0,014	0,006–0,016	0,011–0,032	0,013–0,037	0,015–0,042	0,016–0,046	0,021–0,059	0,017–0,049	0,02–0,057	0,022–0,064	0,025–0,07	0,032–0,091
O.3.1													

12

Broaching – Recommendations for Correct Use

SlotCut

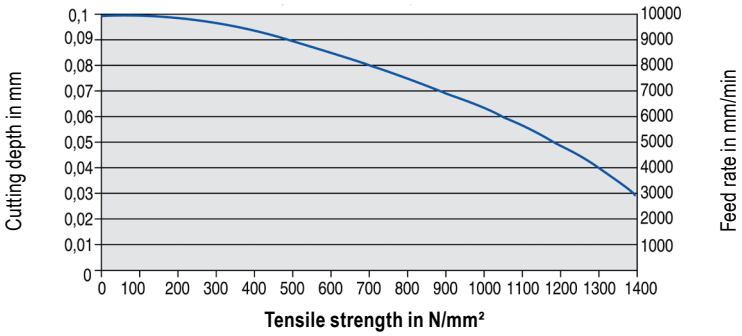
More and more often small and medium sized batch sizes are manufactured with precision grooves.

To directly machine such grooves in one set-up on one machine, it requires a special application of “Broaching” tools.

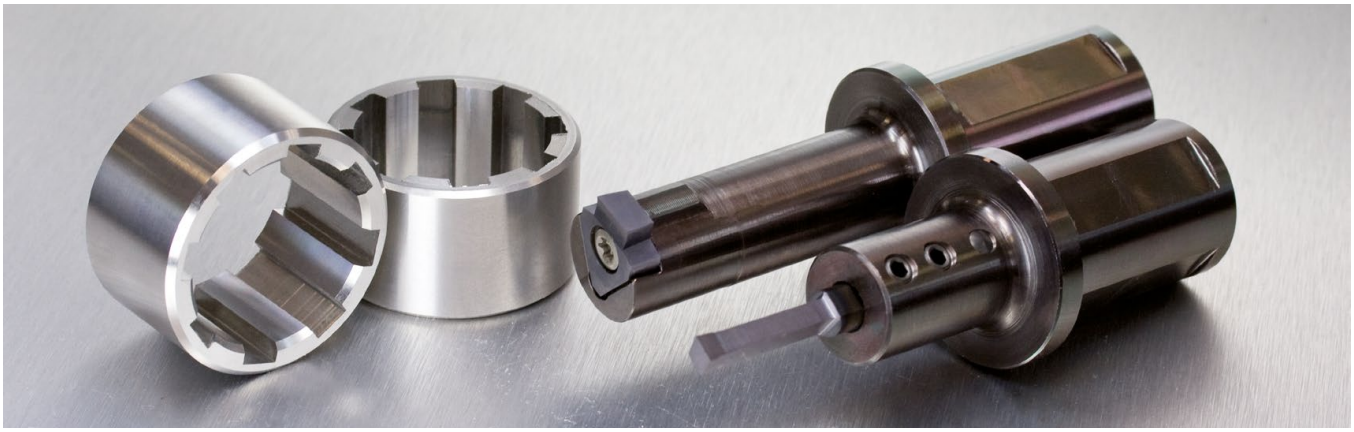
The SlotCut system can produce grooves with the most common groove tolerances.
To this end, there are four options. Two concepts are based on a solid carbide solution, which gives great success with small diameters.
For larger diameters, the concept with screw-on inserts is more suitable.

Broaching, on both lathes and machining centers is now economical, and provides highly accurate results in the shortest possible time.

Appoximate values when broaching



The data depends strongly on the conditions and represent only an appoximate value, factors such as machine stability, application and material may require adjustment of the data upward or downward.



Tips for the User

- ▲ Avoid interrupted cuts.
- ▲ Where possible, orientate the part so the groove is at the top, so the chips fall away!
- ▲ Ensure there is a relief at the end of the groove.
- ▲ Lift the tool out of the groove when retracting.
- ▲ Use coolant
  This will increase tool life and surface quality.
- ▲ Adjustment of the tool is essential, therefore the tool diameter must be considered.



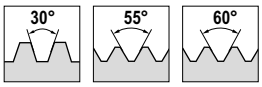
Coatings

TiAlN+	▲ TiAlN multilayer coating ▲ Maximum application temperature: 1000°C
TiN	▲ TiN coating ▲ Maximum application temperature: 450°C
TiAlN	▲ TiAlN multilayer coating ▲ Maximum application temperature: 900°C
CWX500	▲ Carbide, TiAlN-coated ▲ The universal carbide grade for almost all materials
DPX77S	▲ TiAlN+X-coating ▲ Maximum application temperature: 900°C
DPX57S	▲ TiCrN coating ▲ Maximum application temperature: 900°C

Thread types

M	Metric ISO standard thread
MF	Metric ISO fine thread
G	Whitworth thread
Tr	Metric ISO trapezoidal fine thread

Thread flank angle

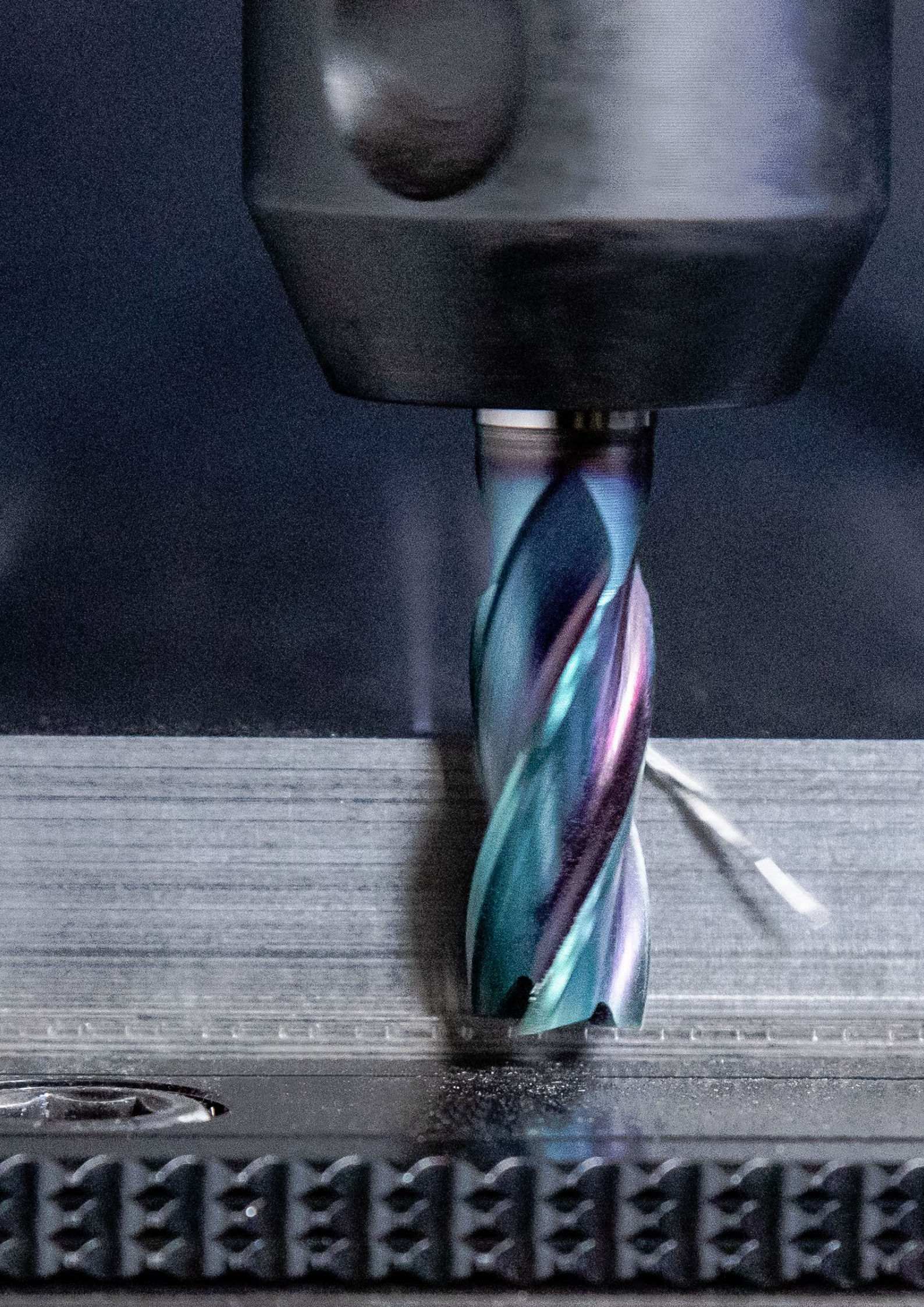


Cooling



with thro' coolant

12





Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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List of contents	6+7
Product programme	8–31
Technical Information:	
Cutting Data	32–40
Formula for cutting data calculation	40
Version description	41
Differences between the milling cutter types	41
Coating	41

WNT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Symbol explanation

Shank



Shank type



Length: extra short / short / medium / long / extra long

Cutting edge preparation



Sharp



Corner chamfer (CHW = chamfer width in mm)



Full Radius



Application



Machining example



The red arrows describe the possible feed directions



Cutting geometry
λ_s = helix angle
γ_s = rake angle

ZEFP = Number of flutes

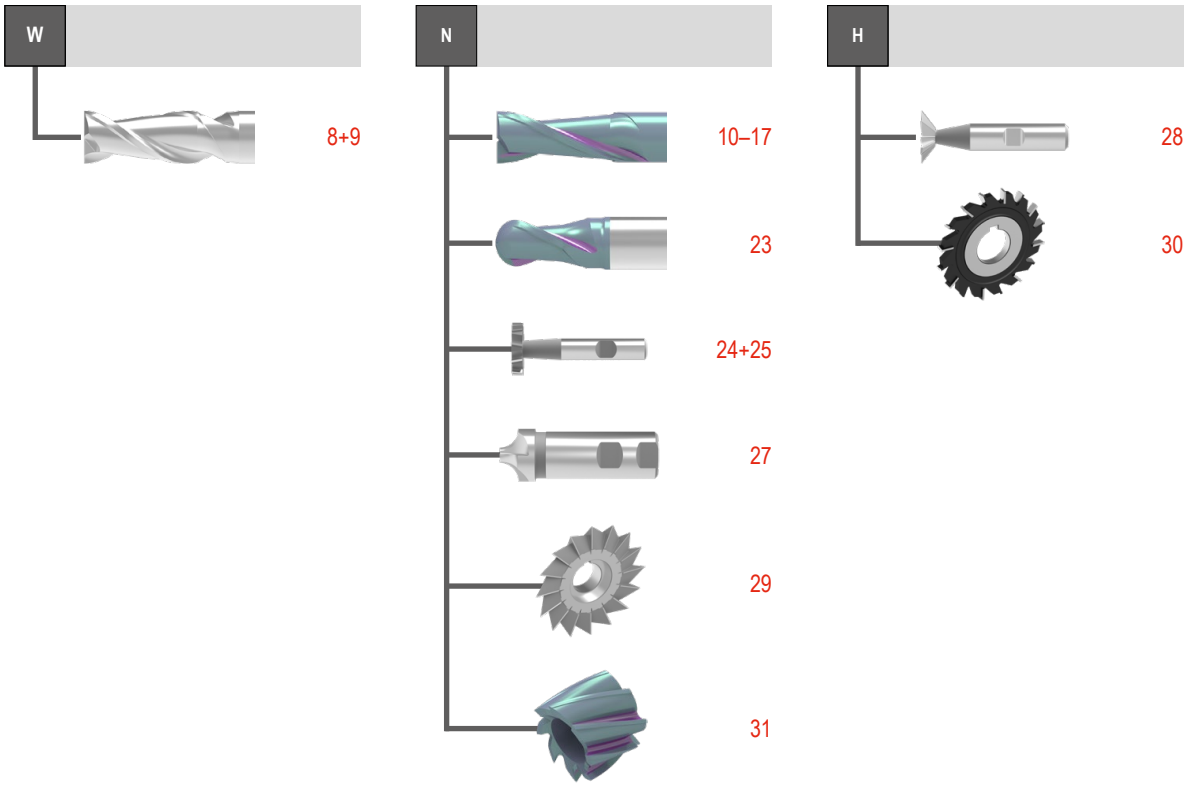
● = **Main Application**

○ = Extended application

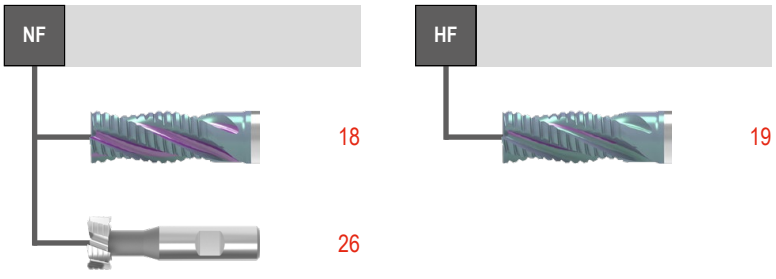
Toolfinder

softer — Material to machine — harder

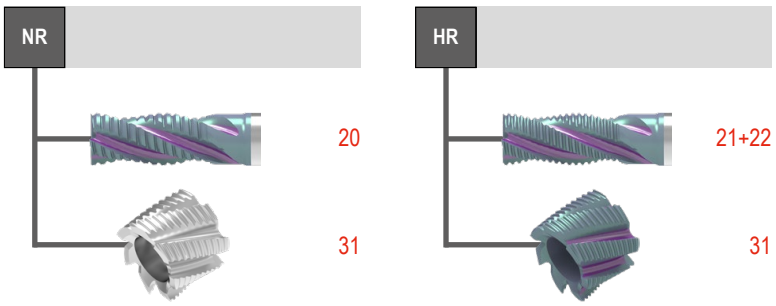
Finish milling



Rough and finish machining



Rough machining



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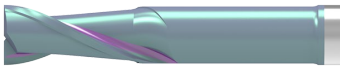
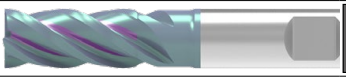
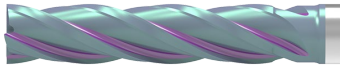
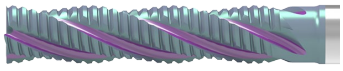
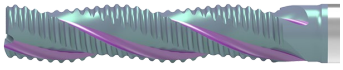
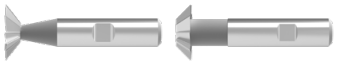
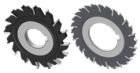
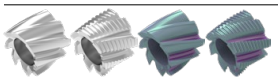
Overview HSS milling cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated	uncoated	WNT \ Performance
Finishing cutter																			
	W	2	2–20				●			●	■				▤	HSS-E		□	8
	W	3–4	2–32				●			●	■				▤	HSS-E		□	9
	N	2	1–26	●	●	●	○	○		○	■				▤	HSS-E	■	□	10+11
	N	3	1–10	●	●	●	○	○		○	■				▤	HSS-E	■	□	12
	N	3	1,8–22,0	●	●	●	○	○		○	■				▤	HSS-E	■		13+14
	N	4	4–20	○	●	○	●	●		●	■				▤	HSS-E	■	□	15
	N	4–8	2–50	●	●	●	○	○		○	■				▤	HSS-E	■	□	16+17
Rough and finish milling cutters																			
	NF	4	6–25	●	○	●	○	○		○	■				▤	HSS-E	■		18
	HF	4	6–20	●	○	●	○	○		○	■				▤	PM	■		19
Rough milling cutters																			
	NR	3	6–25	●	○	●	○	○		○		■			▤	HSS-E	■		20
	HR	4–6	6–32	●	●	●	○	○		○		■			▤	PM	■		21
	HR	3–6	4–32	●	●	●	○	○		○		■			▤	HSS-E	■		22
Ball nose end milling cutters																			
	N	2	2–30	●	○	●	○	○		○				◡	▤	HSS-E	■	□	23

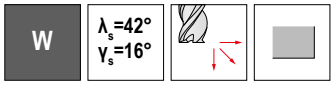
Overview HSS milling cutters

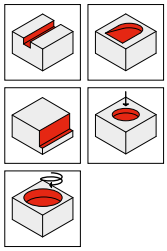
Form / Side and Face / Shell milling cutters

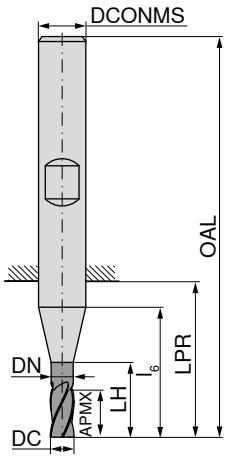
	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated	uncoated	WNT \ Performance
	N	6–10	11–60	●	○	●	○	○		○						HSS-E		☐	24
	N	6–12	10,5–45,5	●	○	●	○	○		○						HSS-E		☐	25
	NF	6–8	21–45	●	○	●	○	○		○						HSS-E		☐	26
	N	4–6	6–16	●	○	●	○	○		○						HSS-E		☐	27
	H	10	16–25	●	○	●	○	○		○						HSS-E		☐	28
	N	14–28	40–125	●	○	●	○	○		○						HSS-E		☐	29
	H	16–48	50–160	●	○	●	●	●		●						HSS-E		☐	30
		7–10	40–80	●	●	●	●	○		●						HSS-E	☐	☐	31

13

Slot milling cutter HSS-E Co 8











DIN 844



50 144 ...

DC e8 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ U6	
2.0	7		7	13	15	51	6	2	37.02	**020**
2.5	8		8	14	16	52	6	2	35.31	**025**
3.0	8		8	14	16	52	6	2	34.46	**030**
4.0	11		11	17	19	55	6	2	35.31	**040**
5.0	13		13	19	21	57	6	2	36.21	**050**
6.0	13		13	19	21	57	6	2	36.21	**060**
6.5	16	6.0	22	24	26	66	10	2	49.17	**065**
8.0	19	7.5	25	27	29	69	10	2	41.59	**080**
10.0	22	9.5	30	30	32	72	10	2	50.53	**100**
12.0	26	11.5	36	36	38	83	12	2	58.10	**120**
14.0	26	11.5	36	36	38	83	12	2	67.39	**140**
16.0	32	15.0	42	42	44	92	16	2	74.12	**160**
18.0	32	15.0	42	42	44	92	16	2	94.27	**180**
20.0	38	19.0	52	52	54	104	20	2	115.73	**200**

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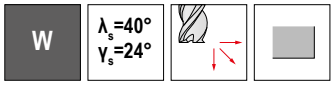
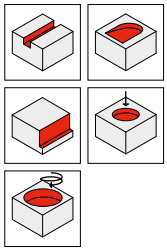
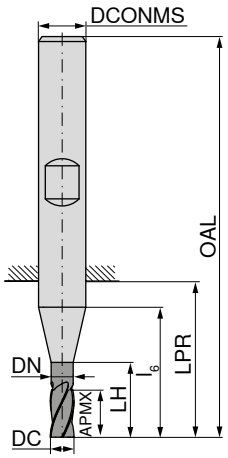
→ v_c/f_z Page 33–35

End milling cutter HSS-E Co 8















DIN 69844 | DIN 844





DC k10 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 120 ... £ U8		50 121 ... £ U8	
2	7		7	13	15	51	6	3	44.63	020		
3	8		8	14	16	52	6	3	34.84	030		
3	12		12	18	20	56	6	3			43.17	030
4	11		11	17	19	55	6	3	35.31	040		
4	19		19	25	27	63	6	3			42.89	040
5	13		13	19	21	57	6	3	35.95	050		
5	24		24	30	32	68	6	3			42.89	050
6	13	5.5	19	19	21	57	6	3	36.51	060		
6	24	5.5	30	30	32	68	6	3			44.48	060
7	16	6.5	22	24	26	66	10	3	38.38	070		
7	30	6.5	36	38	40	80	10	3			56.32	070
8	19	7.5	25	27	29	69	10	3	41.24	080		
8	38	7.5	44	46	48	88	10	3			47.86	080
9	19	8.5	26	27	29	69	10	3	43.93	090		
9	38	8.5	45	46	48	88	10	3			64.05	090
10	22	9.5	30	30	32	72	10	3	45.26	100		
10	45	9.5	53	53	55	95	10	3			52.82	100
12	26	11.5	36	36	38	83	12	3	50.53	120		
12	53	11.5	63	63	65	110	12	3			59.61	120
14	26	11.5	36	36	38	83	12	3	58.66	140		
14	53	11.5	63	63	65	110	12	3			68.29	140
16	32	15.0	42	42	44	92	16	3	59.23	160		
16	63	15.0	73	73	75	123	16	3			69.30	160
18	32	15.0	42	42	44	92	16	3	97.78	180		
18	63	15.0	73	73	75	123	16	3			119.98	180
20	38	19.0	52	52	54	104	20	3	96.37	200		
20	75	19.0	89	89	91	141	20	3			113.00	200
22	38	19.0	52	52	54	104	20	3	133.15	220		
22	75	19.0	89	89	91	141	20	3			156.18	220
24	90	23.0	106	108	110	166	25	3			214.80	240
25	45	24.0	63	45	65	121	25	4	173.98	250		
25	90	24.0	108	108	110	166	25	4			203.77	250
28	90	24.0	108	108	110	166	25	4			246.72	280
30	90	24.0	108	108	110	166	25	4			293.36	300
32	106	31.0	123	123	126	186	32	4			322.02	320

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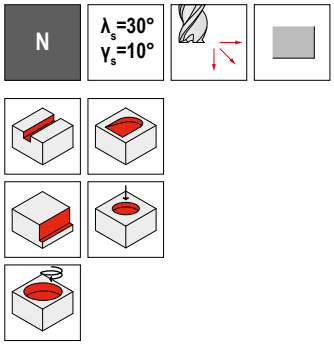
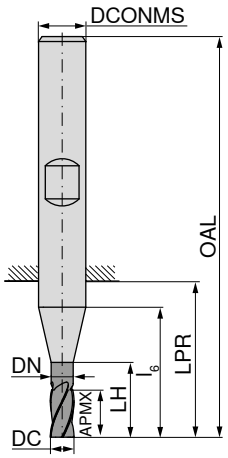
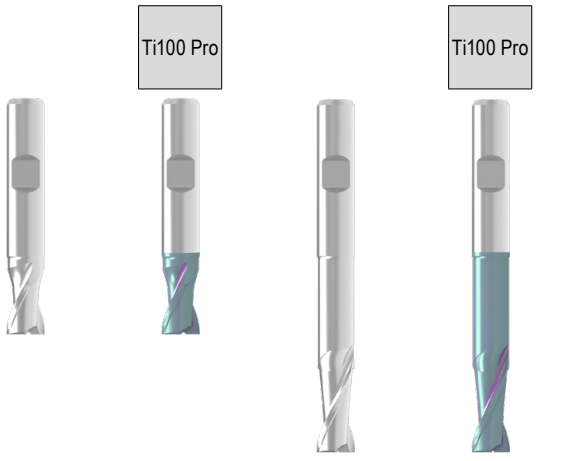
O	●	●

→ v_c/f_z Page 33–35

Slot milling cutter HSS-E Co 8







	DIN 327	DIN 327	Factory standard	Factory standard
	50 100 ...	**54 025 ...**	**50 122 ...**	**54 020 ...**

DC mm	DC Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U8		£ U8		£ U8		£ U8	
1.0	h10	2.5		2.5	9	11	47	6	2	30.98	**010** [1]	30.60	**010** [1]				
1.5	h10	3.0		3.0	9	11	47	6	2	29.25	**015** [1]	29.41	**015** [1]				
1.8	h10	4.0		4.0	10	12	48	6	2	20.82	**018**	38.72	**018**				
2.0	e8	4.0		4.0	10	12	48	6	2	18.20	**020**	34.31	**020**				
2.5	e8	5.0		5.0	11	13	49	6	2	18.20	**025**	34.31	**025**				
3.0	e8	5.0		5.0	11	13	49	6	2	18.20	**030**	27.73	**030**				
3.0	e8	8.0		8.0	18	20	56	6	2					29.31	**030**	54.20	**030**
3.5	h10	6.0		6.0	12	14	50	6	2	18.20	**035**	25.93	**035**				
4.0	e8	7.0		7.0	13	15	51	6	2	18.20	**040**	23.50	**040**				
4.0	e8	11.0		11.0	25	27	63	6	2					30.76	**040**	36.52	**040**
4.5	h10	7.0		7.0	13	15	51	6	2	20.73	**045**	25.93	**045**				
5.0	e8	8.0		8.0	14	16	52	6	2	18.62	**050**	26.45	**050**				
5.0	e8	13.0		13.0	30	32	68	6	2					30.76	**050**	36.52	**050**
5.5	h10	8.0		8.0	14	16	52	6	2	20.73	**055**	27.63	**055**				
6.0	e8	8.0	5.50	14.0	14	16	52	6	2	18.62	**060**	26.07	**060**				
6.0	e8	13.0	5.50	30.0	30	32	68	6	2					32.81	**060**	38.33	**060**
6.5	h10	10.0	6.00	16.0	18	20	60	10	2	24.89	**065**	33.96	**065**				
7.0	e8	10.0	6.50	16.0	18	20	60	10	2	23.94	**070**	33.96	**070**				
7.0	e8	16.0	6.35	36.0	38	40	80	10	2					41.59	**070**	48.52	**070**
7.5	h10	10.0	7.00	16.0	18	20	60	10	2	25.84	**075**	34.06	**075**				
8.0	e8	11.0	7.50	17.0	19	21	61	10	2	24.32	**080**	36.26	**080**				
8.0	e8	19.0	7.35	44.0	46	48	88	10	2					36.31	**080**	45.56	**080**
8.5	h10	11.0	8.00	18.0	19	21	61	10	2	31.37	**085**	38.33	**085**				
9.0	h10	11.0	8.50	18.0	19	21	61	10	2	28.94	**090**	54.31	**090**				
9.0	h10	19.0	8.35	45.0	46	48	88	10	2					45.26	**090**	74.42	**090**
9.5	h10	11.0	9.00	18.0	19	21	61	10	2	30.94	**095**	55.43	**095**				
10.0	e8	13.0	9.50	21.0	21	23	63	10	2	30.07	**100**	36.01	**100**				
10.0	e8	22.0	9.35	53.0	53	55	95	10	2					39.81	**100**	48.23	**100**
10.5	h10	13.0	10.00	21.0	23	25	70	12	2	54.77	**105**	57.93	**105**				
11.0	h10	13.0	10.50	21.0	23	25	70	12	2	40.26	**110**	52.38	**110**				
11.0	h10	22.0	10.50	53.0	55	57	102	12	2					51.86	**110**	58.30	**110**
11.5	h10	13.0	11.00	21.0	23	25	70	12	2	55.86	**115**	58.85	**115**				
12.0	e8	16.0	11.50	26.0	26	28	73	12	2	37.25	**120**	47.11	**120**				
12.0	e8	26.0	11.50	63.0	63	65	110	12	2					45.17	**120**	55.35	**120**
13.0	h10	16.0	11.50	26.0	26	28	73	12	2	63.39	**130**	74.95	**130**				
14.0	e8	16.0	11.50	26.0	26	28	73	12	2	46.44	**140**	62.84	**140**				
14.0	e8	26.0	11.50	63.0	63	65	110	12	2					56.98	**140**	74.31	**140**
15.0	h10	16.0	11.50	26.0	26	28	73	12	2	58.85	**150**	69.69	**150**				
15.0	h10	26.0	11.50	63.0	63	65	110	12	2					71.59	**150**	123.50	**150**
16.0	e8	19.0	15.00	29.0	29	31	79	16	2	57.12	**160**	67.62	**160**				
16.0	e8	32.0	15.00	73.0	73	75	123	16	2					68.20	**160**	82.29	**160**

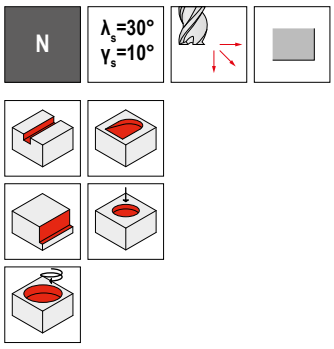
P	●	●	●	●
M	○	●	○	●
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

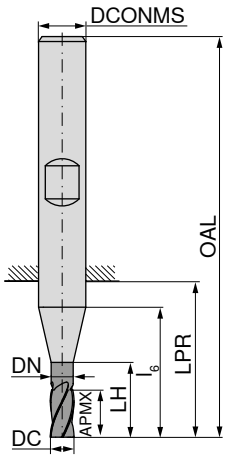
1) Factory standard

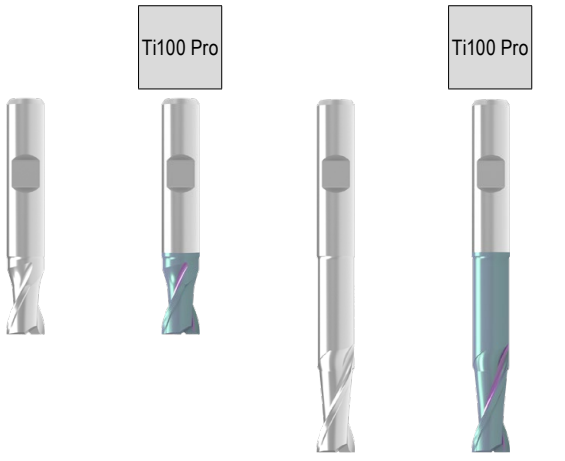
→ v_c/f_z Page 33–35

Continued on next page

Slot milling cutter HSS-E Co 8









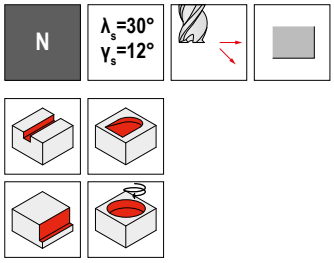
										DIN 327		DIN 327		Factory standard		Factory standard	
										50 100 ...		54 025 ...		50 122 ...		54 020 ...	
DC	DC Tol.	APMX	DN	LH	l_6	LPR	OAL	DCONMS $_{h6}$	ZEFP	£		£		£		£	
mm		mm	mm	mm	mm	mm	mm	mm		U8		U8		U8		U8	
17.0	h10	19.0	15.00	29.0	29	31	79	16	2	92.35	**170**	107.99	**170**				
18.0	e8	19.0	15.00	29.0	29	31	79	16	2	70.43	**180**	82.47	**180**				
18.0	e8	32.0	15.00	73.0	73	75	123	16	2					91.56	**180**	112.48	**180**
19.0	h10	19.0	15.00	29.0	29	31	79	16	2	108.94	**190**	115.35	**190**				
20.0	e8	22.0	19.00	36.0	36	38	88	20	2	81.88	**200**	99.35	**200**				
20.0	e8	38.0	19.00	89.0	89	91	141	20	2					89.77	**200**	114.40	**200**
22.0	e8	22.0	19.00	36.0	36	38	88	20	2	102.82	**220**	152.12	**220**				
24.0	e8	26.0	23.00	42.0	44	46	102	25	2	114.74	**240**	189.50	**240**				
25.0	e8	26.0	24.00	44.0	44	46	102	25	2	113.00	**250**	190.69	**250**				
26.0	h10	26.0	24.00	44.0	44	46	102	25	2	140.87	**260**	211.68	**260**				
P										●		●		●		●	
M										○		●		○		●	
K										●		●		●		●	
N										○		○		○		○	
S										○		○		○		○	
H																	
O										○		○		○		○	

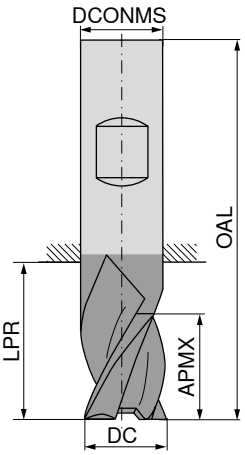
1) Factory standard

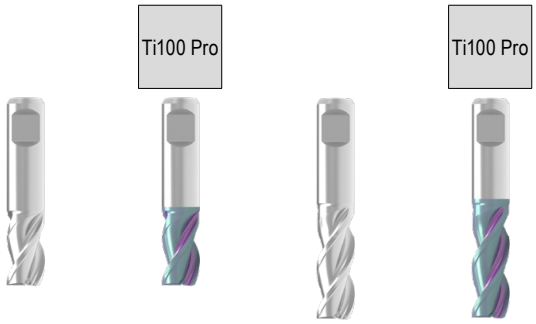
→ v_c/f_z Page 33–35

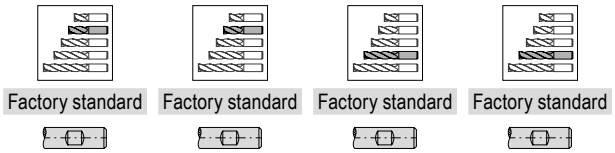
Throw-away milling cutter, HSS-E Co 8

▲ Shank similar to DIN 1835 B









Factory standard | Factory standard | Factory standard | Factory standard

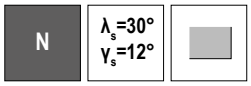
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 092 ... £ U6		54 014 ... £ U8		50 093 ... £ U6		54 042 ... £ U8	
1.00	2	8	34	6	3	16.12	010	20.73	010				
1.50	3	8	34	6	3	16.12	015	20.73	015				
1.50	4	10	35	6	3					18.56	015 1)	22.92	015 1)
1.80	3	8	34	6	3	16.12	018	20.73	018				
2.00	4	9	35	6	3	16.12	020	20.73	020				
2.00	7	12	38	6	3					18.56	020 1)	22.92	020
2.30	4	9	35	6	3	16.12	023	20.73	023				
2.50	5	10	36	6	3	16.12	025	20.73	025				
2.50	8	13	39	6	3					18.56	025 1)	22.92	025
2.80	5	10	36	6	3	16.12	028	20.73	028				
3.00	5	10	36	6	3	16.12	030	20.73	030				
3.00	8	13	39	6	3					18.56	030 1)	22.92	030
3.30	6	11	37	6	3	16.12	033	20.73	033				
3.50	6	11	37	6	3	16.12	035	20.73	035				
3.50	10	15	41	6	3					18.56	035 1)	22.92	035
3.80	7	12	38	6	3	16.12	038	20.73	038				
4.00	7	12	38	6	3	16.12	040	20.73	040				
4.00	11	16	42	6	3					18.56	040 1)	22.92	040
4.30	7	12	38	6	3	16.12	043	20.73	043				
4.50	7	12	38	6	3	16.12	045	20.73	045				
4.50	11	16	42	6	3					18.56	045 1)	22.92	045
4.80	8	13	39	6	3	16.12	048	20.73	048				
5.00	8	13	39	6	3	16.12	050	20.73	050				
5.00	13	18	44	6	3					18.56	050 1)	22.92	050
5.30	8	13	39	6	3	16.12	053	20.73	053				
5.50	8	13	39	6	3	16.12	055	20.73	055				
5.50	13	18	44	6	3					18.56	055 1)	22.92	055
5.75	8	13	39	6	3	16.12	057	20.73	057				
6.00	8	13	39	6	3	16.12	060	20.73	060				
6.00	13	18	44	6	3					18.56	060 1)	22.92	060
6.50	10	14	42	8	3	18.67	065	27.32	065				
6.50	16	20	48	8	3					22.26	065 1)	30.40	065
7.00	10	14	42	8	3	18.67	070	27.32	070				
7.00	16	20	48	8	3					22.26	070 1)	30.40	070
7.50	10	14	42	8	3	18.67	075	27.32	075				
7.50	16	20	48	8	3					22.26	075 1)	30.40	075
8.00	11	15	43	8	3	18.67	080	27.32	080				
8.00	19	23	51	8	3					22.26	080 1)	30.40	080
8.50	11	16	48	10	3	24.17	085	32.24	085				
8.50	19	24	56	10	3					27.98	085 1)	34.48	085
9.00	11	16	48	10	3	24.17	090	32.24	090				
9.00	19	24	56	10	3					27.98	090 1)	34.48	090
9.50	11	16	48	10	3	24.17	095	32.24	095				
9.50	19	24	56	10	3					27.98	095 1)	34.48	095
10.00	13	18	50	10	3	24.17	100	32.24	100				
10.00	22	27	59	10	3					27.98	100 1)	34.48	100
P						●		●		●		●	
M						○		●		○		●	
K						●		●		●		●	
N						○		○		○		○	
S						○		○		○		○	
H													
O						○		○		○		○	

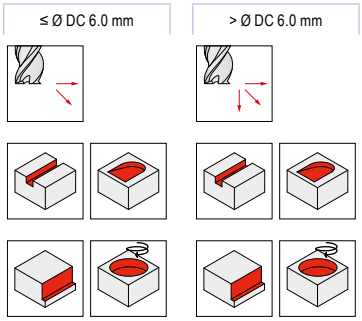
1) Shank tolerance -0,025 / -0,0323

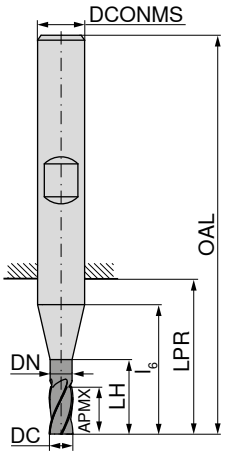
→ v_c/f_z Page 33–35

End milling cutter HSS-E Co 8

▲ ≤ Ø DC 6 mm, 3 cutting edges to centre















DIN 327 | DIN 844 K





DC mm	DC Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS mm	ZEFP	54 021 ... £ U8		54 016 ... £ U8	
1.8	h10	4		4	10	12	48	6	3	33.28	018		
2.0	e8	4		4	10	12	48	6	3	29.54	020		
2.5	e8	5		5	11	13	49	6	3	29.54	025		
3.0	e8	5		5	11	13	49	6	3	29.54	030		
3.0	e8	8		8	14	16	52	6	3			35.74	030
3.5	h10	6		6	12	14	50	6	3	34.59	035		
3.5	h10	10		10	16	18	54	6	3			42.98	035
4.0	e8	7		7	13	15	51	6	3	29.54	040		
4.0	e8	11		11	17	19	55	6	3			26.58	040
4.5	h10	7		7	13	15	51	6	3	34.59	045		
4.5	h10	11		11	17	19	55	6	3			30.09	045
5.0	e8	8		8	14	16	52	6	3	29.54	050		
5.0	e8	13		13	19	21	57	6	3			26.58	050
5.5	h10	8		8	14	16	52	6	3	34.59	055		
5.5	h10	13		13	19	21	57	6	3			30.09	055
6.0	e8	8	5.5	14	14	16	52	6	3	29.54	060		
6.0	e8	13	5.5	19	19	21	57	6	3			26.58	060
6.5	h10	10	6.0	16	18	20	60	10	3	41.57	065		
6.5	h10	16	6.0	22	24	26	66	10	3			55.35	065
7.0	e8	10	6.5	16	18	20	60	10	3	45.69	070		
7.0	e8	16	6.5	22	24	26	66	10	3			55.35	070
7.5	h10	10	7.0	16	18	20	60	10	3	48.23	075		
7.5	h10	16	7.0	22	24	26	66	10	3			56.25	075
8.0	e8	11	7.5	17	19	21	61	10	3	45.26	080		
8.0	e8	19	7.5	25	27	29	69	10	3			37.83	080
8.5	h10	11	8.0	18	19	21	61	10	3	48.23	085		
8.5	h10	19	8.0	26	27	29	69	10	3			63.22	085
9.0	h10	11	8.5	18	19	21	61	10	3	48.23	090		
9.0	h10	19	8.5	26	27	29	69	10	3			54.44	090
9.5	h10	11	9.0	18	19	21	61	10	3	48.23	095		
9.5	h10	19	9.0	26	27	29	69	10	3			53.37	095
10.0	e8	13	9.5	21	21	23	63	10	3	45.17	100		
10.0	e8	22	9.5	30	30	32	72	10	3			39.10	100
10.5	h10	13	10.0	21	23	25	70	12	3	61.82	105		
11.0	h10	13	10.5	21	23	25	70	12	3	50.06	110		
11.0	h10	22	10.5	30	32	34	79	12	3			62.84	110
11.5	h10	13	11.0	21	23	25	70	12	3	61.82	115		
11.5	h10	22	11.0	30	32	34	79	12	3			75.21	115
12.0	e8	16	11.5	26	26	28	73	12	3	51.86	120		
12.0	e8	26	11.5	36	36	38	83	12	3			43.61	120

P	●	●
M	●	●
K	●	●
N	○	○
S	○	○
H		
O	○	○

→ v_c/f_z Page 33–35

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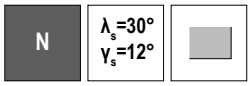
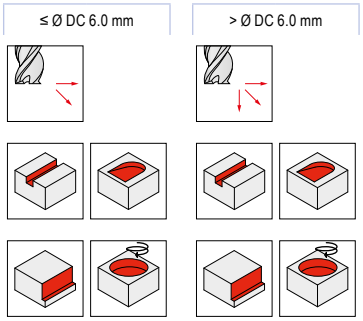
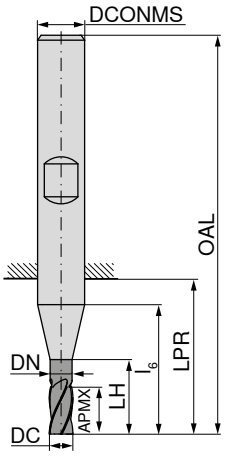
Continued on next page

End milling cutter HSS-E Co 8

▲ ≤ Ø DC 6 mm, 3 cutting edges to centre















DIN 327 | DIN 844 K

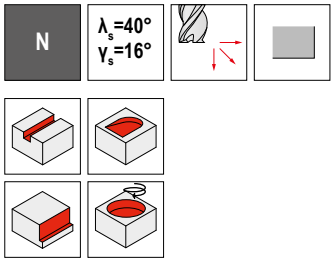


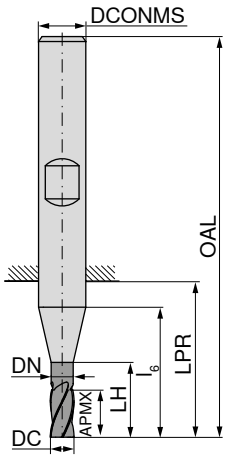


DC mm	DC Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS mm	ZEFP	54 021 ... £ U8		54 016 ... £ U8	
13.0	h10	16	11.5	26	26	28	73	12	3	69.93	**130**		
13.0	h10	26	11.5	36	36	38	83	12	3			87.34	**130**
14.0	e8	16	11.5	26	26	28	73	12	3	63.10	**140**		
14.0	e8	26	11.5	36	36	38	83	12	3			53.17	**140**
15.0	h10	16	11.5	26	26	28	73	12	3	82.70	**150**		
15.0	h10	26	11.5	36	36	38	83	12	3			90.97	**150**
15.5	h10	32	15.0	42	42	44	92	16	3			104.89	**155**
16.0	e8	19	15.0	29	29	31	79	16	3	87.44	**160**		
16.0	e8	32	15.0	42	42	44	92	16	3			77.42	**160**
17.0	h10	19	15.0	29	29	31	79	16	3	111.07	**170**		
17.0	h10	32	15.0	42	42	44	92	16	3			139.83	**170**
18.0	e8	19	15.0	29	29	31	79	16	3	99.09	**180**		
18.0	e8	32	15.0	42	42	44	92	16	3			90.05	**180**
19.0	h10	19	15.0	29	29	31	79	16	3	125.40	**190**		
19.0	h10	32	15.0	42	42	44	92	16	3			146.04	**190**
19.5	h10	38	19.0	52	52	54	104	20	3			164.64	**195**
20.0	e8	22	19.0	36	36	38	88	20	3	115.35	**200**		
20.0	e8	38	19.0	52	52	54	104	20	3			93.79	**200**
22.0	e8	38	19.0	52	52	54	104	20	3			201.73	**220**
P										●		●	
M										●		●	
K										●		●	
N										○		○	
S										○		○	
H													
O										○		○	

→ v_c/f_z Page 33–35

End milling cutter HSS-E Co 8













Factory standard





DIN 844





DIN 844



DC mm	DC Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	54 017 ... £ U8		50 124 ... £ U8		54 011 ... £ U8	
4	k10	11		11	17	19	55	6	4			39.31	**040**	49.48	**040**
5	k10	13		13	19	21	57	6	4			39.31	**050**	51.72	**050**
6	e8	8	5.5	14	14	16	52	6	4	23.99	**060**				
6	k10	13	5.5	19	19	21	57	6	4			42.79	**060**	53.10	**060**
8	e8	11	7.5	17	19	21	61	10	4	32.78	**080**				
8	k10	19	7.5	25	27	29	69	10	4			47.22	**080**	63.47	**080**
10	e8	13	9.5	21	21	23	63	10	4	33.80	**100**				
10	k10	22	9.5	30	30	32	72	10	4			51.69	**100**	63.47	**100**
12	e8	16	11.5	26	26	28	73	12	4	41.02	**120**				
12	k10	26	11.5	36	36	38	83	12	4			59.44	**120**	83.21	**120**
14	e8	16	11.5	26	26	28	73	12	4	56.65	**140**				
14	k10	26	11.5	36	36	38	83	12	4			78.88	**140**	113.41	**140**
15	k10	26	11.5	36	36	38	83	12	4			85.35	**150**		
16	e8	19	15.0	29	29	31	79	16	4	59.10	**160**				
16	k10	32	15.0	42	42	44	92	16	4			80.68	**160**	116.31	**160**
20	e8	22	19.0	36	36	38	88	20	4	82.70	**200**				
20	k10	38	19.0	52	52	54	104	20	4			125.64	**200**	168.17	**200**
P										○		○		○	
M										●		●		●	
K										○		○		○	
N										●		●		●	
S										●		●		●	
H															
O										●		●		●	

→ v_c/f_z Page 33–35

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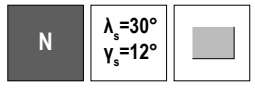
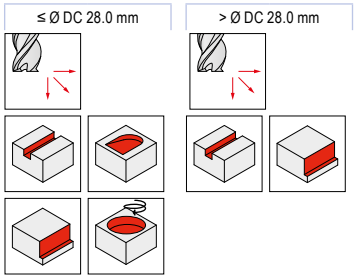
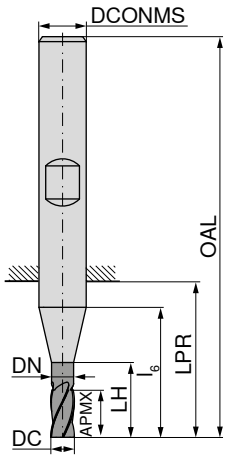
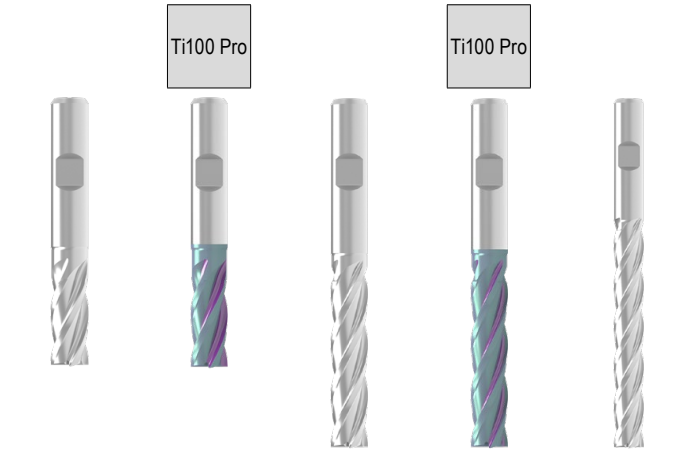
End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre









	DIN 69844	DIN 69844	DIN 844	DIN 844	Factory standard
	50 110 ...	54 018 ...	50 111 ...	54 019 ...	50 104 ...
DC mm	£ U8	£ U8	£ U8	£ U8	£ U6
2.0	20.73 020	29.83 020			
2.5	20.73 025	29.83 025			
3.0	20.73 030	29.83 030			
3.0			34.27 030	39.49 030	
4.0	20.73 040	29.50 040			
4.0			35.21 040	40.00 040	
5.0	20.73 050	29.50 050			
5.0			30.94 050	40.00 050	
6.0	20.73 060	29.99 060			
6.0			30.94 060	37.41 060	
6.0					73.08 060
7.0	26.40 070	37.07 070			
8.0	25.62 080	41.56 080			
8.0			45.11 080	52.50 080	
8.0					86.73 080
9.0	28.87 090	49.94 090			
10.0	28.87 100	43.85 100			
10.0			45.11 100	56.13 100	
10.0					104.51 100
11.0	42.95 110	49.79 110			
12.0	39.67 120	47.79 120			
12.0			59.71 120	61.16 120	
12.0					113.41 120
13.0	56.32 130	68.22 130			
14.0	50.91 140	56.18 140			
14.0			68.75 140	72.39 140	
14.0					137.97 140
15.0	59.23 150	70.86 150			
15.0			62.15 150	98.53 150	
16.0	56.32 160	79.25 160			
16.0			83.51 160	98.15 160	
16.0					150.22 160
18.0	76.26 180	91.00 180			
18.0			102.29 180	118.31 180	
18.0					210.96 180
20.0	84.00 200	99.88 200			
20.0			99.67 200	133.15 200	
20.0					217.51 200

DC mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS mm	ZEFP
2.0	7		7	13	15	51	6	4
2.5	8		8	14	16	52	6	4
3.0	8		8	14	16	52	6	4
3.0	12		12	18	20	56	6	4
4.0	11		11	17	19	55	6	4
4.0	19		19	25	27	63	6	4
5.0	13		13	19	21	57	6	4
5.0	24		24	30	32	68	6	4
6.0	13	5.5	19	19	21	57	6	4
6.0	24	5.5	30	30	32	68	6	4
6.0	56	5.5	62	62	64	100	6	4
7.0	16	6.5	22	24	26	66	10	4
8.0	19	7.5	25	27	29	69	10	4
8.0	38	7.5	44	46	48	88	10	4
8.0	70	7.5	73	73	75	115	10	4
9.0	19	8.5	26	27	29	69	10	4
10.0	22	9.5	30	30	32	72	10	4
10.0	45	9.5	53	53	55	95	10	4
10.0	75	9.5	79	79	81	121	10	4
11.0	22	10.5	30	32	34	79	12	4
12.0	26	11.5	36	36	38	83	12	4
12.0	53	11.5	63	63	65	110	12	4
12.0	85		85	85	85	130	12	4
13.0	26	11.5	36	36	38	83	12	4
14.0	26	11.5	36	36	38	83	12	4
14.0	53	11.5	63	63	65	110	12	4
14.0	85		85	85	85	130	12	4
15.0	26	11.5	36	36	38	83	12	4
15.0	53	11.5	63	63	65	110	12	4
16.0	32	15.0	42	42	44	92	16	4
16.0	63	15.0	73	73	75	123	16	4
16.0	90	15.0	95	95	97	145	16	4
18.0	32	15.0	42	42	44	92	16	4
18.0	63	15.0	73	73	75	123	16	4
18.0	100	15.0	110	110	112	160	16	5
20.0	38	19.0	52	52	54	104	20	4
20.0	75	19.0	89	89	91	141	20	4
20.0	110	19.0	128	128	130	180	20	5

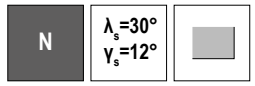
P	●	●	●	●	●
M	○	●	○	●	○
K	●	●	●	●	●
N	○	○	○	○	○
S	○	○	○	○	○
H					
O	○	○	○	○	○

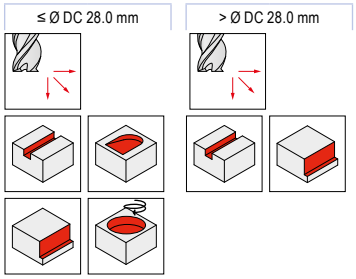
→ v_c/f_z Page 33–35

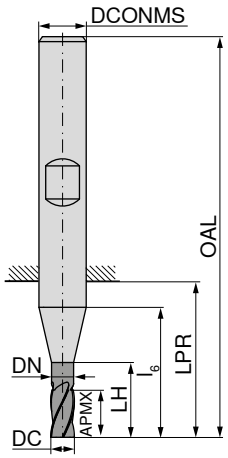
Continued on next page

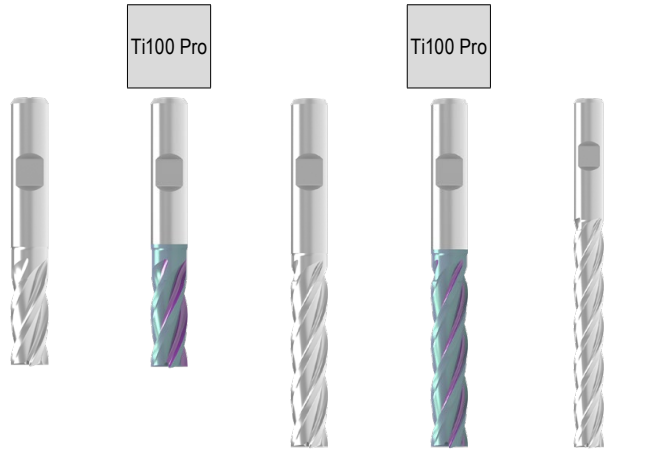
End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre









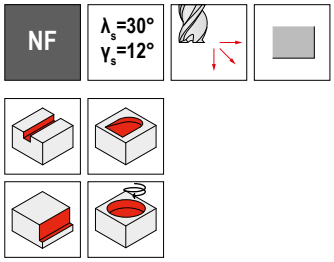
	DIN 69844	DIN 69844	DIN 844	DIN 844	Factory standard
	50 110 ...	54 018 ...	50 111 ...	54 019 ...	50 104 ...
DC mm	£ U8	£ U8	£ U8	£ U8	£ U6
22.0	99.67 220	124.91 220			
22.0			130.45 220	191.58 220	
22.0					277.64 220
25.0	124.99 250	153.61 250			
25.0			163.32 250	266.93 250	
25.0					284.21 250
28.0	131.40 280	173.52 280			
28.0			202.65 280	315.69 280	
28.0					391.84 280
30.0	194.29 300	251.00 300			
30.0			226.78 300	345.86 300	
32.0		199.26 320			
32.0	194.29 320				
32.0			239.03 320	380.93 320	
32.0					472.94 320
40.0	324.17 400	393.39 400			
40.0			432.29 400	469.84 400	
40.0					795.67 400
50.0			1,039.78 500	1,004.29 500	

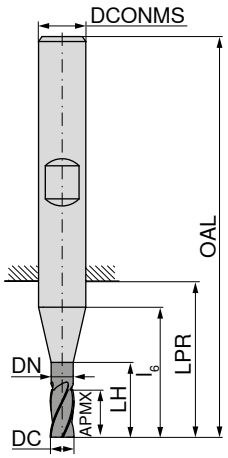
DC mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS mm	ZEFP
22.0	38	19.0	52	52	54	104	20	5
22.0	75	19.0	89	89	91	141	20	5
22.0	110	19.0	128	128	130	180	20	5
25.0	45	24.0	63	63	65	121	25	5
25.0	90	24.0	108	108	110	166	25	5
25.0	125	24.0	142	142	144	200	25	6
28.0	45	24.0	63	63	65	121	25	5
28.0	90	24.0	108	108	110	166	25	5
28.0	140	24.0	147	147	149	205	25	6
30.0	45	24.0	63	63	65	121	25	5
30.0	90	24.0	108	108	110	166	25	5
32.0	53	31.0	70	70	73	133	32	5
32.0	53	31.0	70	70	73	133	32	6
32.0	106	31.0	123	123	126	186	32	6
32.0	160	31.0	167	167	170	230	32	6
40.0	63	38.0	80	80	85	155	40	6
40.0	125	38.0	142	142	147	217	40	6
40.0	180	31.0	197	197	200	260	32	8
50.0	150	48.0	172	172	172	252	50	8

P	●	●	●	●	●
M	○	●	○	●	○
K	●	●	●	●	●
N	○	○	○	○	○
S	○	○	○	○	○
H					
O	○	○	○	○	○

→ v_c/f_z Page 33–35

Roughing-finishing milling cutter HSS-E Co 5













DIN 69844 | DIN 844



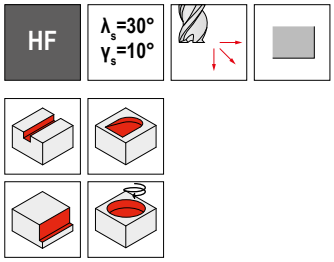


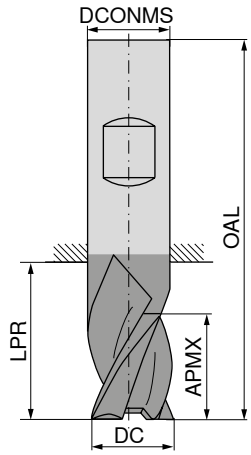
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 028 ... £ U8		54 029 ... £ U8	
6	13	5.5	19	19	21	57	6	4	43.97	060		
6	24	5.5	30	30	32	68	6	4			62.21	060
7	16	6.5	22	24	26	66	10	4	56.13	070		
8	19	7.5	25	27	29	69	10	4	53.80	080		
8	38	7.5	44	46	48	88	10	4			85.42	080
9	19	8.5	26	27	29	69	10	4	65.43	090		
10	22	9.5	30	30	32	72	10	4	61.30	100		
10	45	9.5	53	53	55	95	10	4			89.43	100
11	22	10.5	30	32	32	79	12	4	75.47	110		
11	45	10.5	53	55	57	102	12	4			107.99	110
12	26	11.5	36	36	38	83	12	4	68.41	120		
12	53	11.5	63	63	65	110	12	4			97.55	120
13	26	11.5	36	36	38	83	12	4	85.28	130		
14	26	11.5	36	36	38	83	12	4	78.07	140		
16	32	15.0	42	42	44	92	16	4	100.63	160		
16	63	15.0	73	73	75	123	16	4			141.65	160
18	32	15.0	42	42	44	92	16	4	124.63	180		
20	38	19.0	52	52	54	104	20	4	134.44	200		
20	75	19.0	89	89	91	141	20	4			185.74	200
22	38	19.0	52	52	54	104	20	4	167.04	220		
22	75	19.0	89	89	91	141	20	4			334.38	220
25	45	24.0	63	63	65	121	25	4	205.52	250		
25	90	24.0	108	108	110	166	25	4			362.23	250
P									●		●	
M									○		○	
K									●		●	
N									○		○	
S									○		○	
H												
O									○		○	

→ v_c/f_z Page 33–35

Powdersteel roughing finishing cutter

HF | λ_s=30° γ_s=10°





Ti100 Pro





DIN 844



54 034 ...

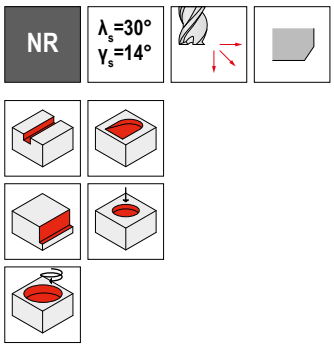
DC $_{k12}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U8	
6	13	21	57	6	4	51.44	**060**
8	19	29	69	10	4	70.09	**080**
10	22	32	72	10	4	72.99	**100**
12	26	38	83	12	4	80.62	**120**
16	32	44	92	16	4	121.78	**160**
20	38	54	104	20	4	154.15	**200**

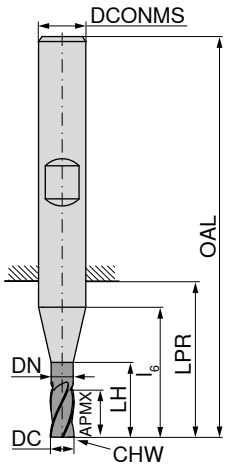
P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c/f_z Page 33–35

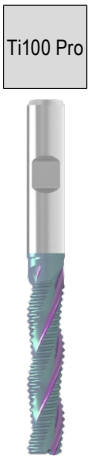
13

Rough milling cutter HSS-E Co 8













DIN 69844

DIN 844



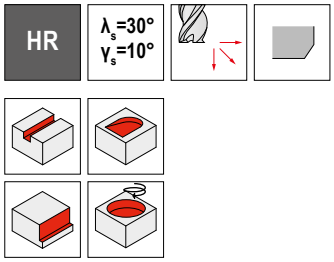


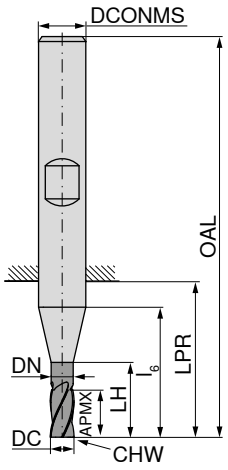
DC k12 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	54 026 ... £ U8		54 027 ... £ U8	
6	13	5.5	19	19	21	57	6	0.5	3	53.29	**060**		
6	24	5.5	30	30	32	68	6	0.5	3			64.25	**060**
8	19	7.5	25	27	29	69	10	0.7	3	67.99	**080**		
8	38	7.5	44	46	48	88	10	0.7	3			83.72	**080**
10	22	9.5	30	30	32	72	10	0.7	3	68.76	**100**		
10	45	9.5	53	53	55	95	10	0.7	3			87.99	**100**
12	26	11.5	36	36	38	83	12	0.7	3	82.95	**120**		
12	53	11.5	63	63	65	110	12	0.7	3			100.50	**120**
14	26	11.5	36	36	38	83	12	0.9	3	88.12	**140**		
14	53	11.5	63	63	65	110	12	0.9	3			113.25	**140**
16	32	15.0	42	42	44	92	16	0.9	3	117.66	**160**		
16	63	15.0	73	73	75	123	16	0.9	3			153.02	**160**
18	32	15.0	42	42	44	92	16	0.9	3	135.23	**180**		
18	63	15.0	73	73	75	123	16	0.9	3			167.58	**180**
20	38	19.0	52	52	54	104	20	0.9	3	159.46	**200**		
20	75	19.0	89	89	91	141	20	0.9	3			195.44	**200**
25	45	24.0	63	63	65	121	25	0.9	3	232.33	**250**		
25	90	24.0	108	108	110	166	25	0.9	3			298.42	**250**
P										●		●	
M										○		○	
K										●		●	
N										○		○	
S										○		○	
H													
O										○		○	

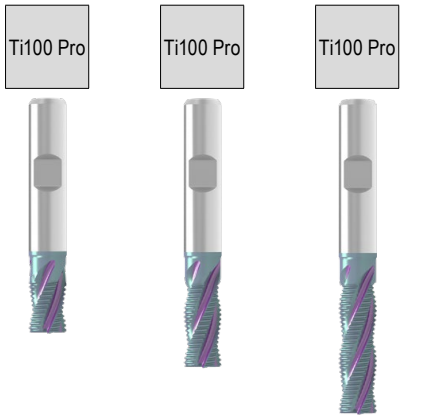
→ v_c/f_z Page 33–35

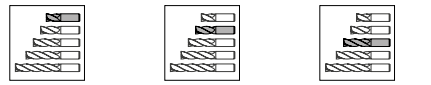
Powdersteel Fine rough milling cutter

HR | λ_s=30° γ_s=10°

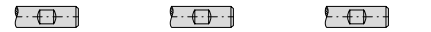








Factory standard | DIN 844 | Factory standard



DC $_{k12}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	54 031 ... £ U8		54 032 ... £ U8		54 033 ... £ U8	
6	8	5.5	14	14	16	52	6	0.35	4	65.14	060				
6	13	5.5	19	19	21	57	6	0.35	4			47.79	060		
8	11	7.5	17	19	21	61	10	0.45	4	72.55	080				
8	19	7.5	25	27	29	69	10	0.45	4			64.77	080		
8	28	7.5	34	36	38	78	10	0.45	4					83.51	080
10	13	9.5	21	21	23	63	10	0.45	4	73.67	100				
10	22	9.5	30	30	32	72	10	0.45	4			67.39	100		
10	34	9.5	42	42	44	84	10	0.45	4					102.82	100
12	16	11.5	26	26	28	73	12	0.60	4	88.06	120				
12	26	11.5	36	36	38	83	12	0.60	4			74.31	120		
12	40	11.5	50	50	52	97	12	0.60	4					121.95	120
14	16	11.5	26	26	28	73	12	0.60	4	112.94	140				
14	26	11.5	36	36	38	83	12	0.60	4			84.72	140		
14	40	11.5	50	50	52	97	12	0.60	4					154.69	140
16	19	15.0	29	29	31	79	16	0.70	4	121.78	160				
16	32	15.0	42	42	44	92	16	0.70	4			112.55	160		
16	48	15.0	58	58	60	108	16	0.70	4					198.91	160
18	19	15.0	29	29	31	79	16	0.70	4	147.77	180				
18	32	15.0	42	42	44	92	16	0.70	4			130.03	180		
18	48	15.0	58	58	60	108	16	0.70	4					250.89	180
20	22	19.0	36	36	38	88	20	0.70	4	164.47	200				
20	38	19.0	52	52	54	104	20	0.70	4			144.54	200		
20	56	19.0	70	70	72	122	20	0.70	4					302.69	200
22	22	19.0	36	36	38	88	20	0.70	4	222.27	220				
22	38	19.0	52	52	54	104	20	0.70	4			232.52	220		
22	56	19.0	70	70	72	122	20	0.70	4					379.56	220
25	26	24.0	44	44	46	102	25	0.70	4	260.13	250				
25	45	24.0	63	63	65	121	25	0.70	4			217.90	250		
25	68	24.0	86	86	88	144	25	0.70	4					443.30	250
32	32	31.0	49	49	52	112	32	0.90	6	440.91	320				
32	53	31.0	70	70	73	133	32	0.90	6			306.85	320		

P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

→ v_c/f_z Page 33–35

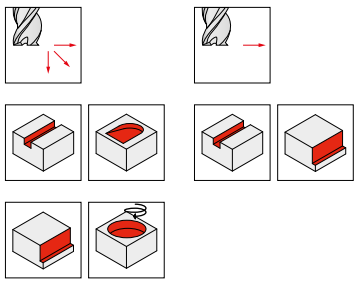
13

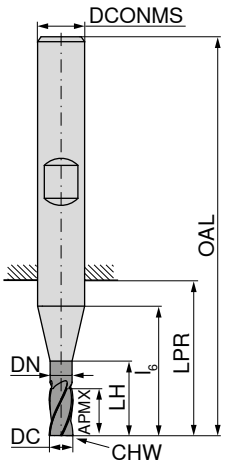
Fine profile milling cutter HSS-E Co 8

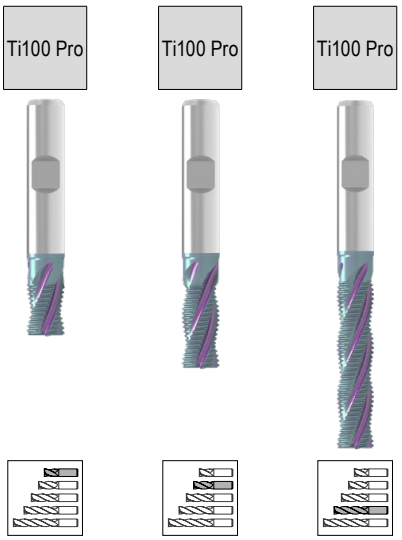
▲ > Ø 28,0 mm recessed centre

HR | λ_s=30° γ_s=10°

≤ Ø DC 28.0 mm | > Ø DC 28.0 mm







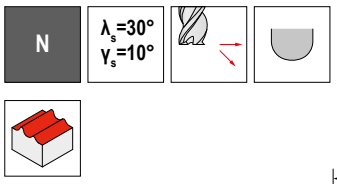
	Factory standard	DIN 69844	DIN 844
	54 022 ...	54 023 ...	54 024 ...

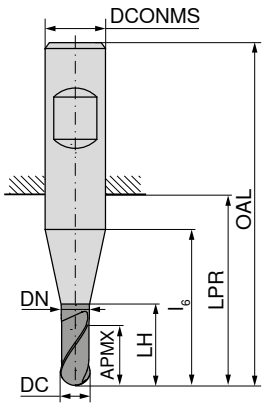
DC mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS mm	CHW mm	ZEFP	£ U8		£ U8		£ U8	
4	11		11	17	19	55	6	0.35	3			60.97	**040**		
5	13		13	19	21	57	6	0.35	3			36.58	**050**		
6	8	5.5	14	14	16	52	6	0.35	4	46.58	**060**				
6	13	5.5	19	19	21	57	6	0.35	4			32.96	**060**		
6	24	5.5	30	30	32	68	6	0.35	4					63.02	**060**
8	11	7.5	17	19	21	61	10	0.45	4	54.57	**080**				
8	19	7.5	25	27	29	69	10	0.45	4			39.89	**080**		
8	38	7.5	44	46	48	88	10	0.45	4					87.93	**080**
10	13	9.5	21	21	23	63	10	0.45	4	49.92	**100**				
10	22	9.5	30	30	32	72	10	0.45	4			44.33	**100**		
10	45	9.5	53	53	55	95	10	0.45	4					91.67	**100**
12	16	11.5	26	26	28	73	12	0.60	4	59.61	**120**				
12	26	11.5	36	36	38	83	12	0.60	4			49.10	**120**		
12	53	11.5	63	63	65	110	12	0.60	4					100.63	**120**
14	16	11.5	26	26	28	73	12	0.60	4	79.21	**140**				
14	26	11.5	36	36	38	83	12	0.60	4			65.44	**140**		
14	53	11.5	63	63	65	110	12	0.60	4					131.92	**140**
16	19	15.0	29	29	31	79	16	0.70	4	80.76	**160**				
16	32	15.0	42	42	44	92	16	0.70	4			71.03	**160**		
16	63	15.0	73	73	75	123	16	0.70	4					146.06	**160**
18	19	15.0	29	29	31	79	16	0.70	4	106.98	**180**				
18	32	15.0	42	42	44	92	16	0.70	4			93.60	**180**		
18	63	15.0	73	73	75	123	16	0.70	4					172.39	**180**
20	22	19.0	36	36	38	88	20	0.70	4	108.75	**200**				
20	38	19.0	52	52	54	104	20	0.70	4			98.38	**200**		
20	75	19.0	89	89	91	141	20	0.70	4					189.65	**200**
22	38	19.0	52	52	54	114	20	0.70	4			126.75	**220**		
22	75	19.0	89	89	91	141	20	0.70	4					236.39	**220**
25	45	24.0	63	63	65	121	25	0.70	4			149.35	**250**		
25	90	24.0	108	108	110	166	25	0.70	4					377.19	**250**
28	45	24.0	63	63	65	121	25	0.90	5			176.84	**280**		
28	90	24.0	108	108	110	166	25	0.90	5					422.50	**280**
30	45	24.0	63	63	65	121	25	0.90	5			193.32	**300**		
30	90	24.0	108	108	110	166	25	0.90	5					441.19	**300**
32	53	31.0	70	70	73	133	32	0.90	6			217.05	**320**		
32	106	31.0	123	123	126	186	32	0.90	6					445.63	**320**

P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

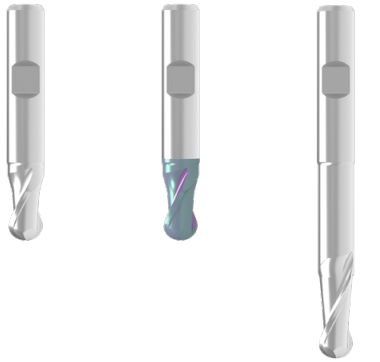
→ v_c/f_z Page 33–35

Ball nosed end milling cutter HSS-E Co 8





Ti100 Pro



Factory standard | Factory standard | Factory standard

DC h10 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 320 ... £ U8		54 041 ... £ U8		50 321 ... £ U8	
2	4		4	10	12	48	6	2	44.43	020	41.92	020		
3	5		5	11	13	49	6	2	42.20	030	40.41	030		
3	8		8	18	20	56	6	2					49.17	030
4	7		7	13	15	51	6	2	42.20	040	40.41	040		
4	11		11	25	27	63	6	2					49.17	040
5	8		8	14	16	52	6	2	42.20	050	40.41	050		
5	13		13	30	32	68	6	2					50.54	050
6	8	5.50	14	14	16	52	6	2	41.83	060	40.26	060		
6	13	5.50	30	30	32	68	6	2					51.69	060
7	10	6.50	16	18	20	60	10	2	51.86	070	76.84	070		
7	16	6.35	36	38	40	80	10	2					61.37	070
8	11	7.50	17	19	21	61	10	2	46.28	080	71.41	080		
8	19	7.35	44	46	48	88	10	2					56.72	080
9	11	8.50	18	19	21	61	10	2	54.94	090	82.63	090		
9	19	8.35	45	46	48	88	10	2					63.79	090
10	13	9.50	21	21	23	63	10	2	52.74	100	53.37	100		
10	22	9.35	53	53	55	95	10	2					63.79	100
11	13	10.50	21	23	25	70	12	2	61.54	110				
11	22	10.50	53	55	57	102	12	2					71.04	110
12	16	11.50	26	26	28	73	12	2	59.34	120	61.43	120		
12	26	11.50	63	63	65	110	12	2					72.17	120
13	16	11.50	26	26	28	73	12	2	71.50	130	110.48	130		
14	16	11.50	26	26	28	73	12	2	68.75	140	78.83	140		
14	26	11.50	63	63	65	110	12	2					85.76	140
15	16	11.50	26	26	28	73	12	2	80.93	150	131.03	150		
15	26	11.50	63	63	65	110	12	2					108.60	150
16	19	15.50	29	29	31	79	16	2	84.23	160	134.11	160		
16	32	15.00	73	73	75	123	16	2					108.60	160
18	19	15.50	29	29	31	79	16	2	104.51	180	116.48	180		
18	32	15.00	73	73	75	123	16	2					136.22	180
20	22	19.00	36	36	38	88	20	2	111.50	201	121.29	201		
22	22	19.00	36	36	38	88	20	2	152.21	220				
24	26	23.00	42	44	46	102	25	2	145.62	240	242.28	240		
24	45	23.00	106	108	110	166	25	2					205.14	240
25	26	24.00	44	44	46	102	25	2	145.62	250				
25	45	24.00	108	108	110	166	25	2					192.37	250
26	26	24.00	44	44	46	102	25	2	199.61	260				
28	26	24.00	44	44	46	102	25	2	199.77	280				
30	26	24.00	44	44	46	102	25	2	218.25	300				
30	45	24.00	108	108	110	166	25	2					277.88	300

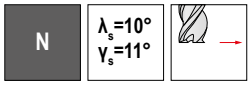
P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

→ v_c/f_z Page 33–35

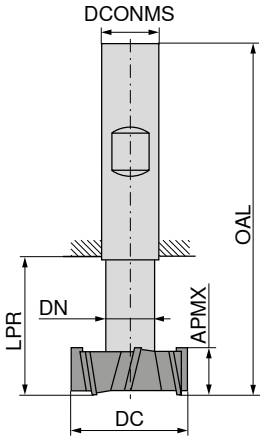
13

T-slot milling cutter HSS-E Co 5, cross pitched

▲ For slots according to DIN 650









DIN 851 A



50 240 ...

DC d11 mm	APMX d11 mm	DN h12 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ U6	
11.0	4	4	13.5	53.5	10	6	117.27	**110**
12.5	6	5	17.0	57.0	10	6	114.35	**125**
16.0	8	7	22.0	62.0	10	6	129.48	**160**
18.0	8	8	25.0	70.0	12	6	147.12	**180**
19.0	9	8	26.0	71.0	12	6	187.54	**190** 1)
21.0	9	10	29.0	74.0	12	6	168.37	**210**
22.0	10	10	30.0	75.0	12	6	219.04	**220** 1)
25.0	11	12	34.0	82.0	16	8	197.96	**250**
28.0	12	13	37.0	85.0	16	8	267.03	**280** 1)
32.0	14	15	42.0	90.0	16	8	284.46	**320**
36.0	16	17	47.0	103.0	25	8	433.83	**360** 1)
40.0	18	19	52.0	108.0	25	10	579.78	**400**
45.0	20	21	57.0	113.0	25	10	617.08	**450** 1)
50.0	22	25	64.0	124.0	32	10	741.05	**500**
60.0	28	30	79.0	139.0	32	10	968.50	**600**

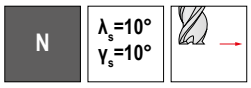
P	●
M	○
K	●
N	○
S	○
H	
O	○

1) Factory standard

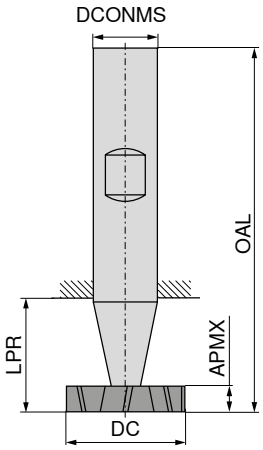
→ v_c/f_z Page 36

Slot milling cutter HSS-E Co 5, cross-pitched

▲ For slots according to DIN 6888
▲ CDX = $a_{p\ max.}$









DIN 850



DC h12 mm	APMX e8 mm	LPR mm	OAL mm	DCONMS h6 mm	CDX mm	ZEFP	50 234 ... £ U6	
10.5	2.0	14	50	6	3.25	6	88.06	**100**
10.5	2.5	14	50	6	3.15	6	88.06	**101**
10.5	3.0	14	50	6	3.15	6	88.06	**102**
13.5	2.0	16	56	10	4.45	6	87.99	**130** 1)
13.5	3.0	16	56	10	4.45	6	87.99	**132**
13.5	4.0	16	56	10	4.45	6	87.99	**133**
16.5	3.0	16	56	10	5.95	6	95.47	**161**
16.5	4.0	16	56	10	5.95	6	95.47	**162**
16.5	5.0	16	56	10	5.75	6	95.47	**163**
19.5	3.0	23	63	10	6.95	8	106.04	**190** 1)
19.5	4.0	23	63	10	6.95	8	106.04	**191**
19.5	5.0	23	63	10	6.75	8	106.04	**192**
22.5	4.0	23	63	10	8.25	8	125.10	**220** 1)
22.5	5.0	23	63	10	8.25	8	125.10	**221**
22.5	6.0	23	63	10	8.00	8	125.10	**222**
25.5	5.0	23	63	10	9.00	10	130.45	**250** 1)
25.5	6.0	23	63	10	9.00	10	130.45	**251**
28.5	6.0	23	63	10	10.00	10	181.77	**281**
28.5	8.0	23	63	10	10.00	10	181.77	**283**
32.5	6.0	26	71	12	12.00	10	185.49	**321** 1)
32.5	8.0	26	71	12	12.00	10	185.49	**322**
38.5	8.0	26	71	12	13.35	10	269.18	**381** 1)
45.5	10.0	26	71	12	16.85	12	328.83	**450**

P	●
M	○
K	●
N	○
S	○
H	
O	○

1) Factory standard

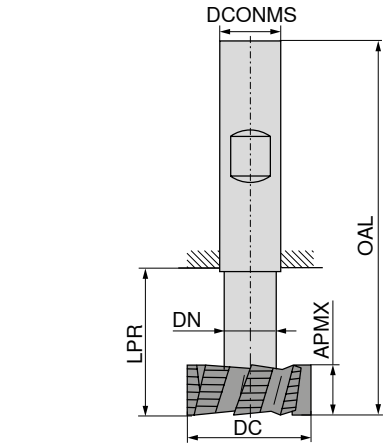
→ v_c/f_z Page 36

T-slot milling cutter HSS-E Co 5

▲ For slots according to DIN 650

NF | λ_s=20° γ_s=11°







DIN 851 A



50 241 ...

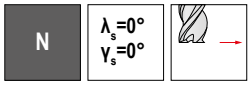
DC $_{d11}$ mm	APMX mm	DN $_{h12}$ mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ U6	
21	9	10	29	74	12	6	245.32	**210**
22	10	10	30	75	12	6	289.54	**220** 1)
25	11	12	34	82	16	6	293.75	**250**
28	12	13	37	85	16	6	314.28	**280** 1)
32	14	15	42	90	16	6	405.97	**320**
36	16	17	47	103	25	6	502.02	**360** 1)
40	18	19	52	108	25	8	610.31	**400**
45	20	21	57	113	25	8	736.25	**450** 1)

P	●
M	○
K	●
N	○
S	○
H	
O	○

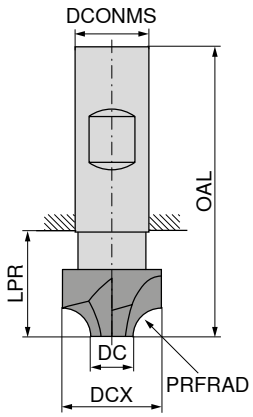
1) Factory standard

→ v_c/f_z Page 36

Quarter-round profile milling cutter HSS-E Co 5, concave









DIN 6518



50 248 ...

PRFRAD h11 mm	DCX mm	DC mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ U6	
1.0	8	6	20	60	10	4	98.97	**010**
1.5	9	6	20	60	10	4	103.91	**015**
2.0	10	6	20	60	10	4	98.97	**020**
2.5	11	6	20	60	10	4	103.91	**025**
3.0	12	6	15	60	12	4	103.91	**030**
4.0	14	6	15	60	12	4	111.45	**040**
5.0	16	6	15	60	12	4	132.18	**050**
6.0	20	8	19	67	16	4	154.05	**060**
8.0	24	8	23	71	16	4	181.87	**080**
9.0	26	8	29	85	25	4	253.04	**090**
10.0	28	8	29	85	25	4	229.91	**100**
12.0	34	10	34	90	25	4	329.52	**120**
15.0	46	16	44	100	25	6	614.78	**150**
16.0	48	16	44	100	25	6	645.51	**160**

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c/f_z Page 36

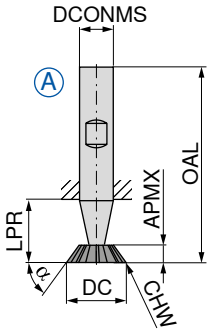
13

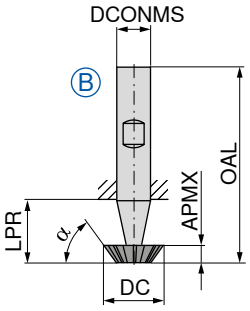
Single angle miling cutters HSS-E Co 5

H

λ_s=0°
γ_s=0°











α°	DC mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Fig.	DIN 1833  50 246 ... £ U6		DIN 1833  50 245 ... £ U6	
45	16	4.0	15	60	12	0.3	10	A			98.11	016
	16	4.0	15	60	12		10	B	112.13	016		
	20	5.0	18	63	12	0.3	10	A			147.69	020
	20	5.0	18	63	12		10	B	147.69	020		
	25	6.3	22	67	12	0.3	10	A			175.59	025
	25	6.3	22	67	12		10	B	175.59	025		
60	16	6.3	15	60	12	0.3	10	A			112.13	116
	16	6.3	15	60	12		10	B	112.13	116		
	20	8.0	18	63	12	0.3	10	A			147.69	120
	20	8.0	18	63	12		10	B	147.69	120		
	25	10.0	22	67	12	0.3	10	A			153.66	125
	25	10.0	22	67	12		10	B	175.59	125		
70	16	7.0	15	60	12	0.3	10	A			149.27	216 1)
	20	9.0	18	63	12	0.3	10	A			187.97	220 1)
	25	11.0	19	67	16	0.3	10	A			251.20	225 1)
P									●		●	
M									○		○	
K									●		●	
N									○		○	
S									○		○	
H												
O									○		○	

1) Factory standard

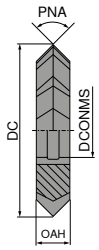
→ v_c/f_z Page 37

Double angle milling cutter HSS

▲ with keyway to DIN 138

N | λ_s=0° γ_s=0°







DIN 847

50 360 ...

PNA °	DC mm	OAH mm	DCONMS mm	ZEFP	£ U6	
45	50	8	16	22	185.30	045
	63	10	22	24	231.09	145
	80	12	27	26	356.93	245
	100	18	32	28	534.75	345
60	50	10	16	18	185.30	060
	63	14	22	20	257.56	160
	80	18	27	22	414.22	260
	100	25	32	24	663.65	360
90	50	14	16	16	219.76	090
	63	20	22	18	280.17	190
	80	22	27	20	455.92	290
	100	32	32	24	761.85	390
120	50	14	16	16	247.90	120 [1]
	63	20	22	16	352.22	121 [1]

P	●
M	○
K	●
N	○
S	○
H	
O	○

1) Factory standard

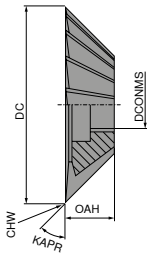
→ v_c/f_z Page 37

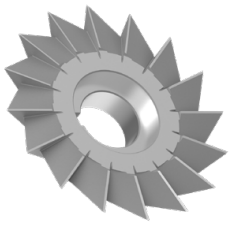
Shell type single angle milling cutter HSS

▲ with keyway to DIN 138

N | λ_s=0° γ_s=2°







DIN 842 A

50 362 ...

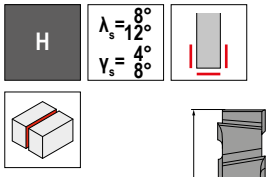
KAPR °	DC mm	OAH mm	DCONMS mm	CHW mm	ZEFP	£ U6	
45	40	10	10	0.3	14	207.06	045
	50	13	13	0.3	16	284.65	145
	63	18	16	0.3	18	359.87	245
	80	22	22	0.3	20	508.23	345
	100	28	27	0.3	22	767.44	445
50	50	16	13	0.3	16	284.65	150
60	40	13	10	0.3	14	185.49	060
	50	16	13	0.3	16	227.85	160
	63	20	16	0.3	18	318.70	260
	80	25	22	0.3	20	511.29	360
	100	32	27	0.3	22	778.88	460
	125	40	32	0.3	28	1,312.14	560

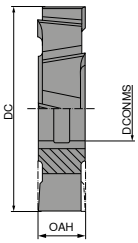
P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c/f_z Page 37

Side and face milling cutter HSS-E Co 5

▲ Fine cross-pitched version
▲ with keyway to DIN 138







DIN 885 A

50 349 ...

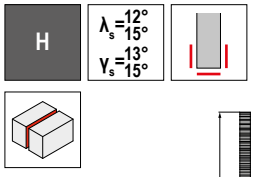
DC mm	OAH mm	DCONMS mm	ZEFP	£ U6	
50	4	16	16	232.57	100
50	5	16	16	234.08	102
50	6	16	16	246.22	104
50	8	16	16	264.64	106
50	10	16	16	289.69	108
63	4	22	18	254.72	200
63	5	22	18	273.69	202
63	6	22	18	262.62	204
63	8	22	18	294.49	206
63	10	22	18	328.58	208
63	12	22	18	373.20	210
63	14	22	18	419.10	212
80	5	27	20	343.89	300
80	6	27	20	355.31	302
80	8	27	20	369.87	304
80	10	27	18	379.09	306
80	12	27	18	427.03	308
80	14	27	18	493.17	310
80	16	27	18	534.61	312
80	18	27	18	616.29	314
80	20	27	18	616.64	316
100	6	32	22	496.10	400
100	8	32	22	492.97	402
100	10	32	20	532.26	404
100	12	32	20	574.09	406
100	14	32	20	640.20	408
100	16	32	20	675.23	410
100	18	32	20	793.38	412
100	20	32	20	798.72	414
100	25	32	20	988.51	418
125	8	32	24	658.66	500
125	10	32	22	706.21	502
125	12	32	22	759.63	504
125	14	32	22	856.19	506
125	16	32	22	887.55	508
125	18	32	22	1,022.42	510
125	20	32	22	1,043.44	512
125	25	32	22	1,249.31	516
160	10	40	26	1,050.46	600
160	12	40	26	1,143.69	602
160	14	40	26	1,228.13	604
160	16	40	26	1,321.17	606
160	18	40	26	1,450.71	608
160	20	40	26	1,452.20	610
160	25	40	26	1,813.02	614
160	32	40	26	2,278.91	618

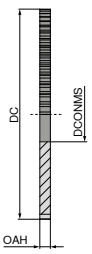
P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 38

Narrow side and face milling cutter HSS-E Co 5

▲ Fine cross-pitched version
▲ with keyway to DIN 138







DIN 1834 A

50 340 ...

DC mm	OAH mm	DCONMS mm	ZEFP	£ U6	
63	1.6	22	28	176.68	200
63	2.0	22	28	173.80	202
63	2.5	22	28	177.50	204
63	3.0	22	28	182.44	206
80	1.6	27	32	209.93	300
80	2.0	27	32	203.83	302
80	2.5	27	32	207.33	304
80	3.0	27	32	213.23	306
80	4.0	27	32	228.14	310
100	1.6	32	36	251.02	400
100	2.0	32	36	249.56	402
100	2.5	32	36	249.56	404
100	3.0	32	36	253.95	406
100	4.0	32	36	273.69	410
100	5.0	32	36	300.40	414
125	1.6	32	40	328.78	500
125	2.0	32	40	316.07	502
125	2.5	32	40	325.54	504
125	3.0	32	40	331.90	506
125	4.0	32	40	355.51	510
125	5.0	32	40	380.76	514
125	6.0	32	40	368.08	516
160	2.0	40	48	526.90	600
160	2.5	40	48	507.37	602
160	3.0	40	48	516.94	604
160	4.0	40	48	546.43	606
160	5.0	40	48	578.49	608
160	6.0	40	48	621.08	610
160	8.0	40	36	708.97	612

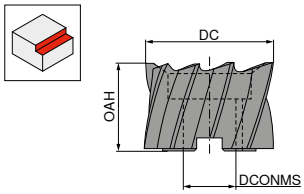
P	●
M	
K	●
N	●
S	●
H	
O	●

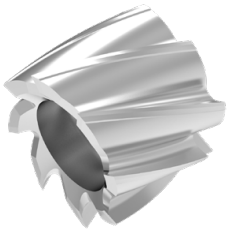
→ v_c/f_z Page 38

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

N | λ_s=25° γ_s=10°





DIN 1880

50 250 ...

DC mm	OAH mm	DCONMS mm	ZEFP	£ U8	
40	32	16	8	201.85	040
50	36	22	8	258.74	050
63	40	27	8	367.65	063
80	45	27	10	539.31	080

P	●
M	●
K	●
N	●
S	○
H	
O	●

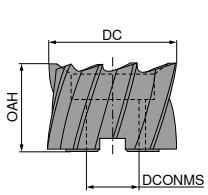
→ v_c/f_z Page 39+40

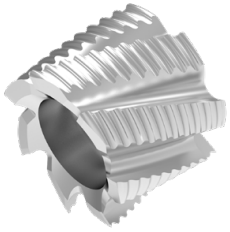
Roughing face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

▲ Manufacturing tolerance lies on the plus range of the tolerance js14

NR | λ_s=25° γ_s=10°





DIN 1880

50 260 ...

DC mm	OAH mm	DCONMS mm	ZEFP	£ U8	
40	32	16	7	205.67	040
50	36	22	8	272.75	050
63	40	27	8	365.09	063
80	45	27	10	504.22	080

P	●
M	●
K	●
N	●
S	○
H	
O	●

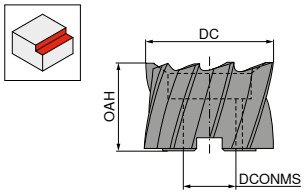
→ v_c/f_z Page 39+40

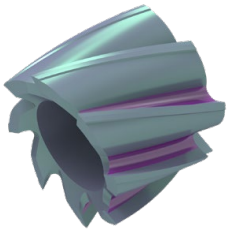
Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

N | λ_s=25° γ_s=10°

Ti100 Pro





DIN 1880

54 035 ...

DC mm	OAH mm	DCONMS mm	ZEFP	£ U8	
40	32	16	8	296.29	040
50	36	22	8	363.41	050
63	40	27	8	334.92	063
80	45	27	10	520.66	080

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 39+40

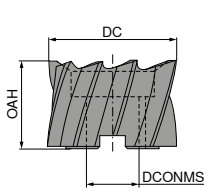
Roughing-finishing face milling cutters HSS-E Co 8

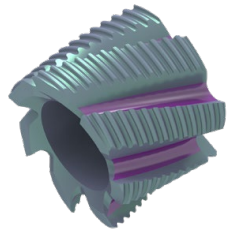
▲ with keyway to DIN 138

▲ Manufacturing tolerance lies on the plus range of the tolerance js14

HR | λ_s=25° γ_s=10°

Ti100 Pro





DIN 1880

54 037 ...

DC mm	OAH mm	DCONMS mm	ZEFP	£ U8	
40	32	16	7	211.82	040
50	36	22	8	261.88	050
63	40	27	8	566.96	063
80	45	27	10	562.98	080

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 39+40

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting speeds – slot, end milling and ball-nosed end milling cutters

Index	Kf f_z	uncoated	Ti100 Pro	Ti100 Pro	● 1st choice ○ suitable		
				Powder steel	Emulsion	Compressed air	MMS
		v_c (m/min)					
P.1.1	1,2	20	45	50	●		
P.1.2	1,2	20	45	50	●		
P.1.3	1,2	20	45	50	●		
P.1.4	1,0	15	30	35	●		
P.1.5	1,0	15	30	35	●		
P.2.1	1,2	20	40	45	●		
P.2.2	1,0	15	40	45	●		
P.2.3	0,8	15	30	35	●		
P.2.4	0,8	15	30	35	●		
P.3.1	1,0	15	30	35	●		
P.3.2	0,8	12	25	30	●		
P.3.3	0,8	10	20	25	●		
P.4.1	1,0	10	20	25	●		
P.4.2	1,0	10	20	25	●		
M.1.1	1,0	10	20	25	●		
M.2.1	0,9	7	15	20	●		
M.3.1	1,0	5	10	15	●		
K.1.1	1,0	18	35	40	●		
K.1.2	1,0	18	25	30	●		
K.2.1	1,0	15	30	35	●		
K.2.2	1,0	15	30	35	●		
K.3.1	1,0	15	35	40	●		
K.3.2	0,8	12	25	30	●		
N.1.1	1,9	150	240	260	●		
N.1.2	1,9	100	130	150	●		
N.2.1	1,8		100	140	●		
N.2.2	1,7		60	80	●		
N.2.3							
N.3.1	1,1		100	130	●		
N.3.2	1,2	30	60	80	●		
N.3.3	1,2	30	60	80	●		
N.4.1	1,8	90	140	160		●	
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1	1,0	10	15	25	●		
S.3.2	1,1	10	15	25	●		
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1	2,0	30	50	70	●		
O.1.2	2,0	20	25	40	●		
O.2.1							
O.2.2							
O.3.1	1,0		30	40	○		

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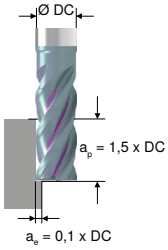
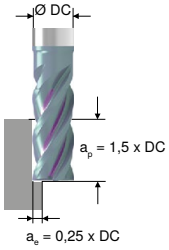
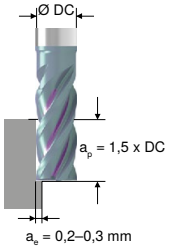
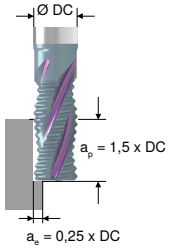
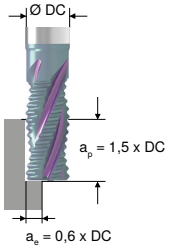
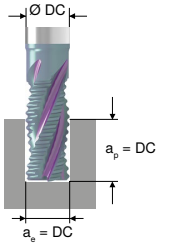
For full slot milling reduce the cutting speed (Vc), indicated in this table by approx. 15 - 20%!

Kf fz = Correction factor for feed per tooth

Feed per tooth for HSS end mills

Appoximate values (in mm) for the feed per tooth (f_z)

	Finish milling						Rough machining					
	Peripheral milling										Full slot milling	
												
	f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm	
Ø DC mm	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,008	0,009	0,008	0,009	0,008	0,009						
3	0,011	0,012	0,009	0,010	0,010	0,012						
4	0,017	0,018	0,013	0,014	0,014	0,015	0,015	0,016	0,013	0,014	0,011	0,012
5	0,024	0,026	0,014	0,015	0,018	0,020	0,019	0,021	0,016	0,018	0,014	0,016
6	0,032	0,035	0,015	0,017	0,022	0,024	0,024	0,027	0,020	0,022	0,018	0,019
8	0,047	0,051	0,020	0,022	0,029	0,032	0,032	0,036	0,027	0,030	0,024	0,026
10	0,065	0,072	0,026	0,028	0,037	0,041	0,042	0,047	0,035	0,039	0,031	0,034
12	0,084	0,091	0,031	0,034	0,044	0,049	0,051	0,057	0,043	0,047	0,037	0,041
14	0,100	0,106	0,037	0,041	0,054	0,059	0,063	0,069	0,053	0,058	0,045	0,050
16	0,111	0,121	0,042	0,046	0,061	0,067	0,072	0,079	0,060	0,066	0,052	0,057
18	0,126	0,136	0,048	0,053	0,070	0,077	0,084	0,093	0,071	0,078	0,061	0,067
20	0,141	0,151	0,052	0,057	0,076	0,083	0,092	0,101	0,077	0,084	0,066	0,073
22	0,160	0,166	0,059	0,065	0,085	0,094	0,104	0,114	0,087	0,096	0,075	0,082
25	0,170	0,188	0,065	0,072	0,095	0,104	0,117	0,129	0,098	0,108	0,084	0,093
28	0,196	0,210	0,075	0,083	0,109	0,120	0,136	0,150	0,114	0,125	0,098	0,108
32	0,212	0,240	0,086	0,094	0,124	0,137	0,157	0,173	0,131	0,145	0,113	0,125
36	0,224	0,240	0,099	0,109	0,144	0,159	0,170	0,194	0,142	0,162	0,126	0,140
40	0,240	0,240	0,108	0,119	0,157	0,173	0,184	0,202	0,154	0,169	0,132	0,146
45	0,240	0,240	0,108	0,119	0,157	0,173	0,200	0,220	0,170	0,180	0,140	0,160
50	0,240	0,240	0,108	0,119	0,157	0,173	0,200	0,220	0,170	0,180	0,140	0,160

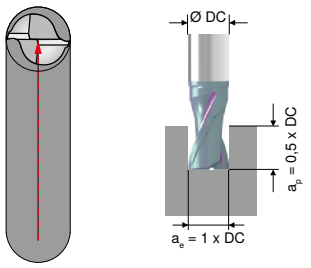
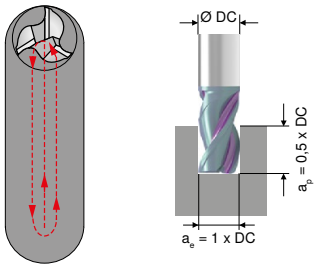
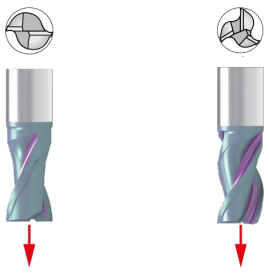
Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 33.**

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Feed per tooth when milling parallel key slots with HSS slot drills

Appoximate values (in mm) for the feed per tooth (f_z)

	Full slot milling (in one cut)		Profile slot milling (internal profile milling)				Circular ramping			
										
			Roughing cut		Finishing cut					
	f_z in mm		f_z in mm				f_z in mm			
Ø DC mm	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,005	0,006	0,005	0,006	0,008	0,009	0,003	0,003	0,002	0,002
3	0,009	0,010	0,009	0,010	0,015	0,016	0,004	0,005	0,003	0,003
4	0,012	0,013	0,012	0,013	0,022	0,024	0,006	0,007	0,004	0,004
5	0,016	0,017	0,016	0,017	0,030	0,033	0,008	0,009	0,005	0,006
6	0,020	0,022	0,020	0,022	0,039	0,043	0,010	0,011	0,007	0,007
8	0,026	0,029	0,026	0,029	0,055	0,061	0,013	0,014	0,009	0,010
10	0,034	0,037	0,034	0,037	0,075	0,082	0,017	0,019	0,011	0,012
12	0,040	0,044	0,040	0,044	0,093	0,101	0,020	0,022	0,013	0,015
14	0,049	0,054	0,049	0,054	0,117	0,118	0,024	0,027	0,016	0,018
16	0,056	0,062	0,056	0,062	0,135	0,135	0,028	0,031	0,019	0,021
18	0,065	0,072	0,065	0,072	0,151	0,151	0,033	0,036	0,022	0,024
20	0,071	0,078	0,071	0,078	0,167	0,167	0,035	0,039	0,024	0,026
22	0,080	0,088	0,080	0,088	0,184	0,184	0,040	0,044	0,027	0,029
25	0,089	0,098	0,089	0,098	0,208	0,208	0,044	0,049	0,030	0,033
28	0,103	0,113	0,103	0,113	0,233	0,233	0,051	0,056	0,034	0,037
32	0,118	0,130	0,118	0,130	0,260	0,260	0,060	0,065	0,040	0,043
36	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
40	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
45	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
50	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043

Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 33.**

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Cutting data standard values – Form cutters

Index	v_c (m/min)	50 241 ... Ø DC (mm) = 21–25	28–36	40–45	50 240 ... Ø DC (mm) = 11–16	18–22	25–32	36–45	50–60	v_c (m/min)	50 234 ... Ø DC (mm) = 10–17	19–26	28–33	33–46	50 248 ... Ø DCX (mm) = 8–11	12–24	26–34	46–48	● 1st choice ○ suitable Emulsion	Compressed air	MMS
		f_z (mm)			f_z (mm)						f_z (mm)				f_z (mm)						
P.1.1	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.1.2	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.1.3	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.1.4	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.1.5	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.2.1	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.2.2	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
P.2.3	20	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	20	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.2.4	20	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	20	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●		
P.3.1																					
P.3.2																					
P.3.3																					
P.4.1	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
P.4.2	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
M.1.1	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
M.2.1																					
M.3.1																					
K.1.1	28	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	24	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.1.2																					
K.2.1	22	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	22	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.2.2	20	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	20	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.3.1	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
K.3.2	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●		
N.1.1	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●		
N.1.2	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●		
N.2.1	80	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	80	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.2.2	60	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	60	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.2.3																					
N.3.1	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03	0,035	25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.3.2	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03		25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.3.3	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03		25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.4.1	70	0,1	0,12	0,15	0,018	0,04	0,03	0,035	0,045	70	0,03	0,035	0,05	0,06	0,025	0,06	0,1	0,12	●		
S.1.1																					
S.1.2																					
S.2.1																					
S.2.2																					
S.2.3																					
S.3.1	20	0,06	0,08	0,1	0,012	0,025	0,025	0,025	0,035	20	0,015	0,025	0,035	0,045	0,02	0,05	0,07	0,09	●		
S.3.2																					
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1	65	0,12	0,15	0,18		0,06	0,055	0,055	0,07	65	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●		
O.1.2	80	0,12	0,15	0,18		0,06	0,055	0,055	0,07	80	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●		
O.2.1																					
O.2.2																					
O.3.1																					

The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values – Form cutters

Index	v_c (m/min)	50 245 ... / 50 246 ... Ø DC (mm) = 16	20	25	v_c (m/min)	50 360 ... Ø DC (mm) = 50	63	80	100	50 362 ... Ø DC (mm) = 40–50	63	80	100	● 1st choice ○ suitable Emulsion	Compressed air	MMS
		a_e = 3,2	a_e = 4	a_e = 5		a_e = 5	a_e = 6,3	a_e = 8	a_e = 10							
		f_z (mm)				f_z (mm)				f_z (mm)						
P.1.1	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.2	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.3	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.4	22	0,01	0,015	0,018	20	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.1.5	22	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.1	22	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.2	28	0,01	0,015	0,018	22	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.2.3	20	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.4	20	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.3.1																
P.3.2																
P.3.3																
P.4.1	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.4.2	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
M.1.1	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
M.2.1																
M.3.1																
K.1.1	24	0,01	0,012	0,015	19	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.1.2					12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012			
K.2.1	22	0,01	0,012	0,015	15	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.2.2	20	0,01	0,012	0,015	12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.3.1	15	0,01	0,012	0,015	16	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.3.2	15	0,01	0,012	0,015	13	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
N.1.1	90	0,01	0,015	0,02										●		
N.1.2	90	0,01	0,015	0,02	70	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.1	80	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.2	60	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.3																
N.3.1	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.3.2	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.3.3	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.4.1	70	0,01	0,015	0,0175	45	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,01	●		
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	20	0,008	0,01	0,015	20	0,008	0,01	0,012	0,016	0,005	0,007	0,009	0,012	●		
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1	65	0,018	0,02	0,025	60	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
O.1.2	80	0,018	0,02	0,025	65	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
O.2.1																
O.2.2																
O.3.1																

The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

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Cutting data – side and face cutters

Index	v_c (m/min)	50 340 ... / 50 349 ... Ø DC (mm) = 50	63	80	100	125	160	Emulsion	Compressed air	MMS
		f (mm)						● 1st choice ○ suitable		
P.1.1	30	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,047–0,055	0,050–0,060	●		
P.1.2	20	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,047–0,055	0,050–0,060	●		
P.1.3	20	0,025–0,035	0,030–0,040	0,035–0,045	0,040–0,050	0,047–0,060	0,050–0,065	●		
P.1.4	15	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
P.1.5	15	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
P.2.1	20	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
P.2.2	20	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
P.2.3	10	0,015–0,020	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	●		
P.2.4	10	0,015–0,020	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	●		
P.3.1	15	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
P.3.2	10	0,015–0,020	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	●		
P.3.3	10	0,015–0,020	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	●		
P.4.1	10	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
P.4.2	10	0,020–0,030	0,025–0,035	0,030–0,040	0,035–0,045	0,040–0,050	0,045–0,100	●		
M.1.1	10	0,015–0,020	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	●		
M.2.1	10	0,015–0,020	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	●		
M.3.1	8	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
K.1.1	20	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
K.1.2	18	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
K.2.1	18	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
K.2.2	15	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
K.3.1	18	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
K.3.2	18	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
N.1.1	150	0,030–0,037	0,037–0,045	0,045–0,050	0,050–0,060	0,060–0,067	0,067–0,075	●		
N.1.2	100	0,030–0,037	0,037–0,045	0,045–0,050	0,050–0,060	0,060–0,067	0,067–0,075	●		
N.2.1	80	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,047–0,055	0,050–0,060	●		
N.2.2	40	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,047–0,055	0,050–0,060	●		
N.2.3										
N.3.1	80	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
N.3.2	30	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,047–0,055	0,050–0,060	●		
N.3.3	30	0,025–0,035	0,030–0,040	0,035–0,045	0,040–0,050	0,047–0,060	0,050–0,065	●		
N.4.1	90	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,047–0,055	0,050–0,060		●	
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1	10	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
S.3.2	10	0,020–0,025	0,025–0,030	0,030–0,035	0,035–0,040	0,040–0,045	0,045–0,050	●		
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1	30	0,040–0,050	0,050–0,060	0,060–0,070	0,070–0,080	0,080–0,090	0,090–0,100	●		
O.1.2	20	0,040–0,050	0,050–0,060	0,060–0,070	0,070–0,080	0,080–0,090	0,090–0,100	●		
O.2.1										
O.2.2										
O.3.1										

Feed correction factor (Kf f_z) for side and face cutters in relation to the cutting depth (a_e)

a_e	Kf f_z
0,05 x DC	1,4
0,1 x DC	1,0
0,15 x DC	0,8
0,2 x DC	0,7
0,25 x DC	0,6

Cutting data – face mills

Index	Kf f_z	50 250 ... / 50 260 ... uncoated v_c (m/min)	54 035 ... / 54 037 ... Ti100 Pro v_c (m/min)	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	1,2	25	45	●		
P.1.2	1,2	20	40	●		
P.1.3	1,2	20	40	●		
P.1.4	1,0	15	30	●		
P.1.5	1,0	15	30	●		
P.2.1	1,2	20	40	●		
P.2.2	1,0	20	40	●		
P.2.3	0,8	10	20	●		
P.2.4	0,8	10	20	●		
P.3.1	1,0	15	30	●		
P.3.2	0,8	10	20	●		
P.3.3	0,8	10	20	●		
P.4.1	1,0	10	15	●		
P.4.2	1,0	10	15	●		
M.1.1	1,0	10	15	●		
M.2.1	0,9	7	15	●		
M.3.1	1,0	5	10	●		
K.1.1	1,0	20	30	●		
K.1.2	1,0	18	30	●		
K.2.1	1,0	18	30	●		
K.2.2	1,0	15	25	●		
K.3.1	1,0	18	30	●		
K.3.2	1,0	18	30	●		
N.1.1	1,5	150				
N.1.2	1,5	100				
N.2.1	1,3	80				
N.2.2	1,3	40				
N.2.3						
N.3.1	1,1	80	110	●		
N.3.2	1,2	30	60	●		
N.3.3	1,2	30	60	●		
N.4.1	1,3	90	120		●	
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1	1,0	10	15	●		
S.3.2	1,1	10	15	●		
S.3.3	0,8		10	●		
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1	2,0	30	50	●		
O.1.2	2,0	20	25	●		
O.2.1						
O.2.2						
O.3.1						

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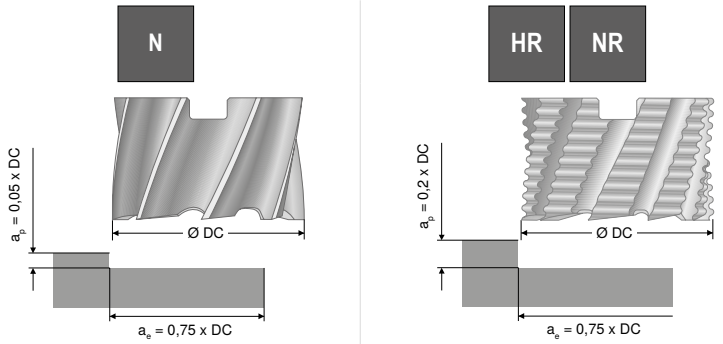
Feed per tooth for HSS face mills

Appoximate values (in mm) for the feed per tooth (f_z)



	f_z in mm		f_z in mm	
Ø DC mm	uncoated	Ti100 Pro	uncoated	Ti100 Pro
40	0,049	0,054	0,064	0,070
50	0,055	0,060	0,071	0,078
63	0,061	0,067	0,079	0,087
80	0,065	0,071	0,084	0,092

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 33.**

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Formula for cutting data calculation

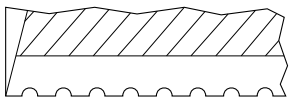
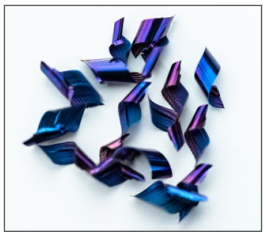
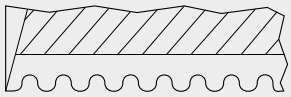
Designation	Abbreviation	Unit	Formula
Number of revolutions	n	min^{-1}	$n = \frac{v_C \times 1000}{DC \times \pi}$
Cutting speed	v_c	m/min	$v_c = \frac{DC \times \pi \times n}{1000}$
Feed per tooth	f_z	mm	$f_z = \frac{v_f}{ZEFP \times n}$ $f_z = h_m \times \sqrt{\frac{DC}{a_e}}$
Feed per revolution	f	mm	$f = f_z \times ZEFP$
Feed rate	v_f	mm/min.	$v_f = f_z \times ZEFP \times n$
Average chip thickness	h_m	mm	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$

ZEFP = Number of flutes
a_e = cutting width (for side milling cutter cutting depth)
DC = Cutting diameter

Version description

W	For soft materials and non-ferrous metals (aluminium, copper, brass)
N	For machining steel and cast materials, as well as stainless steels
H	For high-strength steels and tempered materials
NF	For machining steel and cast materials, as well as stainless steels – with roughing-finishing profile
HF	For high-strength steels and tempered materials – with roughing-finishing profile
NR	For machining steel and cast materials, as well as stainless steels – with roughing profile
HR	For high-strength steels and tempered materials – with roughing profile

Differences between the milling cutter types

Designation	Type	Shape of the chip breaker	Application description	Chip shape
Rough and finish milling cutters	NF HF	Chip breaker with flat profile 	▲ High chip volume, even on less powerful machines ▲ Surface quality mostly sufficient ▲ Lower cutting pressure compared to smooth-edged milling cutters ▲ Finish machining not needed	
Rough milling cutters	NR HR	Chip breaker with round profile 	▲ Produces very small and short chips ▲ Problem-solver in unstable conditions ▲ High chip volume, even on the weakest machines ▲ Exceptionally well suited to full slot milling ▲ Additional finish machining needed ▲ High feeds possible	

Coating

Ti100 Pro	▲ Ti multilayer coating ▲ $HV_{0.05}$ = 3500 ▲ Coefficient of friction (against steel) = 0.7 ▲ Maximum application temperature: 900°C

13

New products for machining technicians

NEW

MonsterMill – Ball Nosed Cutter

NCR



→ Page 39

Our specialist for 3D milling and machining of nickel-based alloys.

NEW

HPC-UNI end mill 3xDC

N



→ Page 242

New outstanding products in our standard range.



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters 14

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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WNT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

WNT \ Standard

Quality tools for standard applications.

The quality tools of the **WNT Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Symbol explanation

Shank


Shank type


Length: extra short / short / medium / long / extra long


Axial thro' coolant


Radial thro' coolant

Cutting edge preparation


Sharp


Corner chamfer (CHW = chamfer width in mm)


Corner radius


Full Radius



Application

HPC — High volume machining

HFC — High-feed milling

54–70 HRC — Hard materials


Machining example

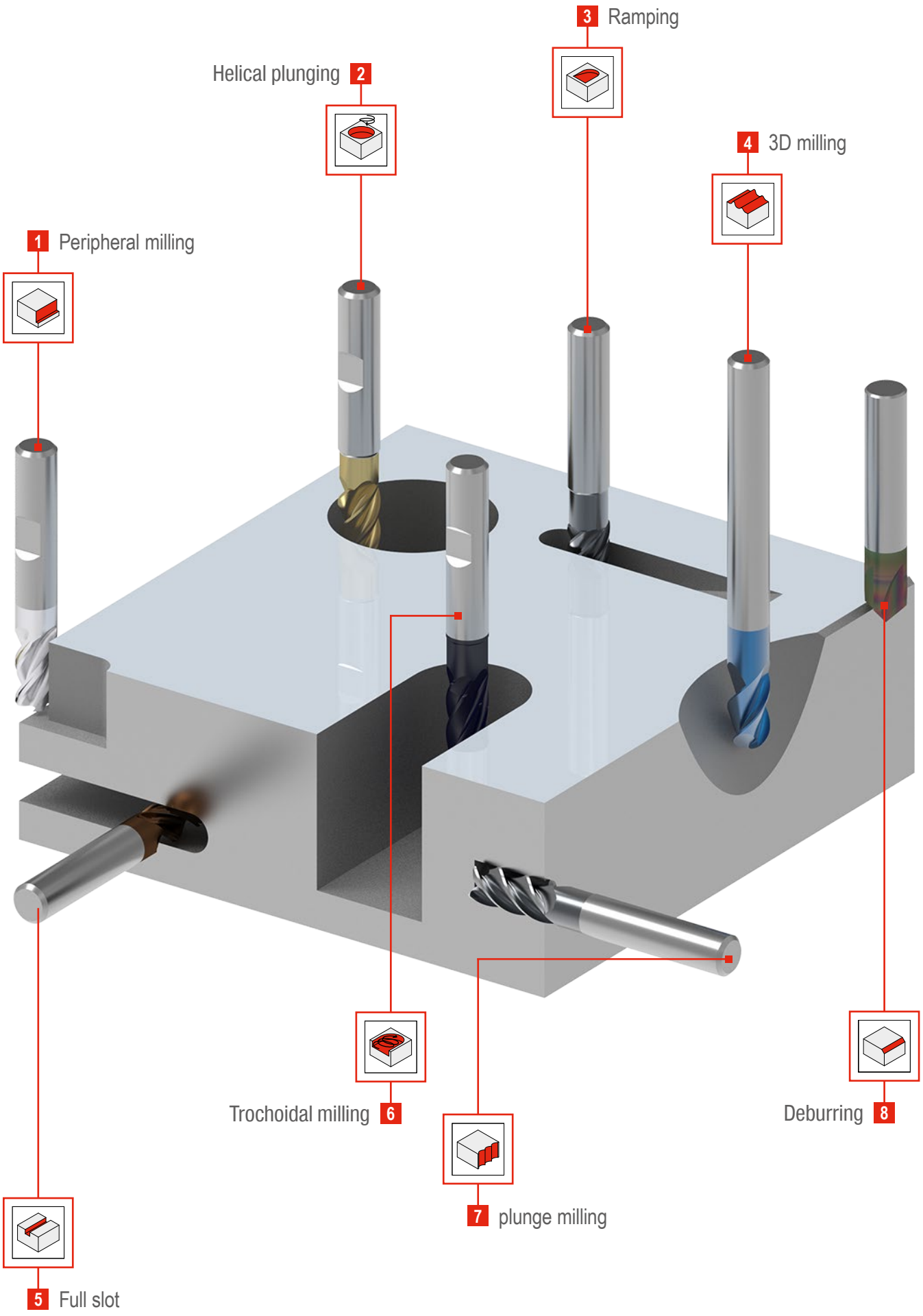

The red arrows describe the possible feed directions

λ_s=48°
γ_s=10°
Cutting geometry
λ_s = Helix Angle
γ_s = Rake Angle

λ_s var. — Variable helix angle

ZEFP = Number of flutes
● = **Main Application**
○ = Extended application

Toolfinder for High Performance Milling Cutters



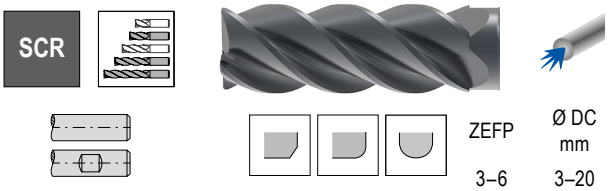
Toolfinder for high-performance milling cutters – MonsterMill

			1 Peripheral milling	2 Helical plunging	3 Ramping	4 3D milling
P	Steel		MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – SCR
M	Stainless steel		MonsterMill – ICR	MonsterMill – ICR	MonsterMill – ICR	MonsterMill – TCR
K	Cast iron		MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – SCR
N	Non-ferrous metals		MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
S	Heat resistant alloys		MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – TCR MonsterMill – NCR
H	Tempered steel	< 55 HRC				
		> 55 HRC	MonsterMill – HCR			MonsterMill – HCR
O	Non-metal materials		MonsterMill – FRP / FRP CR	MonsterMill – FRP / FRP CR	MonsterMill – FRP / FRP CR	

MonsterMill – SCR

→ Page 19–26

The specialist for machining steel and cast iron

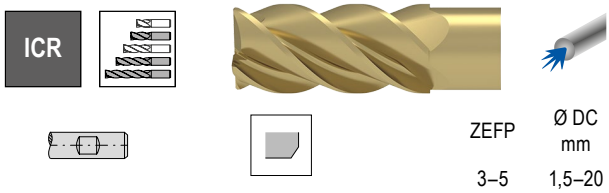


ZEFP	Ø DC mm
3–6	3–20

MonsterMill – ICR

→ Page 27+28

The specialist for machining stainless steel

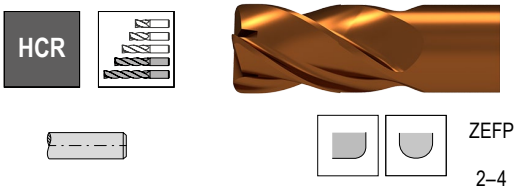


ZEFP	Ø DC mm
3–5	1,5–20

MonsterMill – HCR

→ Page 40–45

The specialist for finish machining tempered steel up to 70 HRC

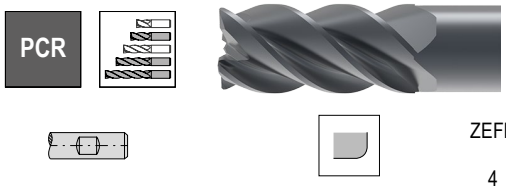


ZEFP	Ø DC mm
2–4	0,2–12

MonsterMill – PCR

→ Page 46–50

The specialist for ramping, plunging and helical milling



ZEFP	Ø DC mm
4	5–20

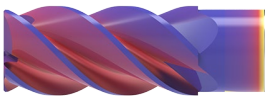
5 Full slot	6 Trochoidal milling	7 plunge milling	8 Deburring
MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR	MonsterMill – PCR	
MonsterMill – ICR			
MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR	MonsterMill – PCR	
MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR			
MonsterMill – FRP / FRP CR			

MonsterMill – TCR

→ Page 29–33

The specialist for machining titanium and titanium alloys

TCR



ZEFP	Ø DC mm
2–5	2–20

MonsterMill – NCR

→ Page 34–39

The specialist for machining nickel-based alloys

NCR



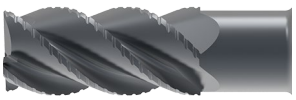
ZEFP	Ø DC mm
4–5	2–20

MonsterMill – MCR

→ Page 51

The specialist for rough machining steel and cast iron

MCR



ZEFP	Ø DC mm
3–4	1–20

MonsterMill – FRP / FRP CR

→ Page 52–56

The specialist for machining carbon fibre-reinforced plastics

FRP



ZEFP	Ø DC mm
1–8	6–12,7

14

Toolfinder for high-performance milling cutters

			1 Peripheral milling	2 Helical plunging	3 Ramping	4 3D milling
P	Steel		SilverLine S-Cut Micro-milling tools MultiLock / MultiChange	MultiLock / MultiChange		3D Finish SilverLine Micro-milling tools MultiLock / MultiChange
M	Stainless steel		SilverLine S-Cut Micro-milling tools			3D Finish SilverLine Micro-milling tools
K	Cast iron		SilverLine S-Cut Micro-milling tools MultiLock / MultiChange	MultiLock / MultiChange	MultiLock / MultiChange	3D Finish SilverLine Micro-milling tools MultiLock / MultiChange
N	Non-ferrous metals		AluLine PCD milling tools Micro-milling tools MultiChange	AluLine PCD milling tools MultiChange	AluLine PCD milling tools MultiChange	3D Finish AluLine PCD milling tools Micro-milling tools MultiChange
S	Heat resistant alloys		Micro-milling tools MultiLock	MultiLock	MultiLock	3D Finish Micro-milling tools MultiLock
H	Tempered steel	< 55 HRC	BlueLine Micro-milling tools	BlueLine	BlueLine	BlueLine Micro-milling tools
		> 55 HRC				
O	Non-metal materials		PCD milling tools Micro-milling tools	PCD milling tools	PCD milling tools	3D Finish PCD milling tools Micro-milling tools

CircularLine

→ Page 57–76

The specialist for trochoidal machining

CCR



ZEFP: 4–6

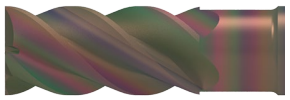
Ø DC mm: 6–20

AluLine

→ Page 77–115

The specialist for machining non-ferrous metals

W / WF / WR



ZEFP: 2–6

Ø DC mm: 2–25

S-Cut

→ Page 151–155

The all-rounder with soft cut and low power consumption

SC UNI



ZEFP: 4–5

Ø DC mm: 3–25

3D Finish

→ Page 156–160

The specialist for 3D finish machining

N



ZEFP: 2–4

Ø DC mm: 4–16

MultiLock

→ Page 193–196

The sustainable exchangeable head system

N



ZEFP: 4–6

Ø DC mm: 12–25

MultiChange

→ Page 197–202

The exchangeable head system for the highest demands and a wide range of applications

PCR W N



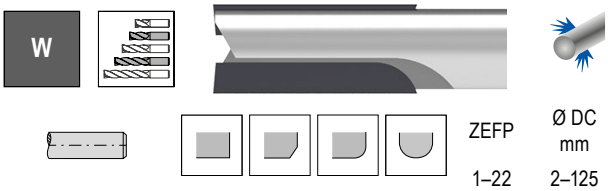
ZEFP: 3–6

Ø DC mm: 8–20

5 Full slot	6 Trochoidal milling	7 plunge milling	8 Deburring
S-Cut SilverLine Micro-milling tools MultiLock / MultiChange	CircularLine		SilverLine MultiLock MultiChange
S-Cut SilverLine Micro-milling tools	CircularLine		SilverLine
S-Cut SilverLine Micro-milling tools MultiLock / MultiChange	CircularLine		SilverLine MultiLock MultiChange
AluLine PCD milling tools Micro-milling tools MultiChange	CircularLine	PCD milling tools	AluLine MultiChange
Micro-milling tools MultiLock	CircularLine		SilverLine
BlueLine Micro-milling tools	CircularLine		BlueLine
	CircularLine		BlueLine
PCD milling tools Micro-milling tools		PCD milling tools	AluLine

PCD milling tools
→ Page 116–128

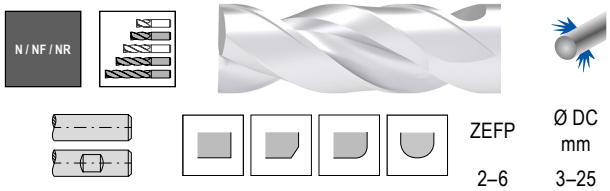
The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics



ZEFP	Ø DC mm
1–22	2–125

SilverLine
→ Page 129–150

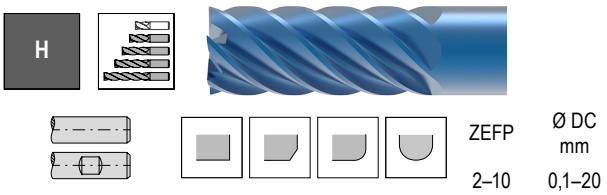
The all-rounder for universal application



ZEFP	Ø DC mm
2–6	3–25

BlueLine
→ Page 161–185

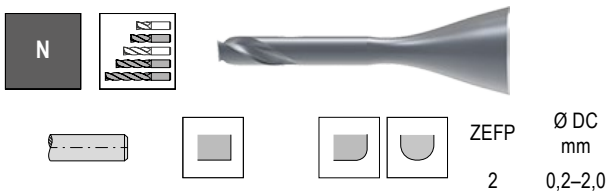
The all-rounder for machining tempered steel



ZEFP	Ø DC mm
2–10	0,1–20

Micro-milling tools
→ Page 186–192

The universal milling cutter for micro-cutting



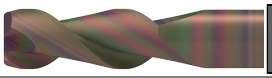
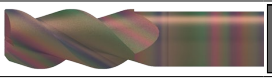
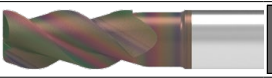
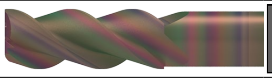
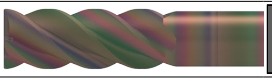
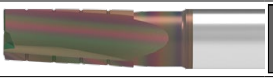
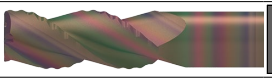
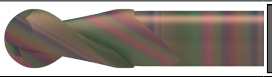
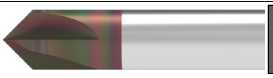
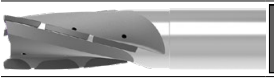
ZEFP	Ø DC mm
2	0,2–2,0

14

Overview High Performance Milling Cutters

Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
MonsterMill																			
SCR	4–6	3–20	●	○	●	○	○	○	○			■		■	HPC		■		19–24
SCR	3–4	3–16	●	○	●	○	○	○	○				■	■	HPC		■		25
SCR	4	3–16	●		●				○			■		■	HPC HFC	■	■		26
ICR	3–5	1,5–20	○	●	○	○	●	○	○		■			■	HPC	■	■		27+28
TCR	4–5	4–20	○	○			●					■		■	HPC		■		29–31
TCR	4	2–16	○	○			●						■	■			■		32
TCR	2–5	2–16	○	○			●					■		■	HPC HFC		■		33
NCR	4–5	4–20		○			●					■		■	HPC		■		34–38
NCR	4	2–16		○			●						■	■			■		39
HCR	2–4	0,2–12	○					●				■		■			■		40–42
HCR	2–4	0,2–12	○					●					■	■			■		43–45
PCR UNI	4	5–20	●	○	●							■		■	HPC		■		46–48
PCR ALU	4	5–20				●						■		■	HPC		■		49+50
MCR	3–4	1–20	●	○	●	○	○	○			■			■	HPC		■		51
FRP CR		6,0–12,7							●		■			■			■		52+53
FRP	8	6,0–12,7							●		■			■			■		54–56
CircularLine																			
CCR UNI	5–6	6–20	●	○	●		○				■	■		■	HPC		■		57–66
CCR VA	5–6	6–20	○	●			●					■		■	HPC		■		67+68
CCR AL	4	6–20				●					■	■		■			■		69–74
CCR Ti	5	6–20	○	○			●					■		■	HPC		■		75
CCR H	6	6–20						●				■		■			■		76

Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
AluLine																				
	W	2	2–20				●													77–82
	W	3	2–20				●													83–90
	W	3	2–20				●									HPC				91–97
	W	3	6–20				●													98–100
	W	4	2–25				●													101–106
	WF	3	3–20				●													107
	WR	3	6–20				●									HPC				108+109
	W	6	6–20				●									HPC				110
	W	2	3–20				●			○										111–113
	W	4	4–16				●			●										114+115
PCD milling tools																				
	W	1–4	2–20				●			●										116–118
	W	1–2	2–20				●			●										119
	W	1–2	2–20				●			●										120+121
	W	4–10	10–32				●			●						HPC				122
	W	3	16–25				●			●										123
	W	2–3	10–25				●			●										124
	W	2–6	10–32				●			●										125
	W	4–10	10–32				●			●						HPC				126
	W	2–3	10–16				●			●										127
	W	10–22	40–125				●			●										128

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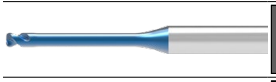
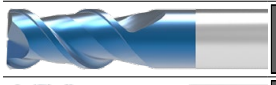
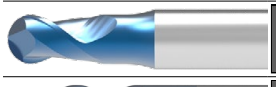
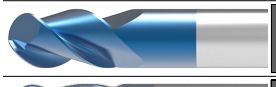
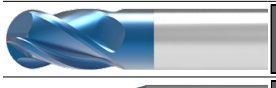
Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
SilverLine																				
	N	2	3–20	●	●	●	○	●			■	■			■	HPC		■		129+130
	N	3	3–20	●	●	●	○	●			■	■	■		■	HPC		■		131–133
	N	4	3–20	●	●	●	○	●				■			■	HPC		■		134–136
	N	4	6–20	●	●	●	○	●				■			■	HPC	■	■		137
	N	4–5	3–20	●	●	●	○	●				■	■		■	HPC		■		138–142
	NF	4	3–20	●	●	●	○	●				■			■	HPC		■		143
	NR	4	3–20	●	●	●	○	●				■			■	HPC		■		144
	N	6	6–25	●	●	○	○	●			■				■			■		145
	N	2	3–20	●		●	○		○					■	■			■		146
	N	4	4–20	●	○	●	○							■	■			■		147
	N	4	6–20	●	○	●	○		○				■		■	HPC HFC		■		148
	N	5	4–16	●	●	●		●										■	□	149+150
S-Cut																				
	SC UNI	4	3–25	●	●	●	○	○	○		■	■	■		■	HPC		■		151–153
	SC UNI	5	6–20	●	●	●		○				■			■	HPC		■		154
	SC NR	4	3–20	●	●	●	○	○	○			■			■	HPC		■		155
3D Finish																				
	N	4	10	●	●	●	●	●	○	●					■			■		156
	N	3–4	6–16	●	●	●	●	●	○	●					■			■		157
	N	3	6–16	●	●	●	●	●	○	●					■			■		158
	N	2	10	●	●	●	●	●	○	●					■			■		159
	N	3	4–12	●	●	●	●	●							■			■		160

Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
BlueLine																				
	H	2	0,2–3	●					●		■				■			■		161–163
	H	2	0,2–3	●					●					■	■			■		164–166
	H	2	0,4–3	●					●				■		■			■		167–169
	H	2	0,5–20	●					●			■			■			■		170
	H	4–6	1–20	●					●				■		■			■		171–173
	H	4–10	2–20	●					●		■		■		■			■		174+175
	H	2	0,1–20	○					●					■	■			■		176–179
	H	3	3–12	●					●					■	■			■		180
	H	4	2–20	○					●					■	■			■		181
	H	2	0,5–16	○					●				■		■			■		182–184
	H	5–8	4–16	●					●						■			■		185
Micro-milling tools																				
	N	2	0,2–2	●	●	●	●	●	○	○	■				■			■		186+187
	N	2	0,2–2	●	●	●	●	●	○	○				■	■			■		188–190
	N	2	0,5–2	●	●	●	●	●	○	○			■		■			■		191+192

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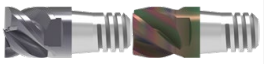
Overview High Performance Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Performance
MultiLock – exchangeable head system																				
	N	4	12–25	●	○	●	○	●						◡					☐	193
	N	4–6	12–25	●	○	●	○	●					◡				✓		☐	193
	N	5–6	12–25	●	○	●		●					◡			HFC	✓		☐	194
	N	4	12–16	●	○	●	○												☐	194
MultiLock – Adapters and holders																				
																				195+196
MultiChange – exchangeable head system																				
	PCR	4	10–20	●	○	●	●						◡			HPC			☐	198
	W	3	10–20				●						◡						☐	198
	N	3–4	8–20	●		●						◡				HPC			☐	199
	N	4–6	8–20	●	○	●	●					◡							☐	199
	N	6	8–20	●	○	●					◡								☐	200
	N	4	10–20	●	○	●	●			○				◡					☐	200
	N	4	8–20	●	○	●	●			○			◡						☐	200
	N	6	8–20	●	○	●							◡			HFC	✓		☐	201
	N	4	8–20	●	○	●	●												☐	201
	N	4–6	10–20	●	○	●	●												☐	202

End Mills Overview

Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
End Mills with Finishing Geometry																			
W	2	0,2–6,0				●					■			■			■		203+204
W	2	2,7–25				●			●	■	■	■		■	HPC			■	205–211
W	3	3–25				●				■		■		■	HPC			■	212–214
W	4	6–20				●				■				■	HPC			■	215+216
W	5–7	6–20				●				■				■	HPC			■	217
N	2	0,2–20	●	○	●	○	○	○	○	■	■			■			■	■	218–225
N	3	3–20	○	●	○	○	●		○	■				■				■	226
N	3	0,5–20	●	●	●	●	●	○	●	■	■			■			■	■	227–233
N	4	1,5–25	●	○	●	○	○	○	○	■	■			■	HPC		■	■	234–237
N	4	2–12	○	●	○	●	●		●			■		■	HPC		■		238
N	4	3–20	●	○	●	○	○	○	○			■		■			■		239
N	4	3–20	●	●	●	○	●			■	■	■		■	HPC		■		240–245
N	6–8	4–32	●	●	●	●	●		●	■	■	■		■			■	■	246–249
N	8–16	6–20	○	●	○	●	●		●	■				■			■		250
H	4	4–20	●					●			■	■		■			■		251
H	6–8	4–25	●	●	○	●	●	●	●	■	■			■			■		252+253
End Mills with Roughing and Finishing Geometry																			
WF	4	5–20				●	○		●		■			■			■		254
NTR	3–4	6–20	●	○	●	○					■			■			■		255

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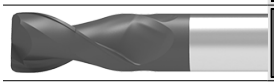
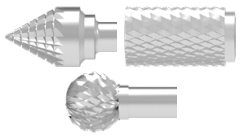
Overview of end milling, ball-nosed and torus cutters

Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
End Mills with Roughing Geometry																			
 NR	4–6	4–25	●	●	●	○	●		○		■			■	HPC	■	■		256–258
 HR	4–5	6–25	●	●	●						■			■		■	■		259–261
Ball Nosed End Mills with Finishing Geometry																			
 W	2	0,5–12				●	○		●				■	■				■	262
 W	2	0,2–6				●							■	■			■		263+264
 W	2	3–20				●							■	■	HPC			■	265
 W	2	0,5–12				●			●				■	■			■		266+267
 N	2	0,1–20	●	○	●	○	○	○	○				■	■			■	■	268–273
 N	2	1–12	●	○	●	○	○	○	○				■	■			■		274
 N	2	3–20	●	●	○	●	○						■	■	HPC		■		275
 N	4	3–20	●	●	●	●	●	○	●				■	■	HPC		■		276–278
 H	2	0,2–20	●	○	●	○	○	○	○				■	■			■		279–280
Torus Milling Cutters with Finishing Geometry																			
 W	2	0,2–12				●						■		■			■		281–284
 W	2	2–12				●			●			■		■			■		285
 W	4	4–12				●			●			■		■			■		286+287
 N	2	0,5–16	●	○	●	○	○	○	○			■		■			■		288
 H	2	0,4–12	●	○	●	○	○	○	○			■		■			■		289–292
 H	4–8	3–16	●		○			●				■		■			■		293

Overview Special Milling Cutters

	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
Intermediate Size Torus End Mills																				
	H	4	7–17	○	●	○	●	●		●			■		■			■		294
Form / Chamfering and Die Sinking / Deburring Cutters																				
	W	1	3–6	○	○	○	●	○		●									□	295
	N	4	4–12	●	○	●	○	○	○	●								■	□	296
	N	4	3–12	●	○	●	○	○	○	●								■	□	297
	N	4	6–10	●	○	●	○	○	○	●								■		298
	N	6–10	11–40	●	○	●												■		299
			3–16																□	300+301
Circular saw blades																				
		24–160	15–200	●	●	●	●	●		●								■		302–304
		20–80	15–200	●	●	●	●	●		●								■		305–307
Cylindrical shank adapter for circular saw blades																				
																				308

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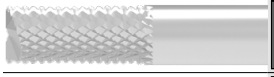
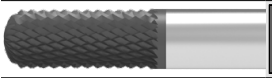
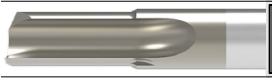
Overview Special Milling Cutters

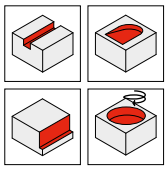
Plastics-GFK-CFK- Cutters

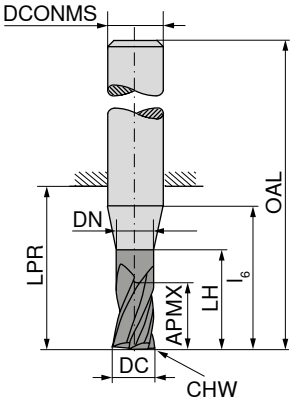
	Tool type	Number of flutes ZEFP	Diameter in mm Ø DC	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
	W		2–20							●									☐	310
	W		2–20							●									☐	311
	W		2–20							●								☐		312
	W		5–16							●	☐							☐		313
	W		6–24							●	☐							☐		314
	W	2	2–12				●			●								☐		315
	W	1	1,5–16,0				●			●									☐	316
	W	1	1,5–12,0				●			●								☐		317
	W	2	2–12				●			●								☐		318
	W	3	3–12				●			●				☐				☐		319
	N	2	2–12	●	○	●	○	○		●									☐	320

MonsterMill – End milling cutter

The specialist for machining steel and cast iron

SCR | λ_s = 35° 38° γ_s = 7° | HPC















DIN 6527





DIN 6527





DIN 6527





DIN 6527



DC $_{f8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	CHW mm	ZEFP	52 600 ... £ V2		52 601 ... £ V2		52 602 ... £ V2		52 603 ... £ V2	
3.0	5	2.9	9	14	14	50	6	0.07	4	72.50	030	72.50	030				
3.0	8	2.9	14	20	22	58	6	0.07	4					72.50	030	72.50	030
3.5	5	3.4	9	14	14	50	6	0.07	4	72.50	035	72.50	035				
3.5	8	3.4	14	20	22	58	6	0.07	4					72.50	035	72.50	035
4.0	8	3.8	12	18	18	54	6	0.07	4	72.50	040	72.50	040				
4.0	11	3.8	18	20	22	58	6	0.07	4					72.50	040	72.50	040
4.5	9	4.3	12	18	18	54	6	0.07	4	74.07	045	74.07	045				
4.5	13	4.3	18	20	22	58	6	0.07	4					74.07	045	74.07	045
5.0	9	4.8	16	18	18	54	6	0.07	4	74.07	050	74.07	050				
5.0	13	4.8	19	20	22	58	6	0.07	4					74.07	050	74.07	050
5.5	9	5.3	16	18	18	54	6	0.07	4	71.60	055	71.60	055				
5.5	13	5.3	19	20	22	58	6	0.07	4					71.60	055	71.60	055
6.0	10	5.8		16	18	54	6	0.07	4	71.60	060	71.60	060				
6.0	13	5.8		20	22	58	6	0.07	4					71.60	060	71.60	060
6.5	12	6.3	18	20	23	59	8	0.07	4	95.32	065	95.32	065				
6.5	19	6.3	23	25	28	64	8	0.07	4					95.32	065	95.32	065
7.0	12	6.8	18	20	23	59	8	0.07	4	95.32	070	95.32	070				
7.0	19	6.8	23	25	28	64	8	0.07	4					95.32	070	95.32	070
7.5	12	7.3	18	20	23	59	8	0.12	4	95.32	075	95.32	075				
7.5	19	7.3	23	25	28	64	8	0.12	4					95.32	075	95.32	075
8.0	12	7.7		20	23	59	8	0.12	4	95.32	080	95.32	080				
8.0	19	7.7		25	28	64	8	0.12	4					95.32	080	95.32	080
8.5	15	8.2	22	24	27	67	10	0.20	4	124.43	085	124.43	085				
8.5	22	8.2	28	30	33	73	10	0.20	4					124.43	085	124.43	085
9.0	15	8.7	22	24	27	67	10	0.20	4	124.43	090	124.43	090				
9.0	22	8.7	28	30	33	73	10	0.20	4					124.43	090	124.43	090
9.5	15	9.2	22	24	27	67	10	0.20	4	124.43	095	124.43	095				
9.5	22	9.2	28	30	33	73	10	0.20	4					124.43	095	124.43	095
10.0	15	9.5		24	27	67	10	0.20	4	124.43	100	124.43	100				
10.0	22	9.5		30	33	73	10	0.20	4					124.43	100	124.43	100
11.0	18	10.5	24	26	28	73	12	0.20	4	196.77	110	196.77	110				
11.0	26	10.5	32	35	39	84	12	0.20	4					196.77	110	196.77	110
11.5	18	11.0	24	26	28	73	12	0.20	4	196.77	115	196.77	115				
11.5	26	11.0	32	35	39	84	12	0.20	4					196.77	115	196.77	115
12.0	18	11.5		26	28	73	12	0.20	4	196.77	120	196.77	120				
12.0	26	11.5		35	39	84	12	0.20	4					196.77	120	196.77	120
14.0	21	13.5		28	30	75	14	0.20	4	252.57	140	252.57	140				
14.0	26	13.5		35	39	84	14	0.20	4					252.57	140	252.57	140
15.0	24	14.5	30	32	35	83	16	0.20	4	312.07	150	312.07	150				
15.0	32	14.5	38	40	45	93	16	0.20	4					312.07	150	312.07	150

P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 322+323

Continued on next page

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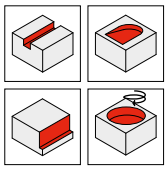
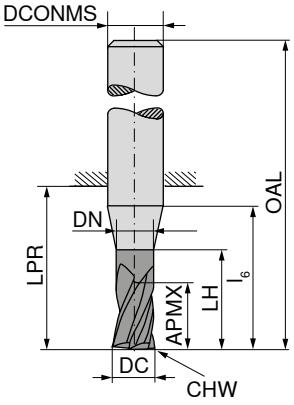
MonsterMill – End milling cutter

The specialist for machining steel and cast iron

SCR | λ_s = 35° 38° γ_s = 7° | HPC















DIN 6527



52 600 ...



DIN 6527



52 601 ...



DIN 6527



52 602 ...



DIN 6527



52 603 ...

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	£ V2		£ V2		£ V2		£ V2	
16.0	24	15.5		32	35	83	16	0.20	4	312.07	**160**	312.07	**160**				
16.0	24	15.5		32	35	83	16	0.20	5	328.41	**161** 1)	328.41	**161** 1)				
16.0	32	15.5		40	45	93	16	0.20	5					328.41	**161** 1)	328.41	**161** 1)
16.0	32	15.5		40	45	93	16	0.20	4					312.07	**160**	312.07	**160**
17.0	32	16.5	48	50	52	100	18	0.20	4							424.39	**170**
18.0	27	17.5		34	37	85	18	0.20	5	446.84	**181** 1)	446.84	**181** 1)				
18.0	27	17.5		34	37	85	18	0.20	4	424.39	**180**	424.39	**180**				
18.0	32	17.5		50	52	100	18	0.20	5					446.84	**181** 1)	446.84	**181** 1)
18.0	32	17.5		50	52	100	18	0.20	4					424.39	**180**	424.39	**180**
19.0	38	18.5	48	50	54	104	20	0.30	4							481.42	**190**
19.5	38	19.0	48	50	54	104	20	0.30	4							481.42	**195**
20.0	30	19.5		40	43	93	20	0.30	5	506.70	**201** 1)	506.70	**201** 1)				
20.0	30	19.5		40	43	93	20	0.30	4	481.42	**200**	481.42	**200**				
20.0	38	19.5		50	54	104	20	0.30	4					481.42	**200**	481.42	**200**
20.0	38	19.5		50	54	104	20	0.30	5					506.70	**201** 1)	506.70	**201** 1)
P											●		●		●		●
M											○		○		○		○
K											●		●		●		●
N											○		○		○		○
S											○		○		○		○
H											○		○		○		○
O											○		○		○		○

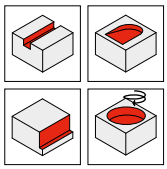
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

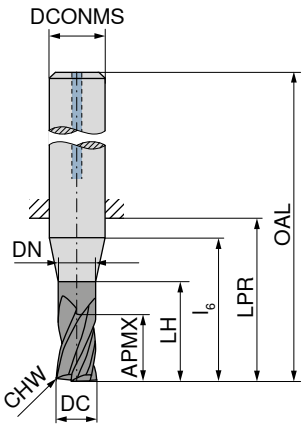
→ v_c/f_z Page 322+323

MonsterMill – End milling cutter

The specialist for machining steel and cast iron

SCR | λ_s = 35° 38° γ_s = 7° | HPC | Ti1200









DIN 6527



52 606 ...

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	£ V2	
3	8	2.9	14	20	22	58	6	0.07	4	88.82	**030**
4	11	3.8	18	20	22	58	6	0.07	4	88.82	**040**
5	13	4.8	19	20	22	58	6	0.07	4	90.39	**050**
6	13	5.8		20	22	58	6	0.07	4	87.94	**060**
8	19	7.7		25	28	64	8	0.12	4	114.80	**080**
10	22	9.5		30	33	73	10	0.20	4	147.42	**100**
12	26	11.5		35	39	84	12	0.20	4	233.79	**120**
16	32	15.5		40	45	93	16	0.20	4	394.91	**160**
20	38	19.5		50	54	104	20	0.30	4	633.80	**200**

P	●
M	○
K	●
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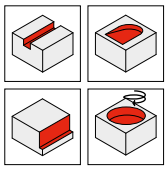
S	○
H	○
O	○

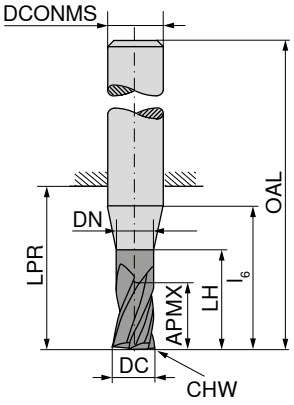
→ v_c/f_z Page 322+323

MonsterMill – End milling cutter

The specialist for machining steel and cast iron

SCR | λ_s = 35° 38° γ_s = 7° | HPC











Factory standard



Factory standard

DC $_{f8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	CHW mm	ZEFP	52 604 ... £ V2		52 605 ... £ V2	
3	5	2.9	14	20	22	58	6	0.07	4	72.50	**030**		
3	5	2.9	19	23	26	62	6	0.07	4			84.62	**030**
4	8	3.8	18	20	22	58	6	0.07	4	72.50	**040**		
4	8	3.8	23	25	26	62	6	0.07	4			84.62	**040**
5	9	4.8	19	20	22	58	6	0.07	4	74.07	**050**		
5	9	4.8	24	25	26	62	6	0.07	4			86.22	**050**
6	10	5.8		20	22	58	6	0.07	4	71.60	**060**		
6	10	5.8		25	26	62	6	0.07	4			83.72	**060**
8	12	7.7		25	28	64	8	0.12	4	95.32	**080**		
8	12	7.7		30	32	68	8	0.12	4			110.58	**080**
10	15	9.5		30	33	73	10	0.20	4	124.43	**100**		
10	15	9.5		35	40	80	10	0.20	4			143.24	**100**
12	18	11.5		35	39	84	12	0.20	4	196.77	**120**		
12	18	11.5		45	48	93	12	0.20	4			225.36	**120**
14	21	13.5		35	39	84	14	0.20	4	252.57	**140**		
14	21	13.5		50	54	99	14	0.20	4			305.77	**140**
16	24	15.5		40	45	93	16	0.20	4	312.07	**160**		
16	24	15.5		40	45	93	16	0.20	5	328.41	**161** [1]		
16	24	15.5		55	60	108	16	0.20	4			369.63	**160**
16	24	15.5		55	60	108	16	0.20	5			386.84	**161** [1]
18	27	17.5		50	52	100	18	0.20	4	424.39	**180**		
18	27	17.5		50	52	100	18	0.20	5	446.84	**181** [1]		
18	27	17.5		60	66	114	18	0.20	4			525.51	**180**
18	27	17.5		60	66	114	18	0.20	5			548.99	**181** [1]
20	30	19.5		50	54	104	20	0.30	4	481.42	**200**		
20	30	19.5		50	54	104	20	0.30	5	506.70	**201** [1]		
20	30	19.5		70	76	126	20	0.30	4			589.55	**200**
20	30	19.5		70	76	126	20	0.30	5			616.05	**201** [1]

P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

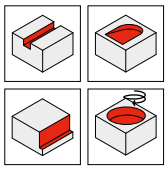
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

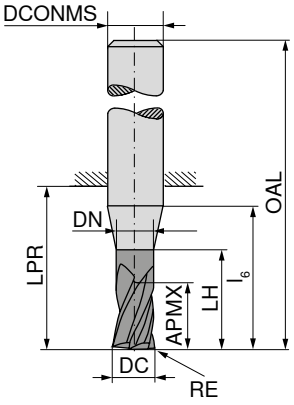
→ v_c/f_z Page 322–325

MonsterMill – End milling cutter with corner radius

The specialist for machining steel and cast iron

SCR | λ_s = 35° 38° γ_s = 7° | HPC





Ti1200





Factory standard



52 607 ...

DC $_{f8}$ mm	RE $_{\pm 0,01}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	£ V2	
3	0.10	8	2.9	14	20	22	58	6	4	82.16	030
3	0.30	8	2.9	14	20	22	58	6	4	82.16	031
3	0.50	8	2.9	14	20	22	58	6	4	82.16	032
4	0.10	11	3.8	18	20	22	58	6	4	82.16	040
4	0.40	11	3.8	18	20	22	58	6	4	82.16	041
4	0.50	11	3.8	18	20	22	58	6	4	82.16	042
5	0.10	13	4.8	19	20	22	58	6	4	83.91	050
5	0.50	13	4.8	19	20	22	58	6	4	83.91	051
5	1.00	13	4.8	19	20	22	58	6	4	83.91	052
6	0.10	13	5.8		20	22	58	6	4	81.26	060
6	0.50	13	5.8		20	22	58	6	4	81.26	061
6	1.00	13	5.8		20	22	58	6	4	81.26	062
8	0.15	19	7.7		25	28	64	8	4	107.93	080
8	0.50	19	7.7		25	28	64	8	4	107.93	081
8	1.00	19	7.7		25	28	64	8	4	107.93	082
8	2.00	19	7.7		25	28	64	8	4	107.93	083
10	0.15	22	9.5		30	33	73	10	4	141.13	100
10	0.50	22	9.5		30	33	73	10	4	141.13	101
10	1.00	22	9.5		30	33	73	10	4	141.13	102
10	1.50	22	9.5		30	33	73	10	4	141.13	103
10	2.00	22	9.5		30	33	73	10	4	141.13	104
12	0.20	26	11.5		35	39	84	12	4	223.08	120
12	0.50	26	11.5		35	39	84	12	4	223.08	121
12	1.00	26	11.5		35	39	84	12	4	223.08	122
12	1.50	26	11.5		35	39	84	12	4	223.08	123
12	2.00	26	11.5		35	39	84	12	4	223.08	124
14	1.00	26	13.5		35	39	84	14	4	286.43	140
16	0.30	32	15.5		40	45	93	16	4	353.85	160
16	0.50	32	15.5		40	45	93	16	4	353.85	161
16	1.00	32	15.5		40	45	93	16	4	353.85	162
16	2.00	32	15.5		40	45	93	16	4	353.85	163
16	4.00	32	15.5		40	45	93	16	4	353.85	164
20	0.30	38	19.5		50	54	104	20	4	545.86	200
20	0.50	38	19.5		50	54	104	20	4	545.86	201
20	1.00	38	19.5		50	54	104	20	4	545.86	202
20	2.00	38	19.5		50	54	104	20	4	545.86	203

P	●
M	○
K	●
N	○
S	○
H	○
O	○

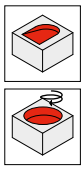
→ v_c/f_z Page 322+323

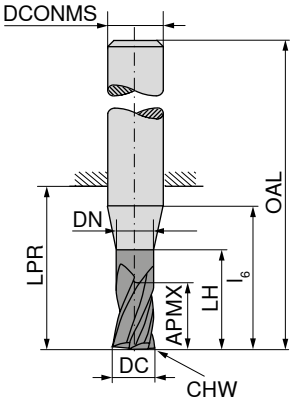
14

MonsterMill – End milling cutter

The specialist for machining steel and cast iron

SCR | λ_s = 35° 38° γ_s = 7° | HPC















DIN 6527





DIN 6527





DIN 6527





Factory standard



DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	52 608 ... £ V2		52 608 ... £ V2		52 608 ... £ V2		52 608 ... £ V2	
5	9	4.8	16	18	18	54	6	0.12	6	97.07	**050**						
5	13	4.8	19	20	22	58	6	0.12	6			97.07	**051**				
5	13	4.8	24	25	26	62	6	0.12	6							110.26	**052**
6	10	5.8		16	18	54	6	0.12	6	94.07	**060**						
6	13	5.8		20	22	58	6	0.12	6			94.07	**061**				
6	13	5.8		25	26	62	6	0.12	6							107.07	**062**
8	12	7.7		20	23	59	8	0.12	6	124.95	**080**						
8	19	7.7		25	28	64	8	0.12	6			124.95	**081**				
8	19	7.7		30	32	68	8	0.12	6							141.48	**082**
10	15	9.5		24	27	67	10	0.20	6	163.22	**100**						
10	22	9.5		30	33	73	10	0.20	6			163.22	**101**	163.22	**103**		
10	22	9.5		35	40	80	10	0.20	6							183.25	**102**
12	18	11.5		26	28	73	12	0.20	6	258.19	**120**						
12	26	11.5		35	39	84	12	0.20	6			258.19	**121**	258.19	**123**		
12	26	11.5		45	48	93	12	0.20	6							288.39	**122**
16	24	15.5		32	35	83	16	0.20	6	409.48	**160**						
16	32	15.5		40	45	93	16	0.20	6			409.48	**161**	409.48	**163**		
16	32	15.5		55	60	108	16	0.20	6							473.18	**162**
20	30	19.5		40	43	93	20	0.30	6	631.83	**200**						
20	38	19.5		50	54	104	20	0.30	6			631.83	**201**	631.83	**203**		
20	38	19.5		70	76	126	20	0.30	6							754.55	**202**
P										●		●		●		●	
M										○		○		○		○	
K										●		●		●		●	
N										○		○		○		○	
S										○		○		○		○	
H										○		○		○		○	
O										○		○		○		○	

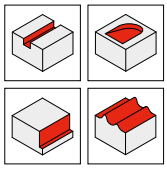
→ v_c/f_z Page 322–325

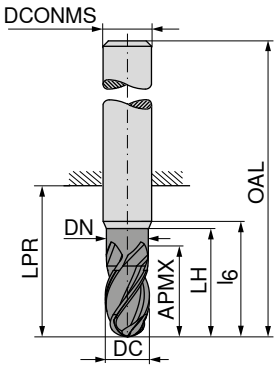
MonsterMill – Ball Nosed Cutter

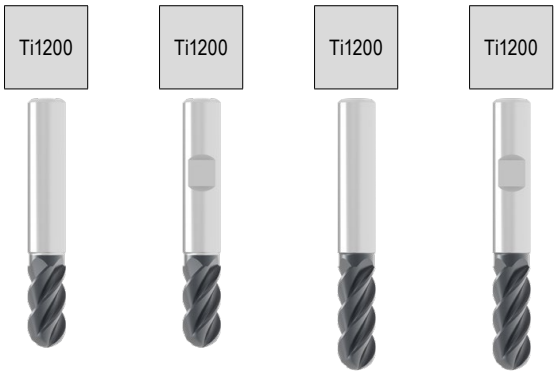
The specialist for machining steel and cast iron

▲ Radius accuracy: - 0,015 mm for Ø ≤ 6,0 mm / - 0,02 mm for Ø > 6,0 mm

SCR | λ_s=35° γ_s= 7° | HPC









DIN 6527 | DIN 6527 | DIN 6527 | DIN 6527



DC $_{f8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	52 611 ... £ V2		52 611 ... £ V2		52 612 ... £ V2		52 612 ... £ V2	
3	5	2.9	9	14	14	50	6	3	73.93	030						
3	8	2.9	14	20	22	58	6	3					76.78	030		
4	8	3.8	12	18	18	54	6	3	73.93	040						
4	11	3.8	18	20	22	58	6	3					76.78	040		
5	9	4.8	16	18	18	54	6	3	75.27	050						
5	13	4.8	19	20	22	58	6	3					78.12	050		
6	10	5.8		16	18	54	6	4	75.10	060	75.10	061				
6	13	5.8		20	22	58	6	4					78.06	060	78.06	061
8	12	7.7		20	23	59	8	4	99.86	080	99.86	081				
8	19	7.7		25	28	64	8	4					103.65	080	103.65	081
10	15	9.5		24	27	67	10	4	130.30	100	130.30	101				
10	22	9.5		30	33	73	10	4					135.32	100	135.32	101
12	18	11.5		26	28	73	12	4	205.92	120	205.92	121				
12	26	11.5		35	39	84	12	4					214.57	120	214.57	121
16	24	15.5		32	35	83	16	4	327.05	160	327.05	161				
16	32	15.5		40	45	93	16	4					339.15	160	339.15	161

P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

→ v_c/f_z Page 322+323

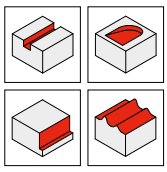
MonsterMill – Torus Face Milling Cutter

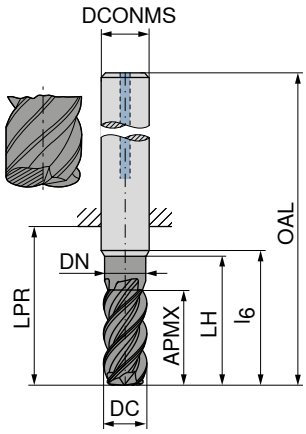
The specialist for machining steel and cast iron

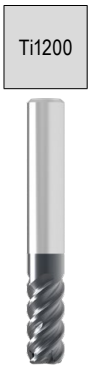
▲ r_{3D} = programmed corner radius

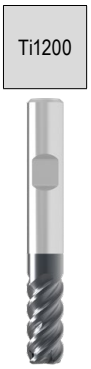
▲ For HFC machining: APMX does not correspond to the maximum cutting depth

SCR | λ_s=45° γ_s= 7° | HFC | HPC | ≤ 60 HRC













DIN 6527 | DIN 6527





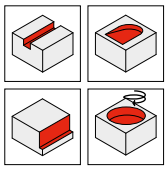
DC $_{-0.04}$ mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	l_6 mm	DCONMS $_{h5}$ mm	T $_{max.}$ mm	ZEFP	52 609 ... £ V2		52 609 ... £ V2	
3	0.4	3	2.9	14.00	21	57	20	6	0.10	4	157.40	**030**	157.40	**031**
4	0.5	4	3.8	18.00	21	57	20	6	0.15	4	161.36	**040**	161.36	**041**
5	0.6	5	4.8	18.00	21	57	20	6	0.20	4	177.99	**050**	177.99	**051**
6	0.8	13	5.8	19.90	21	57	20	6	0.20	4	163.50	**060**	163.50	**061**
8	1.0	19	7.7	24.85	27	63	25	8	0.30	4	187.85	**080**	187.85	**081**
10	1.2	22	9.5	29.75	32	72	30	10	0.40	4	222.47	**100**	222.47	**101**
12	1.6	26	11.5	34.75	38	83	35	12	0.40	4	283.42	**120**	283.42	**121**
16	2.2	32	15.5	39.75	44	92	40	16	0.50	4	446.60	**160**	446.60	**161**
P												●		●
M														
K												●		●
N														
S														
H												○		○
O														

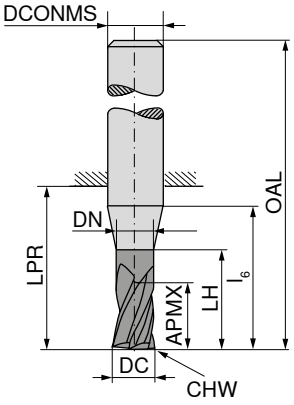
→ v_c/f_z Page 326–328

MonsterMill – End milling cutter

The specialist for machining stainless steel

ICR | λ_s=40° α_s=38° γ_s=10° | HPC













DIN 6527



Factory standard



Factory standard







DC $_{e8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	52 784 ... £ V1		52 784 ... £ V1		52 784 ... £ V1	
1.5	2.3	1.4	6	14	21	57	6	0.04	3	85.64	**017**				
2.0	3.0	1.9	8	15	21	57	6	0.04	3	85.64	**022**				
2.5	3.8	2.4	10	16	21	57	6	0.07	3	85.64	**027**				
3.0	5.0	2.9	14	18	21	57	6	0.07	3	85.64	**032**				
3.0	8.0	2.9	14	18	21	57	6	0.07	3			89.71	**034**		
3.0	5.0	2.9	19	23	26	62	6	0.07	3					89.71	**036**
4.0	8.0	3.8	18	20	21	57	6	0.07	3	85.64	**042**				
4.0	11.0	3.8	18	20	21	57	6	0.07	3			92.14	**044**		
4.0	8.0	3.8	23	25	26	62	6	0.07	3					92.14	**046**
5.0	9.0	4.8	19	20	21	57	6	0.12	3	85.64	**052**				
5.0	13.0	4.8	19	20	21	57	6	0.12	3			92.14	**054**		
5.0	9.0	4.8	24	25	26	62	6	0.12	3					92.14	**056**
6.0	10.0	5.8	20		21	57	6	0.12	4	124.58	**062**				
6.0	13.0	5.8	20		21	57	6	0.12	4			124.58	**064**		
6.0	10.0	5.8	25		26	62	6	0.12	4					124.58	**066**
8.0	12.0	7.7	25		27	63	8	0.12	4	147.14	**082**				
8.0	19.0	7.7	25		27	63	8	0.12	4			147.14	**084**		
8.0	12.0	7.7	30		32	68	8	0.12	4					147.14	**086**
10.0	15.0	9.5	30		32	72	10	0.20	4	188.95	**102**				
10.0	22.0	9.5	30		32	72	10	0.20	4			188.95	**104**		
10.0	15.0	9.5	35		40	80	10	0.20	4					188.95	**106**
12.0	18.0	11.5	35		38	83	12	0.20	4	269.35	**122**				
12.0	26.0	11.5	35		38	83	12	0.20	4			269.35	**124**		
12.0	18.0	11.5	45		48	93	12	0.20	4					269.35	**126**
14.0	21.0	13.5	35		38	83	14	0.20	4	355.06	**142**				
14.0	26.0	13.5	35		38	83	14	0.20	4			355.06	**144**		
14.0	21.0	13.5	50		54	99	14	0.20	4					372.80	**146**
16.0	24.0	15.5	40		44	92	16	0.20	4	370.03	**161**				
16.0	24.0	15.5	40		44	92	16	0.20	5	408.32	**162** [1]				
16.0	32.0	15.5	40		44	92	16	0.20	4			392.86	**163**		
16.0	32.0	15.5	40		44	92	16	0.20	5			408.32	**164** [1]		
16.0	24.0	15.5	55		60	108	16	0.20	4					405.10	**165**
16.0	24.0	15.5	55		60	108	16	0.20	5					408.32	**166** [1]
18.0	27.0	17.5	40		44	92	18	0.20	4	480.56	**181**				
18.0	27.0	17.5	40		44	92	18	0.20	5	538.14	**182** [1]				
18.0	32.0	17.5	40		44	92	18	0.20	4			508.70	**183**		
18.0	32.0	17.5	40		44	92	18	0.20	5			538.14	**184** [1]		
18.0	27.0	17.5	60		66	114	18	0.20	4					550.62	**185**
18.0	27.0	17.5	60		66	114	18	0.20	5					538.14	**186** [1]
20.0	30.0	19.5	50		54	104	20	0.30	4	559.44	**201**				
20.0	30.0	19.5	50		54	104	20	0.30	5	609.06	**202** [1]				
20.0	38.0	19.5	50		54	104	20	0.30	4			592.69	**203**		
20.0	38.0	19.5	50		54	104	20	0.30	5			639.48	**204** [1]		
20.0	30.0	19.5	70		76	126	20	0.30	4					626.04	**205**
20.0	30.0	19.5	70		76	126	20	0.30	5					639.48	**206** [1]
P										○		○		○	
M										●		●		●	
K										○		○		○	
N										○		○		○	
S										●		●		●	
H										○		○		○	
O										○		○		○	

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

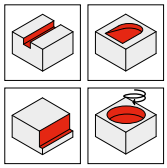
→ v_c/f_z Page 330–335

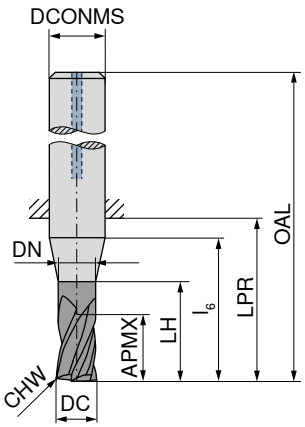
14

MonsterMill – End milling cutter

The specialist for machining stainless steel

ICR | λ_s=40° α_s=38° γ_s=10° | HPC





Ti1500





DIN 6527



52 786 ...

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	£ V1	
3	8	2.9	14	18	21	57	6	0.07	3	98.73	**034**
4	11	3.8	18	20	21	57	6	0.07	3	98.73	**044**
5	13	4.8	19	20	21	57	6	0.12	3	103.41	**054**
6	13	5.8	20		21	57	6	0.12	4	135.59	**064**
8	19	7.7	25		27	63	8	0.12	4	162.70	**084**
10	22	9.5	30		32	72	10	0.20	4	202.48	**104**
12	26	11.5	35		38	83	12	0.20	4	291.03	**124**
14	26	13.5	35		38	83	14	0.20	4	398.64	**144**
16	32	15.5	40		44	92	16	0.20	4	448.94	**163**
16	32	15.5	40		44	92	16	0.20	5	436.60	**164** 1)
18	32	17.5	40		44	92	18	0.20	4	592.69	**183**
18	32	17.5	40		44	92	18	0.20	5	597.92	**184** 1)
20	38	19.5	50		54	104	20	0.30	4	699.69	**203**
20	38	19.5	50		54	104	20	0.30	5	664.37	**204** 1)

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1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

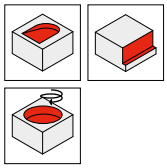
→ v_c/f_z Page 331–333

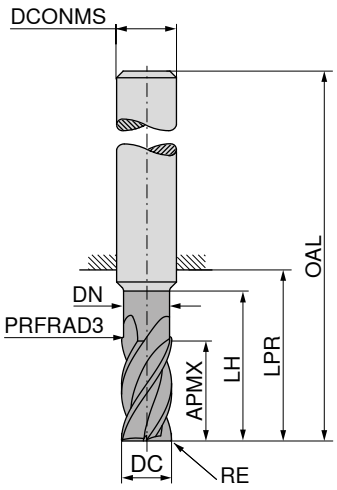
MonsterMill – End milling cutter with corner radius

The specialist for machining titanium and titanium alloys

▲ PRFRAD3 = 1 mm



















Factory standard

Factory standard





DC e8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 504 ... £ V1		52 506 ... £ V1	
4	0.1	11		14	21	57	6	4	85.89	**04000**		
4	0.1	11	3.8	17	21	57	6	5			92.64	**04000**[1)]
5	0.1	13		16	21	57	6	4	85.89	**05000**		
5	0.1	13	4.8	19	21	57	6	5			96.40	**05000**[1)]
6	0.1	13			21	57	6	4	85.89	**06000**		
6	0.1	13	5.8	19	21	57	6	5			96.40	**06000**[1)]
8	0.2	21			27	63	8	4	119.40	**08000**		
8	0.2	21	7.7	25	27	63	8	5			119.40	**08000**[1)]
10	0.2	22			32	72	10	4	145.38	**10000**		
10	0.2	22	9.7	30	32	72	10	5			168.74	**10000**[1)]
12	0.2	26			38	83	12	4	156.75	**12000**		
12	0.2	26	11.6	36	38	83	12	5			210.13	**12000**[1)]
16	0.3	36			44	92	16	4	261.82	**16000**		
16	0.3	36	15.5	42	44	92	16	5			287.03	**16000**[1)]
20	0.3	41			54	104	20	4	375.96	**20000**		
20	0.3	41	19.5	52	54	104	20	5			452.40	**20000**[1)]

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1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 336+337

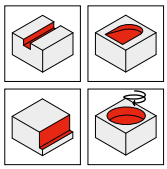
14

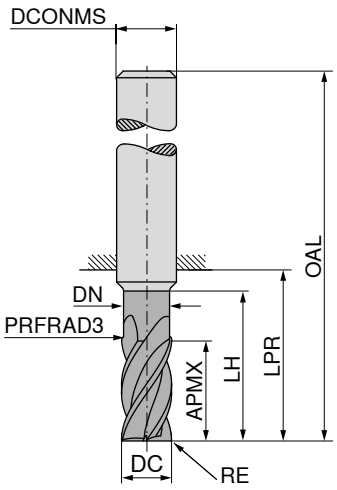
MonsterMill – End milling cutter with corner radius

The specialist for machining titanium and titanium alloys

▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | HPC







Factory standard | Factory standard

DC e8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 508 ... £ V1		52 508 ... £ V1	
4	0.4	8.5	3.8	20	26	62	6	4			89.63	04104
4	0.5	8.5	3.8	20	26	62	6	4			89.63	04105
4	0.8	8.5	3.8	20	26	62	6	4			89.63	04108
4	0.2	11.0		14	21	57	6	4	85.89	04002		
4	0.4	11.0		14	21	57	6	4	85.89	04004		
4	0.5	11.0		14	21	57	6	4	85.89	04005		
5	0.5	10.5	4.8	25	34	70	6	4			99.42	05105
5	0.8	10.5	4.8	25	34	70	6	4			99.42	05108
5	0.5	13.0		16	21	57	6	4	89.63	05005		
5	1.0	13.0		16	21	57	6	4	89.63	05010		
6	0.4	13.0			21	57	6	4	89.63	06004		
6	0.5	13.0			21	57	6	4	89.63	06005		
6	0.6	13.0			21	57	6	4	89.63	06006		
6	0.6	13.0	5.8	30	34	70	6	4			104.73	06106
6	0.8	13.0			21	57	6	4	89.63	06008		
6	0.8	13.0	5.8	30	34	70	6	4			104.73	06108
6	1.0	13.0			21	57	6	4	93.78	06010		
6	1.0	13.0	5.8	30	34	70	6	4			104.73	06110
6	1.5	13.0			21	57	6	4	93.78	06015		
8	0.8	17.0	7.7	40	44	80	8	4			146.14	08108
8	1.0	17.0	7.7	40	44	80	8	4			146.14	08110
8	1.5	17.0	7.7	40	44	80	8	4			146.14	08115
8	2.0	17.0	7.7	40	44	80	8	4			146.14	08120
8	0.5	21.0			27	63	8	4	119.40	08005		
8	0.8	21.0			27	63	8	4	119.40	08008		
8	1.0	21.0			27	63	8	4	123.90	08010		
8	1.2	21.0			27	63	8	4	123.90	08012		
8	1.5	21.0			27	63	8	4	123.90	08015		
8	2.0	21.0			27	63	8	4	123.90	08020		
10	0.5	21.0	9.7	50	54	94	10	4			179.98	10105
10	1.0	21.0	9.7	50	54	94	10	4			179.98	10110
10	1.5	21.0	9.7	50	54	94	10	4			179.98	10115
10	2.0	21.0	9.7	50	54	94	10	4			179.98	10120
10	0.5	22.0			32	72	10	4	145.38	10005		
10	1.0	22.0			32	72	10	4	149.52	10010		
10	1.2	22.0			32	72	10	4	149.52	10012		
10	1.5	22.0			32	72	10	4	149.52	10015		
10	1.6	22.0			32	72	10	4	149.52	10016		
10	2.0	22.0			32	72	10	4	149.52	10020		
12	0.5	25.0	11.6	60	65	110	12	4			223.68	12105
12	1.0	25.0	11.6	60	65	110	12	4			223.68	12110

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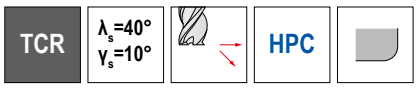
→ v_c/f_z Page 336+337

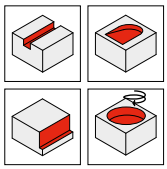
Continued on next page

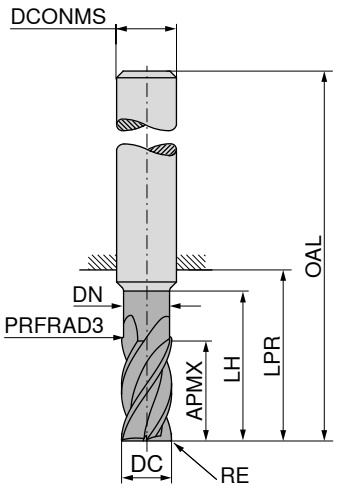
MonsterMill – End milling cutter with corner radius

The specialist for machining titanium and titanium alloys

▲ PRFRAD3 = 1 mm



















Factory standard

Factory standard





DC e8	RE	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	52 508 ... £ V1		52 508 ... £ V1	
mm	mm	mm	mm	mm	mm	mm	mm					
12	1.5	25.0	11.6	60	65	110	12	4			223.68	12115
12	2.0	25.0	11.6	60	65	110	12	4			223.68	12120
12	3.0	25.0	11.6	60	65	110	12	4			228.59	12130
12	4.0	25.0	11.6	60	65	110	12	4			228.59	12140
12	0.5	26.0			38	83	12	4	156.75	12005		
12	1.0	26.0			38	83	12	4	161.21	12010		
12	1.2	26.0			38	83	12	4	161.21	12012		
12	1.5	26.0			38	83	12	4	161.21	12015		
12	1.6	26.0			38	83	12	4	161.21	12016		
12	2.0	26.0			38	83	12	4	161.21	12020		
12	2.5	26.0			38	83	12	4	161.21	12025		
12	3.0	26.0			38	83	12	4	161.21	12030		
14	1.0	29.0	13.6	70	75	120	14	4			306.90	14110
14	2.0	29.0	13.6	70	75	120	14	4			306.90	14120
14	3.0	29.0	13.6	70	75	120	14	4			311.79	14130
14	4.0	29.0	13.6	70	75	120	14	4			311.79	14140
16	1.0	33.0	15.5	80	84	132	16	4			363.49	16110
16	2.0	33.0	15.5	80	84	132	16	4			363.49	16120
16	3.0	33.0	15.5	80	84	132	16	4			367.95	16130
16	4.0	33.0	15.5	80	84	132	16	4			367.95	16140
16	1.0	36.0			44	92	16	4	272.28	16010		
16	1.6	36.0			44	92	16	4	272.28	16016		
16	2.0	36.0			44	92	16	4	272.28	16020		
16	2.5	36.0			44	92	16	4	272.28	16025		
16	3.0	36.0			44	92	16	4	272.28	16030		
16	3.2	36.0			44	92	16	4	278.29	16032		
16	4.0	36.0			44	92	16	4	278.29	16040		
18	1.0	38.0	17.5	90	94	142	18	4			471.93	18110
18	2.0	38.0	17.5	90	94	142	18	4			471.93	18120
18	3.0	38.0	17.5	90	94	142	18	4			476.85	18130
18	4.0	38.0	17.5	90	94	142	18	4			476.85	18140
20	2.0	41.0			54	104	20	4	375.96	20020		
20	3.0	41.0			54	104	20	4	375.96	20030		
20	4.0	41.0			54	104	20	4	382.26	20040		
20	5.0	41.0			54	104	20	4	382.26	20050		
20	6.3	41.0			54	104	20	4	387.18	20063		
20	1.0	42.0	19.5	100	104	154	20	4			513.02	20110
20	2.0	42.0	19.5	100	104	154	20	4			513.02	20120
20	3.0	42.0	19.5	100	104	154	20	4			517.47	20130
20	4.0	42.0	19.5	100	104	154	20	4			517.47	20140

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→ v_c/f_z Page 336+337

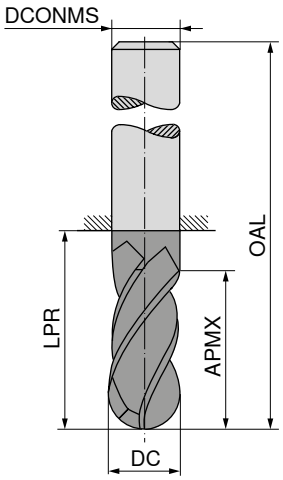
14

MonsterMill – Ball Nosed Cutter

The specialist for machining titanium and titanium alloys

TCR | λ_s=40° γ_s=10°





DPX52S DRAGONSKIN



DPX52S DRAGONSKIN





Factory standard





Factory standard



DC $_{e8}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	ZEFP	52 514 ... £ V1		52 514 ... £ V1	
2	4	18	54	6	4	79.46	**02000**		
2	4	44	80	6	4			112.25	**02100**
3	5	18	54	6	4	79.46	**03000**		
3	5	44	80	6	4			112.25	**03100**
4	8	18	54	6	4	79.46	**04000**		
4	8	44	80	6	4			112.25	**04100**
5	9	18	54	6	4	88.53	**05000**		
5	9	44	80	6	4			117.48	**05100**
6	10	18	54	6	4	88.53	**06000**		
6	10	44	80	6	4			117.48	**06100**
8	12	22	58	8	4	100.58	**08000**		
8	12	64	100	8	4			125.80	**08100**
10	14	26	66	10	4	132.93	**10000**		
10	14	60	100	10	4			161.21	**10100**
12	16	28	73	12	4	173.99	**12000**		
12	16	55	100	12	4			201.82	**12100**
16	20	34	82	16	4	261.05	**16000**		
16	20	52	100	16	4			288.89	**16100**
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→ v_c/f_z Page 338+339

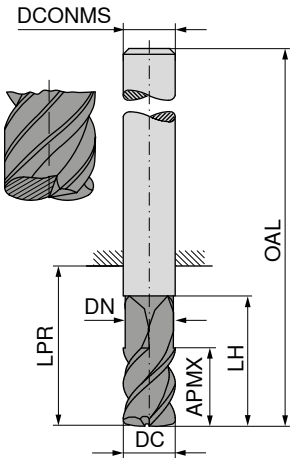
MonsterMill – Torus Face Milling Cutter

The specialist for machining titanium and titanium alloys

▲ r_{3D} = programmed corner radius
▲ APMX does not correspond to the maximum cutting depth

TCR | λ_s=15° γ_s=10° | HFC | HPC

















DIN 6527 | DIN 6527





DC e8 mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 512 ... £ V1		52 512 ... £ V1	
2	0.3	1.5	1.7	13	18	54	6	2	87.01	**02000**		
2	0.3	1.5	1.7	18	39	75	6	2			92.29	**02100**
3	0.3	1.5	2.7	15	18	54	6	2	87.01	**03000**		
3	0.3	1.5	2.7	20	39	75	6	2			92.29	**03100**
4	0.5	2.5	3.6	16	22	58	6	2	87.01	**04000**		
4	0.5	2.5	3.6	24	49	85	6	2			96.40	**04100**
5	0.5	3.5	4.6	18	29	65	6	4	93.41	**05000**		
5	0.5	3.5	4.6	28	64	100	6	4			108.09	**05100**
6	1.0	3.5	5.2	20	29	65	6	4	93.41	**06000**		
6	1.0	3.5	5.2	28	64	100	6	4			108.09	**06100**
8	1.5	4.8	7.0	24	34	70	8	5	111.87	**08000**		
8	1.5	4.8	7.0	40	64	100	8	5			141.57	**08100**
10	2.0	5.8	9.0	26	45	85	10	5	149.92	**10000**		
10	2.0	5.8	9.0	48	60	100	10	5			197.82	**10100**
12	2.0	6.8	11.0	30	48	93	12	5	199.97	**12000**		
12	2.0	6.8	11.0	56	75	120	12	5			253.04	**12100**
16	2.5	8.8	14.5	35	52	100	16	5	239.98	**16000**		
16	2.5	8.8	14.5	65	102	150	16	5			308.12	**16100**

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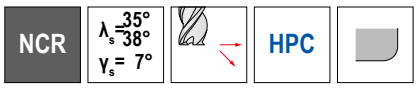
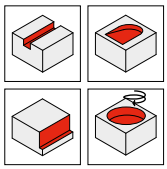
→ v_c/f_z Page 338

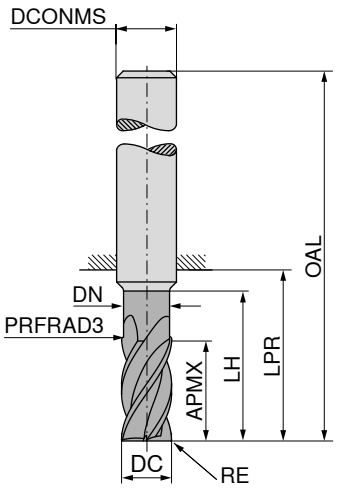
MonsterMill – End milling cutter with corner radius

The specialist for machining nickel-based alloys

▲ PRFRAD3 = 1 mm







DPA52S

DRAGONSKIN





Factory standard



53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V1	
4	0.1	11	3.8	17	21	57	6	4	69.49	**04201**
4	0.2	11	3.8	17	21	57	6	4	71.04	**04202**
4	0.4	11	3.8	17	21	57	6	4	72.20	**04204**
4	0.5	11	3.8	17	21	57	6	4	72.20	**04205**
5	0.1	13	4.8	19	21	57	6	4	73.72	**05201**
5	0.5	13	4.8	19	21	57	6	4	73.07	**05205**
5	1.0	13	4.8	19	21	57	6	4	73.07	**05210**
6	0.1	13	5.8	19	21	57	6	4	71.59	**06201**
6	0.4	13	5.8	19	21	57	6	4	74.60	**06204**
6	0.5	13	5.8	19	21	57	6	4	71.04	**06205**
6	0.6	13	5.8	19	21	57	6	4	71.33	**06206**
6	0.8	13	5.8	19	21	57	6	4	71.86	**06208**
6	1.0	13	5.8	19	21	57	6	4	71.04	**06210**
6	1.5	13	5.8	19	21	57	6	4	71.33	**06215**
8	0.2	19	7.7	25	27	63	8	4	92.15	**08202**
8	0.5	21	7.7	25	27	63	8	4	91.29	**08205**
8	0.8	21	7.7	25	27	63	8	4	92.15	**08208**
8	1.0	21	7.7	25	27	63	8	4	90.93	**08210**
8	1.2	21	7.7	25	27	63	8	4	91.29	**08212**
8	1.5	21	7.7	25	27	63	8	4	91.58	**08215**
8	2.0	21	7.7	25	27	63	8	4	90.93	**08220**
10	0.2	22	9.7	30	32	72	10	4	119.29	**10202**
10	0.5	22	9.7	30	32	72	10	4	118.37	**10205**
10	1.0	22	9.7	30	32	72	10	4	118.10	**10210**
10	1.2	22	9.7	30	32	72	10	4	118.74	**10212**
10	1.5	22	9.7	30	32	72	10	4	118.10	**10215**
10	1.6	22	9.7	30	32	72	10	4	118.10	**10216**
10	2.0	22	9.7	30	32	72	10	4	118.37	**10220**
12	0.2	26	11.6	36	38	83	12	4	184.34	**12202**
12	0.5	26	11.6	36	38	83	12	4	184.01	**12205**
12	1.0	26	11.6	36	38	83	12	4	183.67	**12210**
12	1.2	26	11.6	36	38	83	12	4	184.50	**12212**
12	1.5	26	11.6	36	38	83	12	4	183.67	**12215**
12	1.6	26	11.6	36	38	83	12	4	183.67	**12216**
12	2.0	26	11.6	36	38	83	12	4	183.67	**12220**
12	2.5	26	11.6	36	38	83	12	4	184.34	**12225**
12	3.0	26	11.6	36	38	83	12	4	184.50	**12230**

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→ v_c/f_z Page 340+341

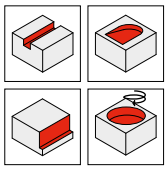
Continued on next page

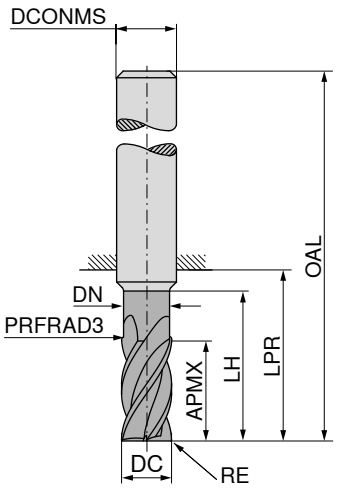
MonsterMill – End milling cutter with corner radius

The specialist for machining nickel-based alloys

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° γ_s= 7° | HPC





DPA52S

DRAGONSKIN





Factory standard



53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V1	
16	0.3	36	15.5	42	44	92	16	4	286.73	**16203**
16	1.0	36	15.5	42	44	92	16	4	286.23	**16210**
16	1.6	36	15.5	42	44	92	16	4	288.91	**16216**
16	2.0	36	15.5	42	44	92	16	4	285.90	**16220**
16	2.5	36	15.5	42	44	92	16	4	286.73	**16225**
16	3.0	36	15.5	42	44	92	16	4	287.73	**16230**
16	3.2	36	15.5	42	44	92	16	4	287.73	**16232**
16	4.0	36	15.5	42	44	92	16	4	285.90	**16240**
20	0.3	41	19.5	52	54	104	20	4	451.42	**20203**
20	1.0	41	19.5	52	54	104	20	4	450.42	**20210**
20	2.0	41	19.5	52	54	104	20	4	450.42	**20220**
20	3.0	41	19.5	52	54	104	20	4	452.58	**20230**
20	4.0	41	19.5	52	54	104	20	4	454.58	**20240**
20	5.0	41	19.5	52	54	104	20	4	455.23	**20250**
20	6.3	41	19.5	52	54	104	20	4	456.09	**20263**

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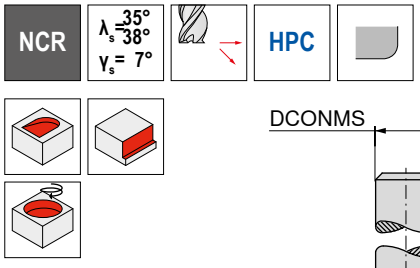
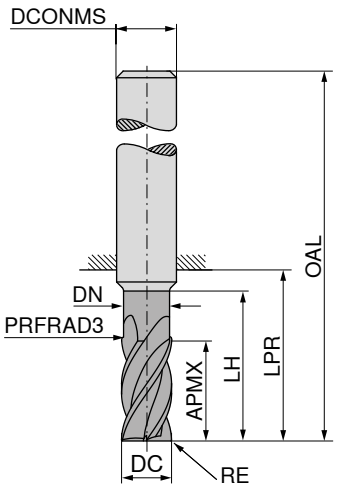
→ v_c/f_z Page 340+341

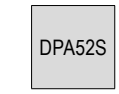
MonsterMill – End milling cutter with corner radius

The specialist for machining nickel-based alloys

▲ PRFRAD3 = 1 mm







DRAGONSKIN





Factory standard



53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V1	
4	0.1	8.5	3.8	20	26	62	6	4	68.30	**04401**
4	0.2	8.5	3.8	20	26	62	6	4	69.84	**04402**
4	0.4	8.5	3.8	20	26	62	6	4	71.04	**04404**
4	0.5	8.5	3.8	20	26	62	6	4	71.04	**04405**
5	0.1	10.5	4.8	25	34	70	6	4	74.26	**05401**
5	0.5	10.5	4.8	25	34	70	6	4	73.72	**05405**
5	1.0	10.5	4.8	25	34	70	6	4	73.72	**05410**
6	0.1	13.0	5.8	30	34	70	6	4	73.07	**06401**
6	0.4	13.0	5.8	30	34	70	6	4	76.07	**06404**
6	0.5	13.0	5.8	30	34	70	6	4	72.52	**06405**
6	0.6	13.0	5.8	30	34	70	6	4	72.80	**06406**
6	0.8	13.0	5.8	30	34	70	6	4	73.38	**06408**
6	1.0	13.0	5.8	30	34	70	6	4	72.20	**06410**
6	1.5	13.0	5.8	30	34	70	6	4	72.80	**06415**
8	0.2	17.0	7.7	40	44	80	8	4	95.70	**08402**
8	0.5	17.0	7.7	40	44	80	8	4	94.53	**08405**
8	0.8	17.0	7.7	40	44	80	8	4	95.47	**08408**
8	1.0	17.0	7.7	40	44	80	8	4	94.31	**08410**
8	1.2	17.0	7.7	40	44	80	8	4	94.53	**08412**
8	1.5	17.0	7.7	40	44	80	8	4	94.84	**08415**
8	2.0	17.0	7.7	40	44	80	8	4	94.31	**08420**
10	0.2	21.0	9.7	50	54	94	10	4	124.07	**10402**
10	0.5	21.0	9.7	50	54	94	10	4	126.70	**10405**
10	1.0	21.0	9.7	50	54	94	10	4	126.13	**10410**
10	1.2	21.0	9.7	50	54	94	10	4	126.70	**10412**
10	1.5	21.0	9.7	50	54	94	10	4	125.83	**10415**
10	1.6	21.0	9.7	50	54	94	10	4	125.83	**10416**
10	2.0	21.0	9.7	50	54	94	10	4	125.83	**10420**
12	0.2	25.0	11.6	60	65	110	12	4	203.65	**12402**
12	0.5	25.0	11.6	60	65	110	12	4	202.79	**12405**
12	1.0	25.0	11.6	60	65	110	12	4	202.15	**12410**
12	1.2	25.0	11.6	60	65	110	12	4	202.79	**12412**
12	1.5	25.0	11.6	60	65	110	12	4	201.81	**12415**
12	1.6	25.0	11.6	60	65	110	12	4	202.15	**12416**
12	2.0	25.0	11.6	60	65	110	12	4	201.47	**12420**
12	2.5	25.0	11.6	60	65	110	12	4	202.15	**12425**
12	3.0	25.0	11.6	60	65	110	12	4	202.48	**12430**

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→ v_c/f_z Page 342+343

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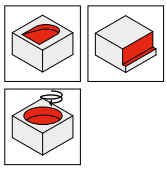
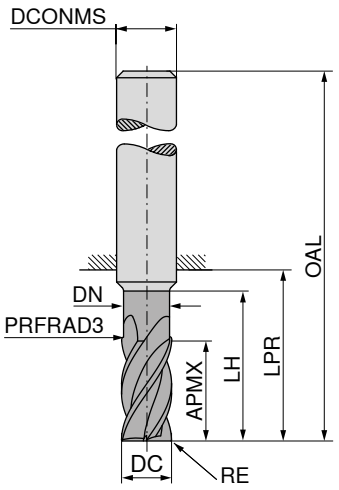
MonsterMill – End milling cutter with corner radius

The specialist for machining nickel-based alloys

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° γ_s= 7° | HPC





DPA52S

DRAGONSKIN





Factory standard



53 030 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V1	
16	0.3	33.0	15.5	80	84	132	16	4	336.18	**16403**
16	1.0	33.0	15.5	80	84	132	16	4	334.53	**16410**
16	1.6	33.0	15.5	80	84	132	16	4	336.85	**16416**
16	2.0	33.0	15.5	80	84	132	16	4	333.35	**16420**
16	2.5	33.0	15.5	80	84	132	16	4	334.18	**16425**
16	3.0	33.0	15.5	80	84	132	16	4	334.68	**16430**
16	3.2	33.0	15.5	80	84	132	16	4	335.03	**16432**
16	4.0	33.0	15.5	80	84	132	16	4	332.37	**16440**
20	0.3	42.0	19.5	100	104	154	20	4	555.14	**20403**
20	1.0	42.0	19.5	100	104	154	20	4	551.82	**20410**
20	2.0	42.0	19.5	100	104	154	20	4	550.33	**20420**
20	3.0	42.0	19.5	100	104	154	20	4	552.82	**20430**
20	4.0	42.0	19.5	100	104	154	20	4	554.48	**20440**
20	5.0	42.0	19.5	100	104	154	20	4	555.48	**20450**
20	6.3	42.0	19.5	100	104	154	20	4	556.32	**20463**

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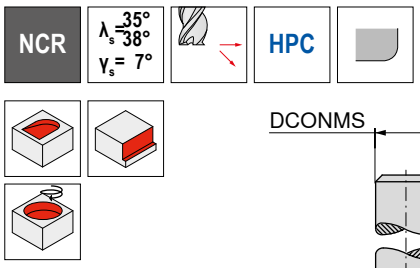
→ v_c/f_z Page 342+343

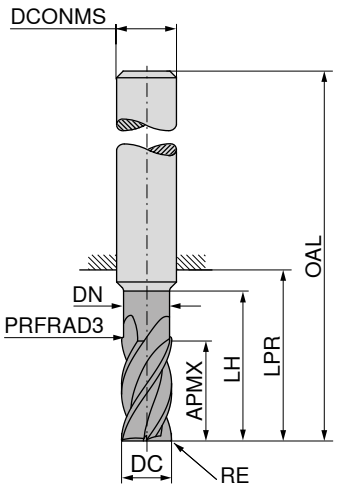
MonsterMill – End milling cutter with corner radius

The specialist for machining nickel-based alloys

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° γ_s= 7° | HPC





DPA52S

DRAGONSKIN





Factory standard



53 031 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V1	
6	0.1	13	5.8	19	21	57	6	5	76.41	06201
6	0.4	13	5.8	19	21	57	6	5	79.95	06204
6	0.5	13	5.8	19	21	57	6	5	76.07	06205
6	0.6	13	5.8	19	21	57	6	5	76.64	06206
6	0.8	13	5.8	19	21	57	6	5	77.24	06208
6	1.0	13	5.8	19	21	57	6	5	76.07	06210
6	1.5	13	5.8	19	21	57	6	5	76.64	06215
8	0.2	19	7.7	25	27	63	8	5	97.52	08202
8	0.5	21	7.7	25	27	63	8	5	96.96	08205
8	0.8	21	7.7	25	27	63	8	5	98.15	08208
8	1.0	21	7.7	25	27	63	8	5	96.96	08210
8	1.2	21	7.7	25	27	63	8	5	97.22	08212
8	1.5	21	7.7	25	27	63	8	5	97.52	08215
8	2.0	21	7.7	25	27	63	8	5	96.96	08220
10	0.2	22	9.7	30	32	72	10	5	127.67	10202
10	0.5	22	9.7	30	32	72	10	5	126.70	10205
10	1.0	22	9.7	30	32	72	10	5	126.70	10210
10	1.2	22	9.7	30	32	72	10	5	127.30	10212
10	1.5	22	9.7	30	32	72	10	5	126.70	10215
10	1.6	22	9.7	30	32	72	10	5	127.05	10216
10	2.0	22	9.7	30	27	72	10	5	127.30	10220
12	0.2	26	11.6	36	38	83	12	5	195.32	12202
12	0.5	26	11.6	36	38	83	12	5	195.65	12205
12	1.0	26	11.6	36	38	83	12	5	195.65	12210
12	1.2	26	11.6	36	38	83	12	5	196.49	12212
12	1.5	26	11.6	36	38	83	12	5	196.00	12215
12	1.6	26	11.6	36	38	83	12	5	196.14	12216
12	2.0	26	11.6	36	38	83	12	5	196.00	12220
12	2.5	26	11.6	36	38	83	12	5	196.49	12225
12	3.0	26	11.6	36	38	83	12	5	197.15	12230
16	0.3	36	15.5	42	44	92	16	5	302.22	16203
16	1.0	36	15.5	42	44	92	16	5	303.05	16210
16	1.6	36	15.5	42	44	92	16	5	306.21	16216
16	2.0	36	15.5	42	44	92	16	5	303.05	16220
16	2.5	36	15.5	42	44	92	16	5	304.39	16225
16	3.0	36	15.5	42	44	92	16	5	305.23	16230
16	3.2	36	15.5	42	44	92	16	5	305.55	16232
16	4.0	36	15.5	42	44	92	16	5	303.55	16240
20	0.3	41	19.5	52	54	104	20	5	473.73	20203
20	2.0	41	19.5	52	54	104	20	5	474.90	20220
20	3.0	41	19.5	52	54	104	20	5	477.56	20230
20	4.0	41	19.5	52	54	104	20	5	479.88	20240
20	5.0	41	19.5	52	54	104	20	5	481.39	20250
20	6.3	41	19.5	52	54	104	20	5	482.05	20263

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→ v_c/f_z Page 340

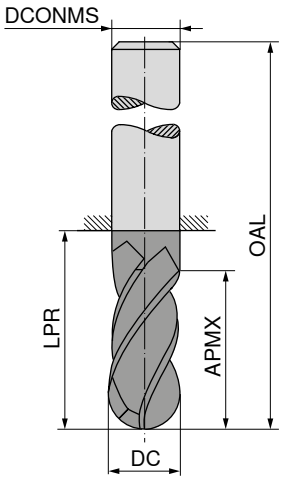
MonsterMill – Ball Nosed Cutter

The specialist for machining nickel-based alloys

NCR

λ_s = 35°
38°
γ_s = 7°





NEW DPA52S DRAGONSKIN





Factory standard



NEW DPA52S DRAGONSKIN





Factory standard



DC ±0,01 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	53 032 ... £ V1		53 033 ... £ V1	
2	4	18	54	6	4	75.19	**02210**		
2	4	44	80	6	4			78.07	**02410**
3	5	18	54	6	4	70.23	**03215**		
3	5	44	80	6	4			72.78	**03415**
4	8	18	54	6	4	70.23	**04220**		
4	8	44	80	6	4			72.78	**04420**
5	9	18	54	6	4	71.67	**05225**		
5	9	44	80	6	4			74.22	**05425**
6	10	18	54	6	4	69.25	**06230**		
6	10	44	80	6	4			71.98	**06430**
8	12	22	58	8	4	91.82	**08240**		
8	12	64	100	8	4			95.34	**08440**
10	14	26	66	10	4	119.65	**10250**		
10	14	60	100	10	4			124.13	**10450**
12	16	28	73	12	4	188.44	**12260**		
12	16	55	100	12	4			195.87	**12460**
16	20	34	82	16	4	297.45	**16280**		
16	20	52	100	16	4			308.78	**16480**
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→ v_c/f_z Page 342+343

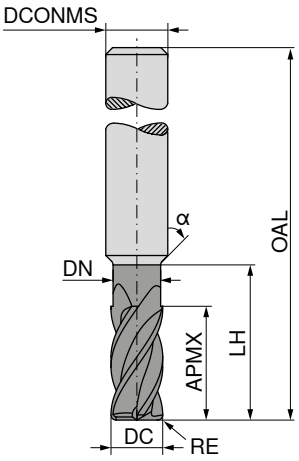
MonsterMill – Finish milling cutter with corner radius

The specialist for finish machining tempered steel up to 70 HRC

- ▲ Radius accuracy ± 0.005 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
  up to Ø 6 mm: 0/ -0.01 mm
  from Ø 6 mm: 0/ -0.02 mm

HCR | λ_s=30° γ_s=–3° | 54–70 HRC



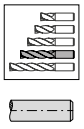


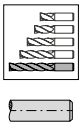
DPX62U DRAGONSKIN



DPX62U DRAGONSKIN







DC	RE	APMX	DN	LH	α°	OAL	DCONMS $_{h5}$	T_x	ZEFP	53 603 ... £ V1		53 604 ... £ V1	
mm	mm	mm	mm	mm		mm	mm						
0.2	0.05	0.5		0.5	30	48	4	2,5 x DC	2	92.29	**30205**		
0.2	0.05	0.5	0.18	1.0	30	48	4	5 x DC	2	92.29	**40205**		
0.3	0.05	0.6	0.27	1.0	30	48	4	3,3 x DC	2	87.46	**30305**		
0.3	0.05	0.6	0.27	2.0	30	48	4	6,7 x DC	2	87.46	**40305**		
0.4	0.05	0.7	0.35	1.0	30	48	4	2,5 x DC	2	87.46	**30405**		
0.4	0.05	0.7	0.35	2.0	30	48	4	5 x DC	2	87.46	**40405**		
0.4	0.05	0.7	0.35	3.0	30	48	4	7,5 x DC	2	87.46	**50405**		
0.5	0.05	0.7	0.45	1.0	30	48	4	2 x DC	2	84.98	**30505**		
0.5	0.05	0.7	0.45	2.0	30	48	4	4 x DC	2	84.98	**40505**		
0.5	0.05	0.7	0.45	2.5	30	48	4	5 x DC	2	84.98	**50505**		
0.5	0.05	0.7	0.45	3.0	30	48	4	6 x DC	2	84.98	**60505**		
0.5	0.05	0.7	0.45	4.0	30	48	4	8 x DC	2	84.98	**70505**		
0.6	0.05	0.8	0.55	2.0	30	48	4	3,3 x DC	2	82.66	**30605**		
0.6	0.05	0.8	0.55	3.0	30	48	4	5 x DC	2	82.66	**40605**		
0.6	0.05	0.8	0.55	4.5	30	48	4	7,5 x DC	2	82.66	**50605**		
0.6	0.05	0.8	0.55	6.0	30	48	4	10 x DC	2			82.66	**30605**
0.8	0.05	1.0	0.75	2.0	30	48	4	2,5 x DC	2	82.66	**30805**		
0.8	0.05	1.0	0.75	4.0	30	48	4	5 x DC	2	82.66	**40805**		
0.8	0.05	1.0	0.75	6.0	30	48	4	7,5 x DC	2	82.66	**50805**		
0.8	0.05	1.0	0.75	8.0	30	48	4	10 x DC	2			85.28	**30805**
0.8	0.05	1.0	0.75	10.0	30	48	4	12,5 x DC	2			85.28	**40805**
1.0	0.10	1.5	0.95	2.0	30	48	4	2 x DC	4	93.58	**31001**		
1.0	0.10	1.5	0.95	4.0	30	48	4	4 x DC	4	95.57	**41001**		
1.0	0.10	1.5	0.95	6.0	30	48	4	6 x DC	4	95.57	**51001**		
1.0	0.10	1.5	0.95	8.0	30	48	4	8 x DC	4	97.99	**61001**		
1.0	0.10	1.5	0.95	10.0	30	48	4	10 x DC	4			97.99	**31001**
1.0	0.10	1.5	0.95	14.0	30	48	4	14 x DC	4			97.99	**41001**
1.5	0.10	2.0	1.45	4.0	30	48	4	2,7 x DC	4	95.08	**31501**		
1.5	0.10	2.0	1.45	6.0	30	48	4	4 x DC	4	97.22	**41501**		
1.5	0.10	2.0	1.45	10.0	30	48	4	6,7 x DC	4	97.22	**51501**		
1.5	0.10	2.0	1.45	12.0	30	48	4	8 x DC	4	99.36	**61501**		
1.5	0.10	2.0	1.45	15.0	30	60	4	10 x DC	4			100.56	**31501**
1.5	0.10	2.0	1.45	20.0	30	60	4	13,3 x DC	4			103.04	**41501**
2.0	0.20	2.5	1.90	4.0	30	48	4	2 x DC	4	95.08	**32002**		
2.0	0.20	2.5	1.90	6.0	30	48	4	3 x DC	4	97.22	**42002**		
2.0	0.20	2.5	1.90	8.0	30	48	4	4 x DC	4	97.22	**52002**		
2.0	0.20	2.5	1.90	10.0	30	48	4	5 x DC	4	97.22	**62002**		
2.0	0.20	2.5	1.90	12.0	30	48	4	6 x DC	4	99.36	**72002**		
2.0	0.20	2.5	1.90	16.0	30	60	4	8 x DC	4	100.56	**82002**		
2.0	0.20	2.5	1.90	20.0	30	60	4	10 x DC	4			103.04	**32002**
2.0	0.20	2.5	1.90	25.0	30	60	4	12,5 x DC	4			103.04	**42002**
3.0	0.20	3.5	2.90	8.0	30	60	6	2,7 x DC	4	108.60	**33002**		
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→ v_c/f_z Page 344–349

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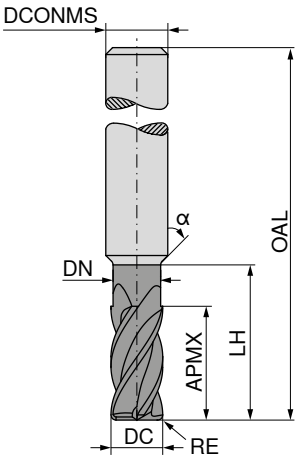
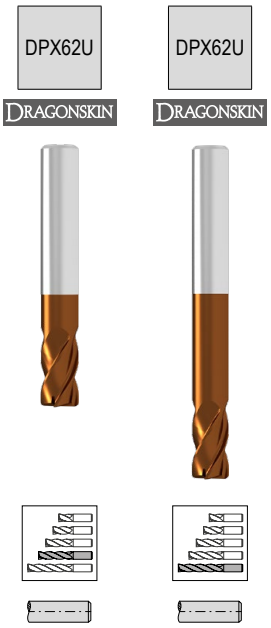
MonsterMill – Finish milling cutter with corner radius

The specialist for finish machining tempered steel up to 70 HRC

- ▲ Radius accuracy ± 0.005 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
  up to Ø 6 mm: 0/ -0.01 mm
  from Ø 6 mm: 0/ -0.02 mm

HCR | λ_s=30° γ_s=–3° | 54–70 HRC





DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 603 ... £ V1		53 604 ... £ V1
3.0	0.20	3.5	2.90	12.0	30	60	6	4 x DC	4	110.97	**43002**	
3.0	0.20	3.5	2.90	16.0	30	60	6	5,3 x DC	4	110.97	**53002**	
3.0	0.20	3.5	2.90	20.0	30	70	6	6,7 x DC	4	112.99	**63002**	
3.0	0.20	3.5	2.90	24.0	30	70	6	8 x DC	4	115.64	**73002**	
4.0	0.20	4.5	3.90	8.0	30	60	6	2 x DC	4	113.21	**34002**	
4.0	0.20	4.5	3.90	12.0	30	60	6	3 x DC	4	115.78	**44002**	
4.0	0.20	4.5	3.90	16.0	30	60	6	4 x DC	4	115.78	**54002**	
4.0	0.20	4.5	3.90	20.0	30	70	6	5 x DC	4	117.81	**64002**	
4.0	0.20	4.5	3.90	24.0	30	70	6	6 x DC	4	120.39	**74002**	
4.0	0.20	4.5	3.90	28.0	30	70	6	7 x DC	4	120.39	**84002**	
4.0	0.50	4.5	3.90	8.0	30	60	6	2 x DC	4	113.21	**34005**	
4.0	0.50	4.5	3.90	12.0	30	60	6	3 x DC	4	115.78	**44005**	
4.0	0.50	4.5	3.90	16.0	30	60	6	4 x DC	4	115.78	**54005**	
4.0	0.50	4.5	3.90	20.0	30	70	6	5 x DC	4	117.81	**64005**	
4.0	0.50	4.5	3.90	24.0	30	70	6	6 x DC	4	120.39	**74005**	
4.0	0.50	4.5	3.90	28.0	30	70	6	7 x DC	4	120.39	**84005**	
4.0	1.00	4.5	3.90	8.0	30	60	6	2 x DC	4	113.21	**34010**	
4.0	1.00	4.5	3.90	12.0	30	60	6	3 x DC	4	115.78	**44010**	
4.0	1.00	4.5	3.90	16.0	30	60	6	4 x DC	4	115.78	**54010**	
4.0	1.00	4.5	3.90	20.0	30	70	6	5 x DC	4	117.81	**64010**	
4.0	1.00	4.5	3.90	24.0	30	70	6	6 x DC	4	120.39	**74010**	
4.0	1.00	4.5	3.90	28.0	30	70	6	7 x DC	4	120.39	**84010**	
6.0	0.20	6.5	5.90	12.0		60	6	2 x DC	4	119.48	**36002**	
6.0	0.20	6.5	5.90	16.0		60	6	2,7 x DC	4	123.31	**46002**	
6.0	0.20	6.5	5.90	20.0		60	6	3,3 x DC	4	123.31	**56002**	
6.0	0.50	6.5	5.90	12.0		60	6	2 x DC	4	119.48	**36005**	
6.0	0.50	6.5	5.90	16.0		60	6	2,7 x DC	4	123.31	**46005**	
6.0	0.50	6.5	5.90	20.0		60	6	3,3 x DC	4	123.31	**56005**	
6.0	1.00	6.5	5.90	12.0		60	6	2 x DC	4	119.48	**36010**	
6.0	1.00	6.5	5.90	16.0		60	6	2,7 x DC	4	123.31	**46010**	
6.0	1.00	6.5	5.90	20.0		60	6	3,3 x DC	4	123.31	**56010**	
8.0	0.50	8.5	7.90	16.0		60	8	2 x DC	4	151.24	**38005**	
8.0	0.50	8.5	7.90	40.0		80	8	5 x DC	4	160.61	**48005**	
8.0	1.00	8.5	7.90	16.0		60	8	2 x DC	4	151.24	**38010**	
8.0	1.00	8.5	7.90	40.0		80	8	5 x DC	4	160.61	**48010**	
10.0	0.50	10.5	9.90	20.0		70	10	2 x DC	4	189.50	**10005**	
10.0	0.50	10.5	9.90	40.0		90	10	4 x DC	4	202.43	**10105**	
10.0	1.00	10.5	9.90	20.0		70	10	2 x DC	4	189.50	**10010**	
10.0	1.00	10.5	9.90	40.0		90	10	4 x DC	4	202.43	**10110**	
12.0	1.00	12.5	11.90	24.0		70	12	2 x DC	4	245.31	**12010**	
12.0	1.00	12.5	11.90	40.0		90	12	3,3 x DC	4	262.70	**12110**	

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→ v_c/f_z Page 344–349

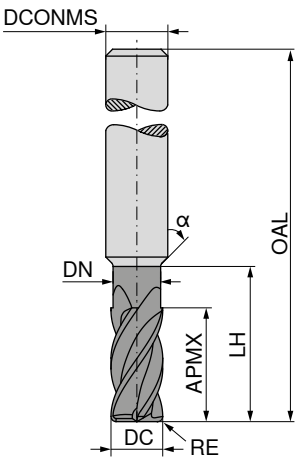
14

MonsterMill – Finish milling cutter with corner radius

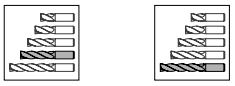
The specialist for finish machining tempered steel up to 70 HRC

- ▲ Radius accuracy ± 0.005 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
  up to Ø 6 mm: 0/-0.01 mm
  from Ø 6 mm: 0/ -0.02 mm

HCR | λ_s = 50° γ_s = –15° | 54–70 HRC







Factory standard | Factory standard



DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 605 ... £ V1		53 606 ... £ V1	
1	0.03	2			30	48	4	2 x DC	4	99.68	**410**		
1	0.03	3	0.95	4	30	48	4	3 x DC	4			120.35	**410**
2	0.03	4			30	48	4	2 x DC	4	101.33	**420**		
2	0.03	6	1.90	8	30	48	4	3 x DC	4			121.97	**420**
3	0.03	6			30	60	6	2 x DC	4	117.33	**030**		
3	0.03	9	2.90	12	30	60	6	3 x DC	4			140.11	**030**
4	0.05	8			30	60	6	2 x DC	4	123.65	**040**		
4	0.05	12	3.90	16	30	60	6	3 x DC	4			143.49	**040**
6	0.05	12				60	6	2 x DC	4	118.67	**060**		
6	0.05	18	5.90	24		60	6	3 x DC	4			140.11	**060**
8	0.05	16				60	8	2 x DC	4	173.14	**080**		
8	0.05	24	7.90	32		70	8	3 x DC	4			197.93	**080**
10	0.05	20				70	10	2 x DC	4	209.53	**100**		
10	0.05	30	9.90	40		80	10	3 x DC	4			239.13	**100**
12	0.05	24				70	12	2 x DC	4	237.44	**120**		
12	0.05	36	11.90	44		90	12	3 x DC	4			273.76	**120**
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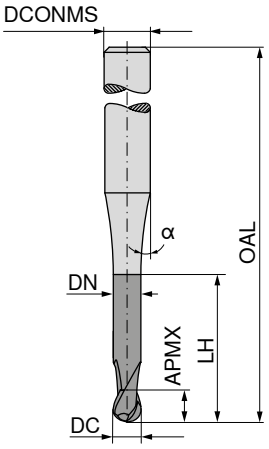
→ v_c/f_z Page 350

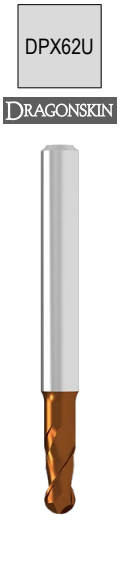
MonsterMill – Ball Nosed Cutter

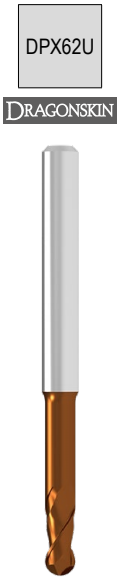
The specialist for finish machining tempered steel up to 70 HRC

- ▲ Radius accuracy: ± 0.005 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
  up to Ø 6 mm: 0/ -0.01 mm
  from Ø 6 mm: 0/ -0.02 mm

HCR | λ_s=30° γ_s=–3° | 54–70 HRC









Factory standard



Factory standard





DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_x	ZEFP	53 600 ... £ V1		53 601 ... £ V1	
0.2	0.5		0.5	15	48	4	2,5 x DC	2	92.29	**302**		
0.2	0.5	0.18	1.0	15	48	4	5 x DC	2	92.29	**402**		
0.3	0.5	0.27	1.0	15	48	4	3,3 x DC	2	87.46	**303**		
0.3	0.5	0.27	2.0	15	48	4	6,7 x DC	2	87.46	**403**		
0.4	0.5	0.35	1.0	15	48	4	2,5 x DC	2	87.46	**304**		
0.4	0.5	0.35	2.0	15	48	4	5 x DC	2	87.46	**404**		
0.4	0.5	0.35	3.0	15	48	4	7,5 x DC	2	87.46	**504**		
0.5	0.5	0.45	1.0	15	48	4	2 x DC	2	84.98	**305**		
0.5	0.5	0.45	2.0	15	48	4	4 x DC	2	84.98	**405**		
0.5	0.5	0.45	2.5	15	48	4	5 x DC	2	84.98	**505**		
0.5	0.5	0.45	3.0	15	48	4	6 x DC	2	84.98	**605**		
0.5	0.5	0.45	4.0	15	48	4	8 x DC	2	84.98	**705**		
0.6	0.6	0.55	2.0	15	48	4	3,3 x DC	2	84.98	**306**		
0.6	0.6	0.55	3.0	15	48	4	5 x DC	2	84.98	**406**		
0.6	0.6	0.55	4.5	15	48	4	7,5 x DC	2	84.98	**506**		
0.6	0.6	0.55	6.0	15	48	4	10 x DC	2			84.98	**306**
0.8	1.0	0.75	2.0	15	48	4	2,5 x DC	2	82.66	**308**		
0.8	1.0	0.75	4.0	15	48	4	5 x DC	2	82.66	**408**		
0.8	1.0	0.75	6.0	15	48	4	7,5 x DC	2	82.66	**508**		
0.8	1.0	0.75	8.0	15	48	4	10 x DC	2			82.66	**308**
0.8	1.0	0.75	10.0	15	48	4	12,5 x DC	2			82.66	**408**
1.0	1.5	0.95	2.0	15	48	4	2 x DC	2	79.90	**310**		
1.0	1.5	0.95	4.0	15	48	4	4 x DC	2	79.90	**410**		
1.0	1.5	0.95	6.0	15	48	4	6 x DC	2	79.90	**510**		
1.0	1.5	0.95	8.0	15	48	4	8 x DC	2	79.90	**610**		
1.0	1.5	0.95	10.0	15	48	4	10 x DC	2			79.90	**310**
1.0	1.5	0.95	14.0	15	48	4	14 x DC	2			82.39	**410**
1.5	1.5	1.45	4.0	15	48	4	2,7 x DC	2	81.20	**315**		
1.5	1.5	1.45	6.0	15	48	4	4 x DC	2	81.20	**415**		
1.5	1.5	1.45	8.0	15	48	4	5,3 x DC	2	81.20	**515**		
1.5	1.5	1.45	10.0	15	48	4	6,7 x DC	2	81.20	**615**		
1.5	1.5	1.45	15.0	15	60	4	10 x DC	2			82.66	**315**

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→ v_c/f_z Page 352+353

14

Continued on next page

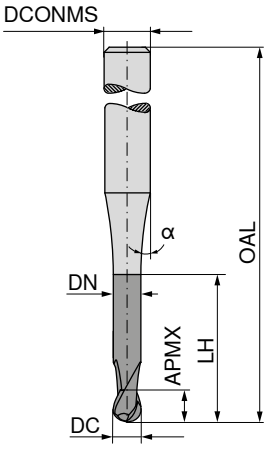
MonsterMill – Ball Nosed Cutter

The specialist for finish machining tempered steel up to 70 HRC

- ▲ Radius accuracy: ± 0.005 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
  up to Ø 6 mm: 0/ -0.01 mm
  from Ø 6 mm: 0/ -0.02 mm

HCR | λ_s=30° γ_s=–3° | 54–70 HRC





DPX62U DRAGONSKIN



DPX62U DRAGONSKIN





Factory standard





Factory standard



DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS h5 mm	T_x	ZEFP	53 600 ... £ V1		53 601 ... £ V1	
1.5	1.5	1.45	20.0	15	60	4	13,3 x DC	2			83.84	**415**
2.0	2.5	1.90	4.0	15	48	4	2 x DC	2	81.20	**320**		
2.0	2.5	1.90	6.0	15	48	4	3 x DC	2	81.20	**420**		
2.0	2.5	1.90	8.0	15	48	4	4 x DC	2	81.20	**520**		
2.0	2.5	1.90	10.0	15	48	4	5 x DC	2	82.66	**620**		
2.0	2.5	1.90	12.0	15	48	4	6 x DC	2	82.66	**720**		
2.0	2.5	1.90	16.0	15	60	4	8 x DC	2	84.01	**820**		
2.0	2.5	1.90	20.0	15	60	4	10 x DC	2			86.70	**320**
2.0	2.5	1.90	25.0	15	60	4	12,5 x DC	2			86.70	**420**
3.0	3.5	2.90	8.0	15	60	6	2,7 x DC	2	87.46	**330**		
3.0	3.5	2.90	12.0	15	60	6	4 x DC	2	87.46	**430**		
3.0	3.5	2.90	16.0	15	60	6	5,3 x DC	2	87.46	**530**		
3.0	3.5	2.90	20.0	15	70	6	6,7 x DC	2	89.49	**630**		
3.0	3.5	2.90	24.0	15	70	6	8 x DC	2	92.07	**730**		
4.0	4.5	3.90	8.0	15	60	6	2 x DC	2	87.46	**340**		
4.0	4.5	3.90	12.0	15	60	6	3 x DC	2	87.46	**440**		
4.0	4.5	3.90	16.0	15	60	6	4 x DC	2	87.46	**540**		
4.0	4.5	3.90	20.0	15	70	6	5 x DC	2	89.49	**640**		
4.0	4.5	3.90	24.0	15	70	6	6 x DC	2	92.07	**740**		
4.0	4.5	3.90	28.0	15	70	6	7 x DC	2	92.07	**840**		
6.0	6.5	5.90	12.0		60	6	2 x DC	2	87.46	**360**		
6.0	6.5	5.90	16.0		60	6	2,7 x DC	2	87.46	**460**		
6.0	6.5	5.90	20.0		60	6	3,3 x DC	2	87.46	**560**		
8.0	8.5	7.90	16.0		60	8	2 x DC	2	130.21	**380**		
8.0	8.5	7.90	40.0		80	8	5 x DC	2	139.61	**480**		
10.0	10.5	9.90	20.0	15	70	10	2 x DC	2	153.66	**100**		
10.0	10.5	9.90	40.0		90	10	4 x DC	2	166.58	**101**		
12.0	12.5	11.90	24.0		75	12	2 x DC	2	204.27	**120**		
12.0	12.5	11.90	40.0		90	12	3,3 x DC	2	218.15	**121**		

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→ v_c/f_z Page 352+353

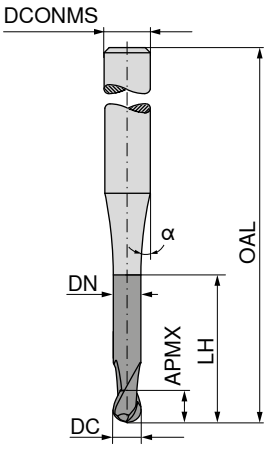
MonsterMill – Ball Nosed Cutter

The specialist for finish machining tempered steel up to 70 HRC

▲ Radius accuracy: ± 0,01 mm

HCR | λ_s=30° γ_s=–3° | 54–70 HRC





DPX62U

DRAGONSKIN





Factory standard



53 602 ...

DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS $_{h5}$ mm	T_X	ZEFP	£ V1	
3	3.5	2.9	8	15	60	6	2,7 x DC	4	99.98	**330**
3	3.5	2.9	12	15	60	6	4 x DC	4	99.98	**430**
3	3.5	2.9	16	15	60	6	5,3 x DC	4	99.98	**530**
3	3.5	2.9	20	15	70	6	6,7 x DC	4	102.05	**630**
3	3.5	2.9	24	15	70	6	8 x DC	4	104.59	**730**
4	4.5	3.9	8	15	60	6	2 x DC	4	102.68	**340**
4	4.5	3.9	12	15	60	6	3 x DC	4	104.50	**440**
4	4.5	3.9	16	15	60	6	4 x DC	4	104.50	**540**
4	4.5	3.9	20	15	70	6	5 x DC	4	106.50	**640**
4	4.5	3.9	24	15	70	6	6 x DC	4	109.06	**740**
4	4.5	3.9	28	15	70	6	7 x DC	4	109.06	**840**
6	6.5	5.9	12		60	6	2 x DC	4	108.93	**360**
6	6.5	5.9	16		60	6	2,7 x DC	4	112.73	**460**
6	6.5	5.9	20		60	6	3,3 x DC	4	112.73	**560**
8	8.5	7.9	16		60	8	2 x DC	4	143.49	**380**
8	8.5	7.9	40		80	8	5 x DC	4	152.80	**480**
10	10.5	9.9	20		70	10	2 x DC	4	169.85	**100**
10	10.5	9.9	40		90	10	4 x DC	4	182.86	**101**
12	12.5	11.9	24		75	12	2 x DC	4	223.57	**120**
12	12.5	11.9	40		90	12	3,3 x DC	4	237.44	**121**

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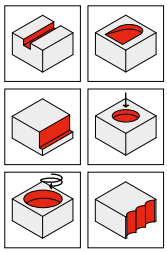
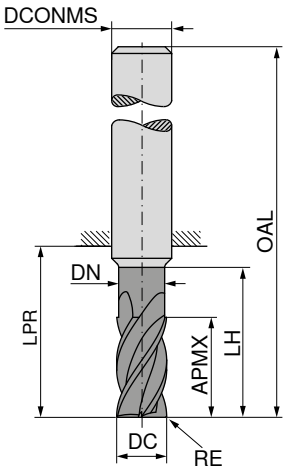
→ v_c/f_z Page 351

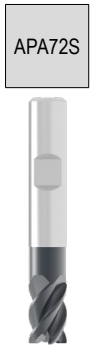
MonsterMill – Plunge milling cutter with corner radius

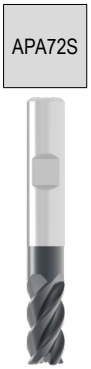
The specialist for ramping, plunging and helical milling

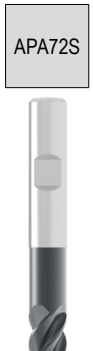
PCR UNI | λ_s = 36° 38° | γ_s = 8° | HPC

















DIN 6527 | DIN 6527 | DIN 6527







DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 613 ... £ V1		52 614 ... £ V1		52 615 ... £ V1	
5.0	0.20	9			18	54	6	4	70.12	05000				
5.0	0.20	13	4.8	19	21	57	6	4			70.49	05000		
5.0	0.20	13	4.8	24	26	62	6	4					81.33	05000
5.7	0.20	10			18	54	6	4	66.42	057				
5.7	0.20	13	5.5	19	21	57	6	4			66.77	057		
5.7	0.20	13	5.5	24	26	62	6	4					78.48	057
6.0	0.20	10			18	54	6	4	66.42	060				
6.0	0.20	13	5.8	19	21	57	6	4			69.57	060		
6.0	0.20	13	5.8	24	26	62	6	4					80.83	060
6.7	0.20	11			22	58	8	4	79.68	067				
6.7	0.20	16	6.5	25	27	63	8	4			78.85	067		
6.7	0.20	16	6.4	30	32	68	8	4					107.10	067
7.0	0.20	11			22	58	8	4	79.68	070				
7.0	0.20	16	6.8	25	27	63	8	4			78.85	070		
7.0	0.20	16	6.7	30	32	68	8	4					107.10	070
7.7	0.20	12			22	58	8	4	79.68	077				
7.7	0.20	19	7.5	25	27	63	8	4			81.17	077		
7.7	0.20	21	7.4	30	32	68	8	4					107.10	077
8.0	0.20	12			22	58	8	4	79.68	080				
8.0	0.20	19	7.8	25	27	63	8	4			83.99	080		
8.0	0.20	21	7.7	30	32	68	8	4					111.93	080
8.7	0.32	13			26	66	10	4	103.55	087				
8.7	0.32	19	8.5	30	32	72	10	4			117.95	087		
8.7	0.32	22	8.4	38	40	80	10	4					133.83	087
9.0	0.32	13			26	66	10	4	103.55	090				
9.0	0.32	19	8.8	30	32	72	10	4			117.95	090		
9.0	0.32	22	8.7	38	40	80	10	4					133.83	090
9.7	0.32	14			26	66	10	4	103.55	097				
9.7	0.32	22	9.5	30	32	72	10	4			117.95	097		
9.7	0.32	22	9.4	38	40	80	10	4					133.83	097
10.0	0.32	14			26	66	10	4	103.55	100				
10.0	0.32	22	9.8	30	32	72	10	4			112.15	100		
10.0	0.32	22	9.7	38	40	80	10	4					127.43	100
11.7	0.32	16			28	73	12	4	135.16	117				
11.7	0.32	26	11.5	36	38	83	12	4			151.07	117		
11.7	0.32	26	11.3	46	48	93	12	4					182.87	117
12.0	0.32	16			28	73	12	4	135.16	120				
12.0	0.32	26	11.8	36	38	83	12	4			144.10	120		
12.0	0.32	26	11.6	46	48	93	12	4					174.10	120
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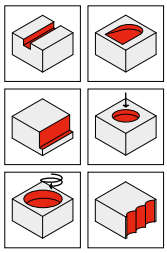
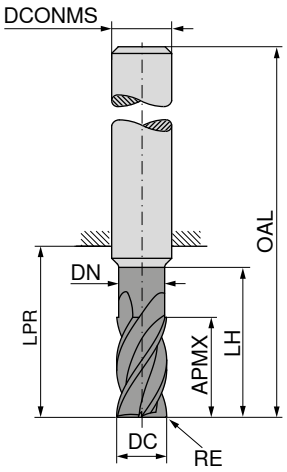
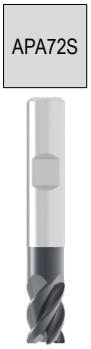
MonsterMill – Plunge milling cutter with corner radius

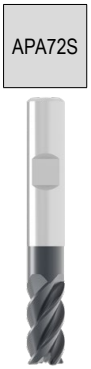
The specialist for ramping, plunging and helical milling

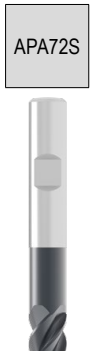
PCR UNI | λ_s = 36° 38° | γ_s = 8° | HPC

















DIN 6527 | DIN 6527 | DIN 6527







DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 613 ... £ V1		52 614 ... £ V1		52 615 ... £ V1	
13.7	0.32	18			30	75	14	4	170.61	**137**				
13.7	0.32	26	13.5	36	38	83	14	4			178.91	**137**		
13.7	0.32	26	13.3	52	54	99	14	4					220.65	**137**
14.0	0.32	18			30	75	14	4	170.61	**140**				
14.0	0.32	26	13.8	36	38	83	14	4			185.51	**140**		
14.0	0.32	26	13.6	52	54	99	14	4					215.00	**140**
15.5	0.32	22			34	82	16	4	217.00	**155**				
15.5	0.32	32	15.3	42	44	92	16	4			243.49	**155**		
15.5	0.32	36	15.0	58	60	108	16	4					307.77	**155**
16.0	0.32	22			34	82	16	4	217.00	**160**				
16.0	0.32	32	15.8	42	44	92	16	4			251.77	**160**		
16.0	0.32	36	15.5	58	60	108	16	4					300.65	**160**
17.5	0.32	24			36	84	18	4	258.40	**175**				
17.5	0.32	32	17.3	42	44	92	18	4			284.90	**175**		
17.5	0.32	36	17.0	67	69	117	18	4					346.03	**175**
18.0	0.32	24			36	84	18	4	258.40	**180**				
18.0	0.32	32	17.8	42	44	92	18	4			293.21	**180**		
18.0	0.32	36	17.5	67	69	117	18	4					345.37	**180**
19.5	0.50	26			42	92	20	4	319.68	**195**				
19.5	0.50	38	19.3	52	54	104	20	4			384.29	**195**		
19.5	0.50	41	19.0	74	76	126	20	4					507.71	**195**
20.0	0.50	26			42	92	20	4	319.68	**200**				
20.0	0.50	38	19.8	52	54	104	20	4			397.54	**200**		
20.0	0.50	41	19.5	74	76	126	20	4					498.58	**200**

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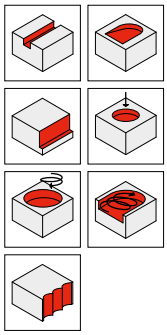
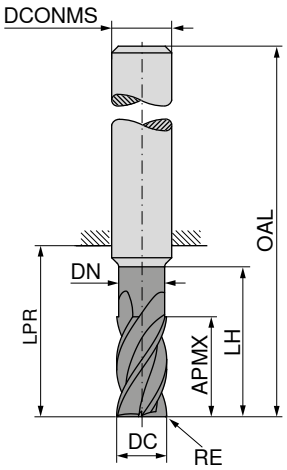
MonsterMill – Plunge milling cutter with corner radius

The specialist for ramping, plunging and helical milling

▲ suitable for trochoidal milling
▲ Chip breaker 0.9 x DC

PCR UNI | λ_s=36° γ_s=10° | HPC





APA72S





DIN 6527



52 619 ...

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
5	0.20	17	4.8	24	26	62	6	4	90.73	**05202**
6	0.20	17	5.8	25	26	62	6	4	90.73	**06202**
8	0.20	24	7.7	30	32	68	8	4	120.73	**08202**
10	0.32	30	9.7	35	40	80	10	4	140.99	**10203**
12	0.32	36	11.6	45	48	93	12	4	190.50	**12203**
14	0.32	42	13.6	50	54	99	14	4	241.10	**14203**
16	0.32	48	15.5	56	60	108	16	4	324.71	**16203**
18	0.32	54	17.5	67	69	117	18	4	397.14	**18203**
20	0.50	60	19.5	70	76	126	20	4	533.51	**20205**

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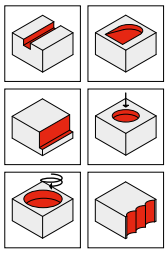
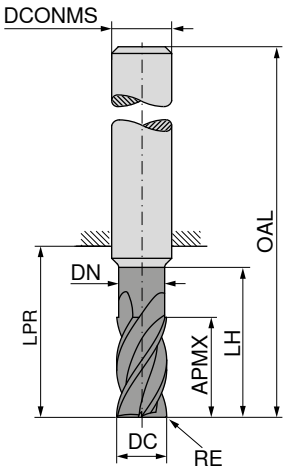
MonsterMill – Plunge milling cutter with corner radius

The specialist for ramping, plunging and helical milling

PCR ALU | λ_s=36° γ_s=13° | HPC





DLC DRAGONSKIN



DLC DRAGONSKIN





DIN 6527





DIN 6527



DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 616 ... £ V1		52 617 ... £ V1	
5.0	0.20	13	4.8	19	21	57	6	4	82.70	050		
5.0	0.20	13	4.8	24	26	62	6	4			91.23	050
5.7	0.20	13	5.5	19	21	57	6	4	82.70	057		
5.7	0.20	13	5.5	24	26	62	6	4			91.23	057
6.0	0.20	13	5.8	19	21	57	6	4	85.18	060		
6.0	0.20	13	5.8	24	26	62	6	4			93.95	060
7.7	0.20	19	7.5	25	27	63	8	4	98.09	077		
7.7	0.20	21	7.4	30	32	68	8	4			122.60	077
8.0	0.20	19	7.8	25	27	63	8	4	103.90	080		
8.0	0.20	21	7.7	30	32	68	8	4			127.98	080
9.0	0.32	19	8.8	30	32	72	10	4	137.16	090		
9.0	0.32	22	8.7	38	40	80	10	4			150.83	090
9.7	0.32	22	9.5	30	32	72	10	4	137.16	097		
9.7	0.32	22	9.4	38	40	80	10	4			150.83	097
10.0	0.32	22	9.8	30	32	72	10	4	132.99	100		
10.0	0.32	22	9.7	38	40	80	10	4			145.01	100
11.7	0.32	26	11.5	36	38	83	12	4	177.85	117		
11.7	0.32	26	11.3	46	48	93	12	4			206.89	117
12.0	0.32	26	11.8	36	38	83	12	4	169.53	120		
12.0	0.32	26	11.6	46	48	93	12	4			198.60	120
13.7	0.32	26	13.5	36	38	83	14	4	211.90	137		
13.7	0.32	26	13.3	52	54	99	14	4			252.19	137
14.0	0.32	26	13.8	36	38	83	14	4	219.32	140		
14.0	0.32	26	13.6	52	54	99	14	4			246.47	140
15.5	0.32	32	15.3	42	44	92	16	4	285.02	155		
15.5	0.32	36	15.0	58	60	108	16	4			347.42	155
16.0	0.32	32	15.8	42	44	92	16	4	293.84	160		
16.0	0.32	36	15.5	58	60	108	16	4			339.99	160
17.5	0.32	32	17.3	42	44	92	18	4	331.52	175		
17.5	0.32	36	17.0	67	69	117	18	4			389.42	175
18.0	0.32	32	17.8	42	44	92	18	4	339.47	180		
18.0	0.32	36	17.5	67	69	117	18	4			388.55	180
19.5	0.50	38	19.3	52	54	104	20	4	444.20	195		
19.5	0.50	41	19.0	74	76	126	20	4			565.21	195
20.0	0.50	38	19.8	52	54	104	20	4	459.24	200		
20.0	0.50	41	19.5	74	76	126	20	4			555.52	200

P		
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→ v_c/f_z Page 358+359

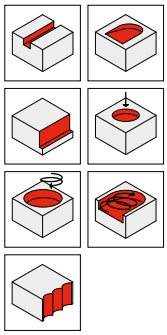
14

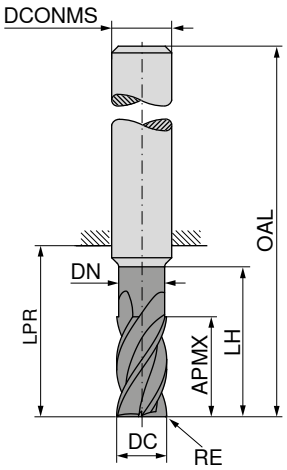
MonsterMill – Plunge milling cutter with corner radius

The specialist for ramping, plunging and helical milling

▲ suitable for trochoidal milling
▲ Chip breaker 0.9 x DC

PCR ALU | λ_s=36° γ_s=13° | HPC





DLC

DRAGONSKIN





DIN 6527



52 618 ...

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
5	0.20	17	4.8	24	26	62	6	4	100.86	**05202**
6	0.20	18	5.8	25	26	62	6	4	100.86	**06202**
8	0.20	24	7.7	30	32	68	8	4	132.42	**08202**
10	0.32	30	9.7	35	40	80	10	4	154.20	**10203**
12	0.32	36	11.6	45	48	93	12	4	208.31	**12203**
14	0.32	42	13.6	50	54	99	14	4	264.76	**14203**
16	0.32	48	15.5	56	60	108	16	4	350.50	**16203**
18	0.32	54	17.5	67	69	117	18	4	438.10	**18203**
20	0.50	60	19.5	70	76	126	20	4	569.31	**20205**

P	
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N	●
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O	

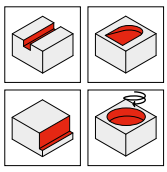
→ v_c/f_z Page 358–361

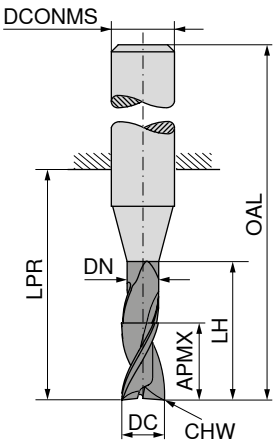
MonsterMill – Rough milling cutter

The specialist for rough machining steel and cast iron

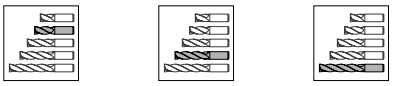
▲ Cutting edges with irregular pitch
▲ With round cord profile

MCR | λ_s=45° γ_s=15° | HPC

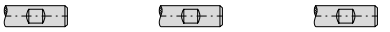








Factory standard | Factory standard | Factory standard



DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 752 ... £ V1		52 752 ... £ V1		52 752 ... £ V1	
1	1.5	0.9	3	10	38	3	0.09	3	220.76	010 [1]				
2	3.0	1.9	8	21	57	6	0.17	3	218.51	020				
3	5.0	2.9	14	21	57	6	0.17	3	235.75	030				
3	8.0	2.9	14	21	57	6	0.17	3			253.63	031		
3	5.0	2.9	19	26	62	6	0.17	3					240.92	032
4	8.0	3.8	18	21	57	6	0.17	3	233.09	040				
4	11.0	3.8	18	21	57	6	0.17	3			250.96	041		
4	8.0	3.8	23	26	62	6	0.17	3					238.23	042
5	9.0	4.8	19	21	57	6	0.17	3	227.99	050				
5	13.0	4.8	19	21	57	6	0.17	3			245.84	051		
5	9.0	4.8	24	26	62	6	0.17	3					233.09	052
6	10.0	5.8	20	21	57	6	0.17	4	222.87	060				
6	13.0	5.8	20	21	57	6	0.17	4			240.92	061		
6	10.0	5.8	25	26	62	6	0.17	4					227.99	062
8	12.0	7.7	25	27	63	8	0.28	4	248.12	080				
8	19.0	7.7	25	27	63	8	0.28	4			291.56	081		
8	12.0	7.7	30	32	68	8	0.28	4					253.04	082
10	15.0	9.5	30	32	72	10	0.28	4	277.51	100				
10	22.0	9.5	30	32	72	10	0.28	4			305.57	101		
10	15.0	9.5	35	40	80	10	0.28	4					287.78	102
12	18.0	11.5	35	38	83	12	0.28	4	341.10	120				
12	26.0	11.5	35	38	83	12	0.28	4			371.13	121		
12	18.0	11.5	45	48	93	12	0.28	4					358.36	122
14	21.0	13.5	35	38	83	14	0.28	4	398.07	140				
14	26.0	13.5	35	38	83	14	0.28	4			415.14	141		
14	21.0	13.5	50	54	99	14	0.28	4					429.74	142
16	24.0	15.5	40	44	92	16	0.43	4	557.69	160				
16	32.0	15.5	40	44	92	16	0.43	4			601.95	161		
16	24.0	15.5	55	60	108	16	0.43	4					599.64	162
20	30.0	19.5	50	54	104	20	0.43	4	741.42	200				
20	38.0	19.5	50	54	104	20	0.43	4			791.17	201		
20	30.0	19.5	70	76	126	20	0.43	4					815.83	202

P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H	○	○	○
O			

1) DIN 6535 HA Shank

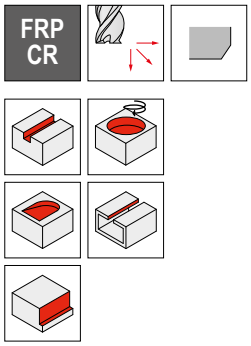
→ v_c/f_z Page 362–365

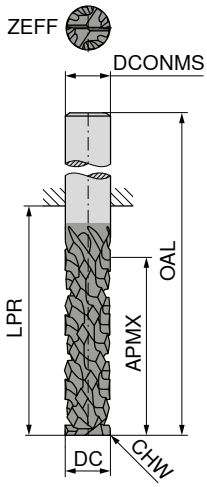
14

MonsterMill – FRP CR fine pitched

The specialist for machining carbon fibre-reinforced plastics

- ▲ Compression zone across the entire cutting length
- ▲ right-hand cutting
- ▲ fine cross-pitched version
- ▲ Two effective end cutting edges









Factory standard



52 598 ...

DC h11 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFF	£ V1/5B	
6.000	18	23.5	60	6.000	0.1	2	335.68	**06000**
6.350	18	23.5	60	6.350	0.1	2	360.91	**06350**
8.000	26	33.0	70	8.000	0.1	2	406.38	**08000**
9.525	30	40.0	80	9.525	0.1	2	458.23	**09525**
10.000	30	40.0	80	10.000	0.1	2	462.14	**10000**
12.000	30	41.0	85	12.000	0.1	2	598.73	**12000**
12.700	30	41.0	85	12.700	0.1	2	648.81	**12700**

P	
M	
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O	●

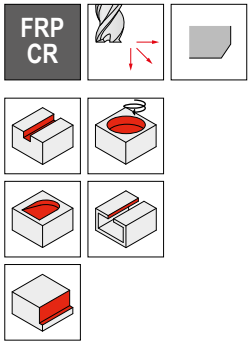
→ v_c/f Page 329

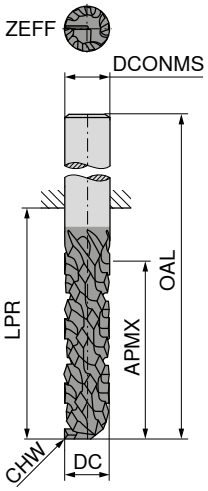
For the MonsterMill FRP CR cutters, the feed rate must be selected in mm/rev.

MonsterMill – FRP CR coarse pitched

The specialist for machining carbon fibre-reinforced plastics

- ▲ Compression zone across the entire cutting length
- ▲ right-hand cutting
- ▲ coarse cross-pitched version
- ▲ One effective end cutting edge











Factory standard



52 599 ...

DC h11 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFF	£ V1/5B	
6.000	18	23.5	60	6.000	0.1	1	335.68	**06000**
6.350	18	23.5	60	6.350	0.1	1	360.91	**06350**
8.000	26	33.0	70	8.000	0.1	1	406.38	**08000**
9.525	30	40.0	80	9.525	0.1	1	453.25	**09525**
10.000	30	40.0	80	10.000	0.1	1	457.18	**10000**
12.000	30	41.0	85	12.000	0.1	1	505.66	**12000**
12.700	30	41.0	85	12.700	0.1	1	555.75	**12700**

P	
M	
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S	
H	
O	●

→ v_c/f Page 329

For the MonsterMill FRP CR cutters, the feed rate must be selected in mm/rev.

14

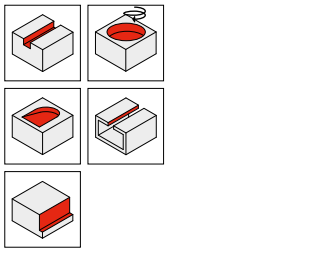
MonsterMill – FRP

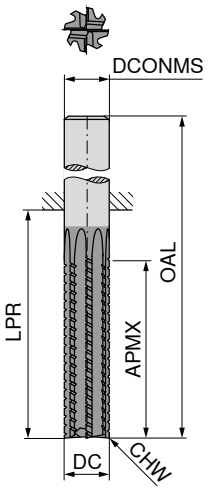
The specialist for machining carbon fibre-reinforced plastics

- ▲ optimal removal of CFRP dust
- ▲ right-hand cutting
- ▲ straight-fluted, neutral cut
- ▲ Four end cutting edges / two central cutting edges

FRP

λ_s=0°
γ_s=0°





DIAMOND





Factory standard



52 595 ...

DC h11 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1/5B	
6.000	25	35	70	6.000	0.1	8	354.34	**06000**
6.350	25	35	70	6.350	0.1	8	378.67	**06350**
8.000	30	40	80	8.000	0.1	8	426.62	**08000**
9.525	32	44	85	9.525	0.1	8	464.10	**09525**
10.000	32	45	85	10.000	0.1	8	484.53	**10000**
12.000	32	46	95	12.000	0.1	8	524.86	**12000**
12.700	32	46	95	12.700	0.1	8	578.48	**12700**

P	
M	
K	
N	
S	
H	
O	●

→ v_c/f_z Page 329

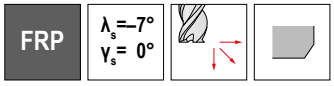
MonsterMill – FRP left-hand helix

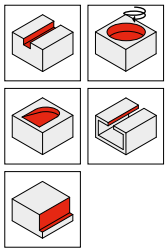
The specialist for machining carbon fibre-reinforced plastics

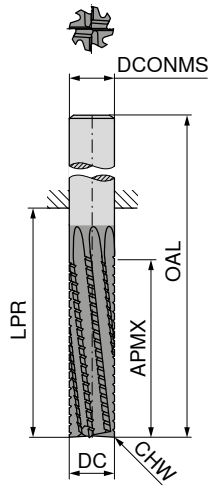
- ▲ optimal removal of CFRP dust
- ▲ right-hand cutting
- ▲ slightly left-fluted, pushing cut
- ▲ Four end cutting edges / two central cutting edges

FRP

λ_s=–7°
γ_s= 0°







DIAMOND





Factory standard



52 596 ...

DC h11 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1/5B	
6.000	25	38	70	6.000	0.1	8	354.34	**06000**
6.350	25	39	70	6.350	0.1	8	378.67	**06350**
8.000	30	43	80	8.000	0.1	8	426.62	**08000**
9.525	32	48	85	9.525	0.1	8	464.10	**09525**
10.000	32	49	85	10.000	0.1	8	484.53	**10000**
12.000	32	53	95	12.000	0.1	8	524.86	**12000**
12.700	32	54	95	12.700	0.1	8	578.48	**12700**

P	
M	
K	
N	
S	
H	
O	●

→ v_c/f_z Page 329

MonsterMill – FRP right-hand helix

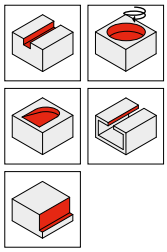
The specialist for machining carbon fibre-reinforced plastics

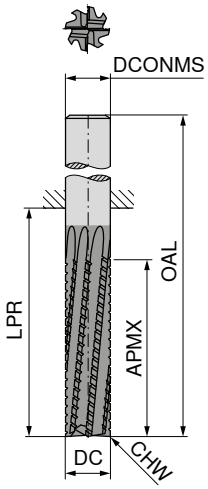
- ▲ optimal removal of CFRP dust
- ▲ right-hand cutting
- ▲ slightly right-fluted, pulling cut
- ▲ Four end cutting edges / two central cutting edges

FRP

λ_s=7°
γ_s=0°







DIAMOND





Factory standard



52 597 ...

DC h11 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1/5B	
6.000	25	35	70	6.000	0.1	8	354.34	**06000**
6.350	25	35	70	6.350	0.1	8	378.67	**06350**
8.000	30	40	80	8.000	0.1	8	426.62	**08000**
9.525	32	44	85	9.525	0.1	8	464.10	**09525**
10.000	32	45	85	10.000	0.1	8	484.53	**10000**
12.000	32	49	95	12.000	0.1	8	524.86	**12000**
12.700	32	49	95	12.700	0.1	8	578.48	**12700**

P	
M	
K	
N	
S	
H	
O	●

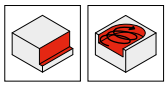
→ v_c/f_z Page 329

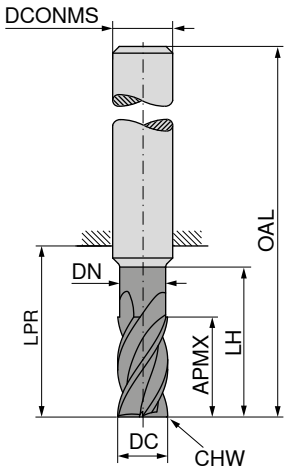
CircularLine – End milling cutter

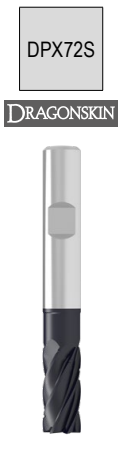
The specialist for trochoidal machining

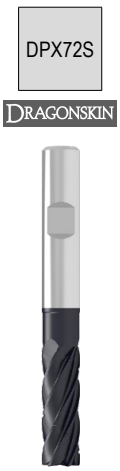
- ▲ Chip breaker 0.9 x DC
- ▲ 53 585 ... Cutting depth: 2 x DC
- ▲ 53 587 ... Cutting depth: 3 x DC

CCR UNI | λ_s 30° 31° | γ_s = 8° | HPC











Factory standard



Factory standard

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	53 585 ... £ V1/5B		53 587 ... £ V1/5B	
6	13	5.8	19	21	57	6	0.2	6	71.49	**060**		
6	19	5.8	25	27	63	6	0.2	6			70.07	**060**
8	21	7.7	25	27	63	8	0.2	6	93.22	**080**		
8	25	7.7	33	35	71	8	0.2	6			90.94	**080**
10	22	9.7	30	32	72	10	0.2	6	119.79	**100**		
10	31	9.7	41	43	83	10	0.2	6			128.21	**100**
12	26	11.6	36	38	83	12	0.2	6	154.05	**120**		
12	37	11.6	47	49	94	12	0.2	6			150.57	**120**
14	26	13.6	36	38	83	14	0.2	6	202.78	**14000**		
14	43	13.6	55	59	104	14	0.2	6			264.48	**14000**
16	36	15.5	42	44	92	16	0.2	6	307.26	**160**		
16	49	15.5	61	63	111	16	0.2	6			311.59	**160**
18	36	17.5	42	44	92	18	0.2	6	404.58	**18000**		
18	55	17.5	69	73	121	18	0.2	6			426.84	**18000**
20	41	19.5	52	54	104	20	0.2	6	441.78	**200**		
20	61	19.5	75	77	127	20	0.2	6			436.84	**200**
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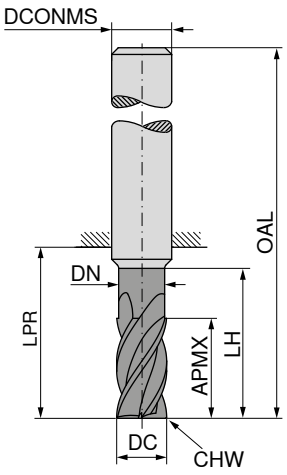
→ v_c/f_z Page 366+367

CircularLine – End milling cutter

The specialist for trochoidal machining

▲ Chip breaker 0,9 x DC
▲ Cutting depth: 4 x DC

CCR UNI | λ_s=35° γ_s= 8° | HPC



DPX72S

DRAGONSKIN



Factory standard

53 589 ...

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1/5B	
6	25	5.8	29	31	67	6	0.2	5	73.05	**060**
8	33	7.7	38	40	76	8	0.2	5	93.94	**080**
10	41	9.7	47	49	89	10	0.2	5	129.71	**100**
12	49	11.6	55	57	102	12	0.2	5	158.03	**120**
14	57	13.6	64	68	113	14	0.2	5	276.95	**14000**
16	65	15.5	73	75	123	16	0.2	5	317.55	**160**
18	73	17.5	82	86	134	18	0.2	5	430.22	**18000**
20	82	19.5	91	93	143	20	0.2	5	447.25	**200**

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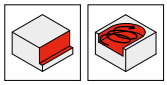
→ v_c/f_z Page 368+369

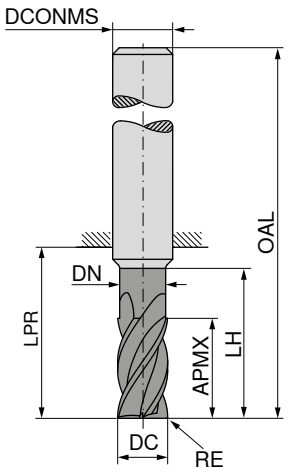
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 2 x DC

CCR UNI | λ_s=30° λ_s=31° γ_s= 8° | HPC





DPX72S

DRAGONSKIN





Factory standard



53 586 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
6	0.2	13	5.8	19	21	57	6	6	71.49	**06002**
6	1.0	13	5.8	19	21	57	6	6	71.89	**06010**
6	1.5	13	5.8	19	21	57	6	6	71.89	**06015**
8	0.2	21	7.7	25	27	63	8	6	93.22	**08002**
8	1.0	21	7.7	25	27	63	8	6	95.45	**08010**
8	1.5	21	7.7	25	27	63	8	6	95.45	**08015**
8	2.0	21	7.7	25	27	63	8	6	95.45	**08020**
10	0.2	22	9.7	30	32	72	10	6	119.79	**10002**
10	1.0	22	9.7	30	32	72	10	6	123.07	**10010**
10	1.5	22	9.7	30	32	72	10	6	123.07	**10015**
10	1.6	22	9.7	30	32	72	10	6	123.07	**10016**
10	2.0	22	9.7	30	32	72	10	6	123.07	**10020**
12	0.2	26	11.6	36	38	83	12	6	154.05	**12002**
12	1.0	26	11.6	36	38	83	12	6	154.76	**12010**
12	1.5	26	11.6	36	38	83	12	6	154.76	**12015**
12	1.6	26	11.6	36	38	83	12	6	154.76	**12016**
12	2.0	26	11.6	36	38	83	12	6	154.76	**12020**
12	3.0	26	11.6	36	38	83	12	6	154.76	**12030**
14	0.2	26	13.6	36	38	83	14	6	175.26	**14002**
14	1.0	26	13.6	36	38	83	14	6	176.71	**14010**
14	1.5	26	13.6	36	38	83	14	6	176.71	**14015**
14	1.6	26	13.6	36	38	83	14	6	176.71	**14016**
14	2.0	30	13.6	36	38	83	14	6	176.71	**14020**
14	3.0	26	13.6	36	38	83	14	6	176.71	**14030**
16	0.2	36	15.5	42	44	92	16	6	307.26	**16002**
16	1.0	36	15.5	42	44	92	16	6	331.31	**16010**
16	1.5	36	15.5	42	44	92	16	6	320.20	**16015**
16	1.6	36	15.5	42	44	92	16	6	320.20	**16016**
16	2.0	36	15.5	42	44	92	16	6	320.20	**16020**
16	3.0	36	15.5	42	44	92	16	6	320.20	**16030**
16	4.0	36	15.5	42	44	92	16	6	320.20	**16040**
18	0.2	36	17.5	42	44	92	18	6	349.78	**18002**
18	1.0	36	17.5	42	44	92	18	6	352.69	**18010**
18	1.5	36	17.5	42	44	92	18	6	352.69	**18015**
18	1.6	36	17.5	42	44	92	18	6	352.69	**18016**
18	2.0	36	17.5	42	44	92	18	6	352.69	**18020**

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→ v_c/f_z Page 366+367

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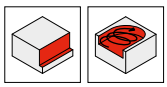
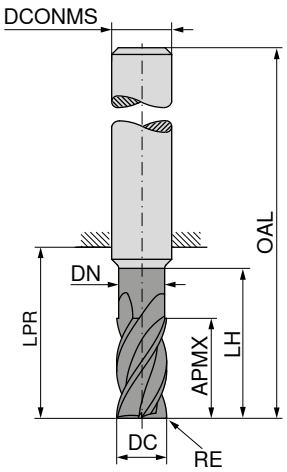
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 2 x DC

CCR UNI | λ_s=30° γ_s= 31° 8° | HPC





DPX72S

DRAGONSKIN





Factory standard



53 586 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
18	3.0	36	17.5	42	44	92	18	6	352.69	**18030**
18	4.0	36	17.5	42	44	92	18	6	352.69	**18040**
20	0.2	41	19.5	52	54	104	20	6	441.78	**20002**
20	1.0	41	19.5	52	54	104	20	6	446.24	**20010**
20	1.5	41	19.5	52	54	104	20	6	446.24	**20015**
20	1.6	41	19.5	52	54	104	20	6	446.24	**20016**
20	2.0	41	19.5	52	54	104	20	6	446.24	**20020**
20	3.0	41	19.5	52	54	104	20	6	446.24	**20030**
20	4.0	41	19.5	52	54	104	20	6	446.24	**20040**

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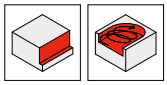
→ v_c/f_z Page 366+367

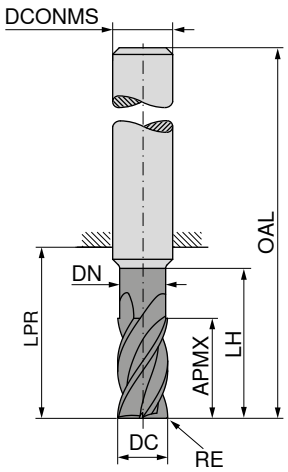
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 3 x DC

CCR UNI | λ_s=30° λ_s=31° γ_s= 8° | HPC





DPX72S
DRAGONSKIN





Factory standard



53 642 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
6	0.2	19	5.8	25	27	63	6	6	70.07	**06202**
6	1.0	19	5.8	25	27	63	6	6	71.56	**06210**
6	1.5	19	5.8	25	27	63	6	6	71.56	**06215**
8	0.2	25	7.7	33	35	71	8	6	90.94	**08202**
8	1.0	25	7.7	33	35	71	8	6	93.94	**08210**
8	1.5	25	7.7	33	35	71	8	6	93.94	**08215**
8	2.0	25	7.7	33	35	71	8	6	93.94	**08220**
10	0.2	31	9.7	41	43	83	10	6	128.21	**10202**
10	1.0	31	9.7	41	43	83	10	6	131.18	**10210**
10	1.5	31	9.7	41	43	83	10	6	131.18	**10215**
10	1.6	31	9.7	41	43	83	10	6	131.18	**10216**
10	2.0	31	9.7	41	43	83	10	6	131.18	**10220**
12	0.2	37	11.6	47	49	94	12	6	150.57	**12202**
12	1.0	37	11.6	47	49	94	12	6	155.04	**12210**
12	1.5	37	11.6	47	49	94	12	6	155.04	**12215**
12	1.6	37	11.6	47	49	94	12	6	155.04	**12216**
12	2.0	37	11.6	47	49	94	12	6	155.04	**12220**
12	3.0	37	11.6	47	49	94	12	6	155.04	**12230**
14	0.2	43	13.6	55	59	104	14	6	239.15	**14202**
14	1.0	43	13.6	55	59	104	14	6	244.04	**14210**
14	1.5	43	13.6	55	59	104	14	6	244.04	**14215**
14	1.6	43	13.6	55	59	104	14	6	244.04	**14216**
14	2.0	43	13.6	55	59	104	14	6	244.04	**14220**
14	3.0	43	13.6	55	59	104	14	6	244.04	**14230**
16	0.2	49	15.5	61	63	111	16	6	311.59	**16202**
16	1.0	49	15.5	61	63	111	16	6	314.56	**16210**
16	1.5	49	15.5	61	63	111	16	6	314.56	**16215**
16	1.6	49	15.5	61	63	111	16	6	314.56	**16216**
16	2.0	49	15.5	61	63	111	16	6	314.56	**16220**
16	3.0	49	15.5	61	63	111	16	6	314.56	**16230**
16	4.0	49	15.5	61	63	111	16	6	314.56	**16240**
18	0.2	55	17.5	69	73	121	18	6	385.73	**18202**
18	1.0	55	17.5	69	73	121	18	6	389.71	**18210**
18	1.5	55	17.5	69	73	121	18	6	389.71	**18215**
18	1.6	55	17.5	69	73	121	18	6	389.71	**18216**
18	2.0	55	17.5	69	73	121	18	6	389.71	**18220**

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→ v_c/f_z Page 366+367

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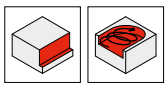
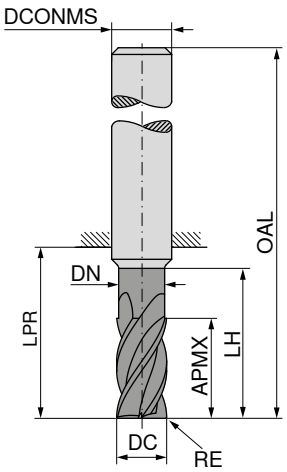
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 3 x DC

CCR UNI | λ_s=30° γ_s= 31° 8° | HPC





DPX72S

DRAGONSKIN





Factory standard



53 642 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
18	3.0	55	17.5	69	73	121	18	6	389.71	**18230**
18	4.0	55	17.5	69	73	121	18	6	389.71	**18240**
20	0.2	61	19.5	75	77	127	20	6	436.84	**20202**
20	1.0	61	19.5	75	77	127	20	6	441.26	**20210**
20	1.5	61	19.5	75	77	127	20	6	441.26	**20215**
20	1.6	61	19.5	75	77	127	20	6	441.26	**20216**
20	2.0	61	19.5	75	77	127	20	6	441.26	**20220**
20	3.0	61	19.5	75	77	127	20	6	441.26	**20230**
20	4.0	61	19.5	75	77	127	20	6	441.26	**20240**

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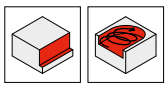
→ v_c/f_z Page 366+367

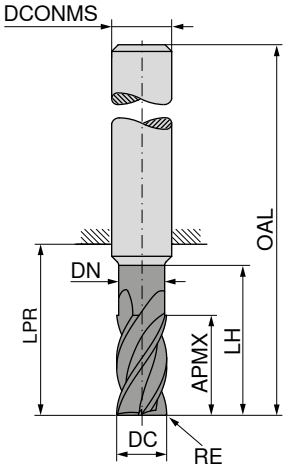
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 4 x DC

CCR UNI | λ_s=35° γ_s= 36° 9° | HPC





DPX72S

DRAGONSKIN





Factory standard



53 593 ...

DC e8 mm	RE ±0.05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
6	0.2	25	5.8	29	31	67	6	5	73.05	**06002**
6	1.0	25	5.8	29	31	67	6	5	74.53	**06010**
6	1.5	25	5.8	29	31	67	6	5	74.53	**06015**
8	0.2	33	7.7	38	40	76	8	5	93.94	**08002**
8	1.0	33	7.7	38	40	76	8	5	95.42	**08010**
8	1.5	33	7.7	38	40	76	8	5	95.42	**08015**
8	2.0	33	7.7	38	40	76	8	5	95.42	**08020**
10	0.2	41	9.7	47	49	89	10	5	129.71	**10002**
10	1.0	41	9.7	47	49	89	10	5	132.69	**10010**
10	1.5	41	9.7	47	49	89	10	5	132.69	**10015**
10	1.6	41	9.7	47	49	89	10	5	132.69	**10016**
10	2.0	41	9.7	47	49	89	10	5	132.69	**10020**
12	0.2	49	11.6	55	57	102	12	5	158.03	**12002**
12	1.0	49	11.6	55	57	102	12	5	162.50	**12010**
12	1.5	49	11.6	55	57	102	12	5	162.50	**12015**
12	1.6	49	11.6	55	57	102	12	5	162.50	**12016**
12	2.0	49	11.6	55	57	102	12	5	162.50	**12020**
12	3.0	49	11.6	55	57	102	12	5	162.50	**12030**
14	0.2	57	13.6	64	68	113	14	5	239.43	**14002**
14	1.0	57	13.6	64	68	113	14	5	244.40	**14010**
14	1.5	57	13.6	64	68	113	14	5	244.40	**14015**
14	1.6	57	13.6	64	68	113	14	5	244.40	**14016**
14	2.0	57	13.6	64	68	113	14	5	244.40	**14020**
14	3.0	57	13.6	64	68	113	14	5	244.40	**14030**
16	0.2	65	15.5	73	75	123	16	5	317.55	**16002**
16	1.0	65	15.5	73	75	123	16	5	323.51	**16010**
16	1.5	65	15.5	73	75	123	16	5	323.51	**16015**
16	1.6	65	15.5	73	75	123	16	5	323.51	**16016**
16	2.0	65	15.5	73	75	123	16	5	323.51	**16020**
16	3.0	65	15.5	73	75	123	16	5	323.51	**16030**
16	4.0	65	15.5	73	75	123	16	5	323.51	**16040**
18	0.2	73	17.5	82	86	134	18	5	371.89	**18002**
18	1.0	73	17.5	82	86	134	18	5	375.99	**18010**
18	1.5	73	17.5	82	86	134	18	5	375.99	**18015**
18	1.6	73	17.5	82	86	134	18	5	375.99	**18016**
18	2.0	73	17.5	82	86	134	18	5	375.99	**18020**

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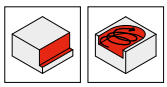
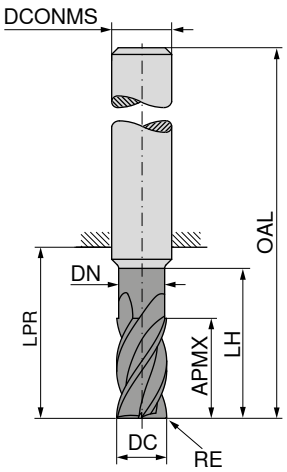
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 4 x DC

CCR UNI | λ_s=35° γ_s= 36° 9° | HPC





DPX72S

DRAGONSKIN





Factory standard



53 593 ...

DC e8 mm	RE ±0.05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
18	3.0	73	17.5	82	86	134	18	5	375.99	**18030**
18	4.0	73	17.5	82	86	134	18	5	375.99	**18040**
20	0.2	82	19.5	91	93	143	20	5	447.25	**20002**
20	1.0	82	19.5	91	93	143	20	5	454.70	**20010**
20	1.5	82	19.5	91	93	143	20	5	454.70	**20015**
20	1.6	82	19.5	91	93	143	20	5	454.70	**20016**
20	2.0	82	19.5	91	93	143	20	5	454.70	**20020**
20	3.0	82	19.5	91	93	143	20	5	454.70	**20030**
20	4.0	82	19.5	91	93	143	20	5	454.70	**20040**

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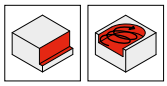
→ v_c/f_z Page 368+369

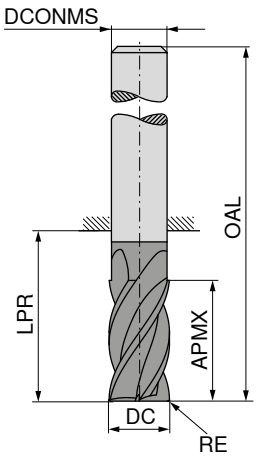
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 5 x DC

CCR UNI | λ_s=35° α_s=36° γ_s= 9° | HPC





DPX72S

DRAGONSKIN





Factory standard



53 593 ...

DC e8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
6.0	0.2	31	39	75	6	5	106.14	**06402**
6.0	1.0	31	39	75	6	5	106.14	**06410**
6.0	1.5	31	39	75	6	5	106.14	**06415**
8.0	0.2	41	49	85	8	5	122.36	**08402**
8.0	1.0	41	49	85	8	5	122.36	**08410**
8.0	1.5	41	49	85	8	5	122.36	**08415**
8.0	2.0	41	49	85	8	5	122.36	**08420**
10.0	0.2	51	60	100	10	5	168.94	**10402**
10.0	1.0	51	60	100	10	5	168.94	**10410**
10.0	1.5	51	60	100	10	5	168.94	**10415**
10.0	1.6	51	60	100	10	5	168.94	**10416**
10.0	2.0	51	60	100	10	5	168.94	**10420**
12.0	0.2	61	70	115	12	5	209.41	**12402**
12.0	1.0	61	70	115	12	5	209.41	**12410**
12.0	1.5	61	70	115	12	5	209.41	**12415**
12.0	1.6	61	70	115	12	5	209.41	**12416**
12.0	2.0	61	70	115	12	5	209.41	**12420**
12.0	3.0	61	70	115	12	5	209.41	**12430**
14.0	0.2	71	81	126	14	5	209.41	**14402**
14.0	1.0	71	81	126	14	5	430.15	**14410**
14.0	1.5	71	81	126	14	5	430.15	**14415**
14.0	1.6	71	81	126	14	5	430.15	**14416**
14.0	2.0	71	81	126	14	5	430.15	**14420**
14.0	3.0	71	81	126	14	5	430.15	**14430**
16.0	0.2	81	92	140	16	5	425.56	**16402**
16.0	1.0	81	92	140	16	5	425.56	**16410**
16.0	1.5	81	92	140	16	5	425.56	**16415**
16.0	1.6	81	92	140	16	5	425.56	**16416**
16.0	2.0	81	92	140	16	5	425.56	**16420**
16.0	3.0	81	92	140	16	5	425.56	**16430**
16.0	4.0	81	92	140	16	5	425.56	**16440**
18.0	0.2	91	102	150	18	5	486.68	**18402**
18.0	1.0	91	102	150	18	5	486.68	**18410**
18.0	1.5	91	102	150	18	5	486.68	**18415**
18.0	1.6	91	102	150	18	5	486.68	**18416**
18.0	2.0	91	102	150	18	5	486.68	**18420**

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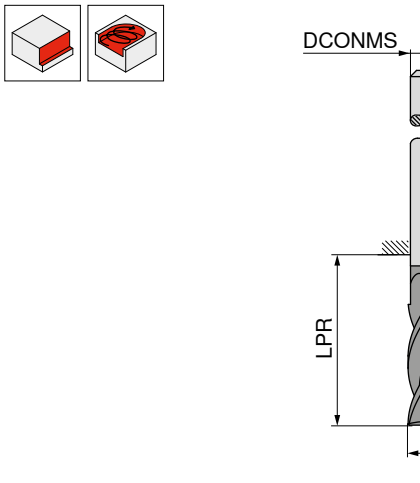
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 5 x DC

CCR UNI | λ_s 35° γ_s 36° 9° | HPC



DPX72S

DRAGONSKIN





Factory standard



53 593 ...

DC e8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
18.0	3.0	91	102	150	18	5	486.68	**18430**
18.0	4.0	91	102	150	18	5	486.68	**18440**
20.0	0.2	102	113	163	20	5	587.66	**20402**
20.0	1.0	102	113	163	20	5	587.66	**20410**
20.0	1.5	102	113	163	20	5	587.66	**20415**
20.0	1.6	102	113	163	20	5	587.66	**20416**
20.0	2.0	102	113	163	20	5	587.66	**20420**
20.0	3.0	102	113	163	20	5	587.66	**20430**
20.0	4.0	102	113	163	20	5	587.66	**20440**

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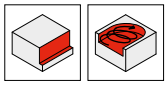
→ v_c/f_z Page 368+369

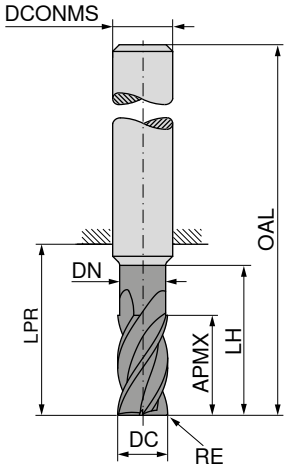
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 3 x DC

CCR VA | λ_s=30° γ_s= 31° 8° | HPC





DPX22S

DRAGONSKIN





Factory standard



53 643 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
6	0.2	19	5.8	25	27	63	6	6	79.08	**06202**
6	1.0	19	5.8	25	27	63	6	6	81.52	**06210**
6	1.5	19	5.8	25	27	63	6	6	81.52	**06215**
8	0.2	25	7.7	33	35	71	8	6	102.98	**08202**
8	1.0	25	7.7	33	35	71	8	6	105.76	**08210**
8	1.5	25	7.7	33	35	71	8	6	105.76	**08215**
8	2.0	25	7.7	33	35	71	8	6	105.76	**08220**
10	0.2	31	9.7	41	43	83	10	6	144.29	**10202**
10	1.0	31	9.7	41	43	83	10	6	147.41	**10210**
10	1.5	31	9.7	41	43	83	10	6	147.41	**10215**
10	2.0	31	9.7	41	43	83	10	6	147.41	**10220**
12	0.2	37	11.6	47	49	94	12	6	170.28	**12202**
12	1.0	37	11.6	47	49	94	12	6	174.61	**12210**
12	1.5	37	11.6	47	49	94	12	6	174.61	**12215**
12	2.0	37	11.6	47	49	94	12	6	174.61	**12220**
12	3.0	37	11.6	47	49	94	12	6	174.61	**12230**
14	0.2	43	13.6	55	59	104	14	6	262.31	**14202**
14	1.0	43	13.6	55	59	104	14	6	267.76	**14210**
14	1.5	43	13.6	55	59	104	14	6	267.76	**14215**
14	2.0	43	13.6	55	59	104	14	6	267.76	**14220**
14	3.0	43	13.6	55	59	104	14	6	267.76	**14230**
16	0.2	49	15.5	61	63	111	16	6	351.93	**16202**
16	1.0	49	15.5	61	63	111	16	6	355.62	**16210**
16	1.5	49	15.5	61	63	111	16	6	355.62	**16215**
16	2.0	49	15.5	61	63	111	16	6	355.62	**16220**
16	3.0	49	15.5	61	63	111	16	6	355.62	**16230**
16	4.0	49	15.5	61	63	111	16	6	355.62	**16240**
18	0.2	55	17.5	69	73	121	18	6	423.14	**18202**
18	1.0	55	17.5	69	73	121	18	6	427.48	**18210**
18	1.5	55	17.5	69	73	121	18	6	427.48	**18215**
18	2.0	55	17.5	69	73	121	18	6	427.48	**18220**
18	3.0	55	17.5	69	73	121	18	6	427.48	**18230**
18	4.0	55	17.5	69	73	121	18	6	427.48	**18240**
20	0.2	61	19.5	75	77	127	20	6	492.77	**20202**
20	1.0	61	19.5	75	77	127	20	6	498.20	**20210**
20	1.5	61	19.5	75	77	127	20	6	498.20	**20215**
20	2.0	61	19.5	75	77	127	20	6	498.20	**20220**
20	3.0	61	19.5	75	77	127	20	6	498.20	**20230**
20	4.0	61	19.5	75	77	127	20	6	498.20	**20040**

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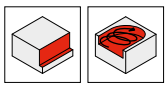
14

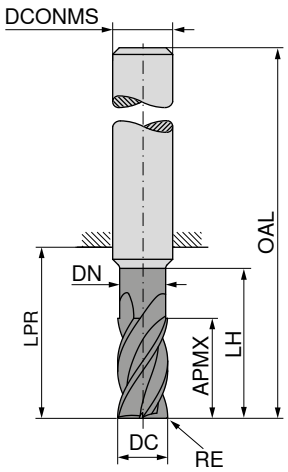
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 4 x DC

CCR VA | λ_s=35° γ_s= 36° 9° | HPC





DPX22S

DRAGONSKIN





Factory standard



53 644 ...

DC e8 mm	RE ±0.05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
6	0.2	25	5.8	29	31	67	6	5	81.85	**06002**
6	1.0	25	5.8	29	31	67	6	5	84.27	**06010**
6	1.5	25	5.8	29	31	67	6	5	84.27	**06015**
8	0.2	33	7.7	38	40	76	8	5	105.76	**08002**
8	1.0	33	7.7	38	40	76	8	5	108.52	**08010**
8	1.5	33	7.7	38	40	76	8	5	108.52	**08015**
8	2.0	33	7.7	38	40	76	8	5	108.52	**08020**
10	0.2	41	9.7	47	49	89	10	5	147.10	**10002**
10	1.0	41	9.7	47	49	89	10	5	150.37	**10010**
10	1.5	41	9.7	47	49	89	10	5	150.37	**10015**
10	2.0	41	9.7	47	49	89	10	5	150.37	**10020**
12	0.2	49	11.6	55	57	102	12	5	179.09	**12002**
12	1.0	49	11.6	55	57	102	12	5	183.56	**12010**
12	1.5	49	11.6	55	57	102	12	5	183.56	**12015**
12	2.0	49	11.6	55	57	102	12	5	183.56	**12020**
12	3.0	49	11.6	55	57	102	12	5	183.56	**12030**
14	0.2	57	13.6	64	68	113	14	5	274.64	**14002**
14	1.0	57	13.6	64	68	113	14	5	280.22	**14010**
14	1.5	57	13.6	64	68	113	14	5	280.22	**14015**
14	2.0	57	13.6	64	68	113	14	5	280.22	**14020**
14	3.0	57	13.6	64	68	113	14	5	280.22	**14030**
16	0.2	65	15.5	73	75	123	16	5	359.29	**16002**
16	1.0	65	15.5	73	75	123	16	5	364.91	**16010**
16	1.5	65	15.5	73	75	123	16	5	364.91	**16015**
16	2.0	65	15.5	73	75	123	16	5	364.91	**16020**
16	3.0	65	15.5	73	75	123	16	5	364.91	**16030**
16	4.0	65	15.5	73	75	123	16	5	364.91	**16040**
18	0.2	73	17.5	82	86	134	18	5	426.51	**18002**
18	1.0	73	17.5	82	86	134	18	5	431.15	**18010**
18	1.5	73	17.5	82	86	134	18	5	431.15	**18015**
18	2.0	73	17.5	82	86	134	18	5	431.15	**18020**
18	3.0	73	17.5	82	86	134	18	5	431.15	**18030**
18	4.0	73	17.5	82	86	134	18	5	431.15	**18040**
20	0.2	82	19.5	91	93	143	20	5	505.72	**20002**
20	1.0	82	19.5	91	93	143	20	5	513.10	**20010**
20	1.5	82	19.5	91	93	143	20	5	513.10	**20015**
20	2.0	82	19.5	91	93	143	20	5	513.10	**20020**
20	3.0	82	19.5	91	93	143	20	5	513.10	**20030**
20	4.0	82	19.5	91	93	143	20	5	513.10	**20040**

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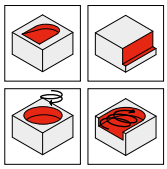
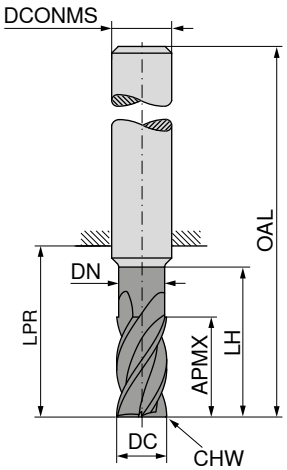
CircularLine – End milling cutter

The specialist for trochoidal machining

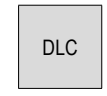
- ▲ Chip breaker 1.8 x DC
- ▲ 53 590 ... Cutting depth: 3 x DC
- ▲ 53 591 ... Cutting depth: 4 x DC

CCR AL | λ_s=45° γ_s= 8°

















Factory standard | Factory standard





DC $_{e8}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	53 590 ... £ V1/5B		53 591 ... £ V1/5B	
6	19	5.8	24	30	66	6	0.2	4	73.05	**060**		
6	25	5.8	30	35	71	6	0.2	4			76.03	**060**
8	25	7.7	32	37	73	8	0.2	4	95.42	**080**		
8	33	7.7	40	44	80	8	0.2	4			98.39	**080**
10	31	9.7	40	49	89	10	0.2	4	134.18	**100**		
10	41	9.7	50	55	95	10	0.2	4			135.67	**100**
12	37	11.6	48	56	101	12	0.2	4	161.00	**120**		
12	49	11.6	60	64	109	12	0.2	4			168.46	**120**
14	43	13.0	56	60	105	14	0.2	4	242.08	**14000**		
14	57	13.0	70	74	119	14	0.2	4			247.92	**14000**
16	49	15.5	64	72	120	16	0.2	4	329.47	**160**		
16	65	15.5	80	84	132	16	0.2	4			336.93	**160**
18	56	17.0	72	76	124	18	0.2	4	372.03	**18000**		
18	74	17.0	90	94	142	18	0.2	4			401.35	**18000**
20	62	19.5	80	84	134	20	0.2	4	462.15	**200**		
20	82	19.5	100	104	154	20	0.2	4			474.05	**200**

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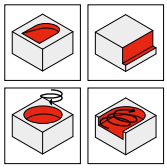
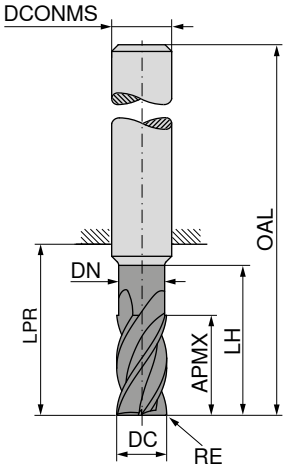
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 1.8 x DC
▲ Cutting depth: 3 x DC

CCR AL | λ_s=45° γ_s= 8°





DLC

DRAGONSKIN





Factory standard



53 594 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
6	0.2	19	5.8	24	30	66	6	4	73.05	**06002**
6	1.0	19	5.8	24	30	66	6	4	76.03	**06010**
6	1.5	19	5.8	24	30	66	6	4	76.03	**06015**
8	0.2	25	7.7	32	37	73	8	4	95.42	**08002**
8	1.0	25	7.7	32	37	73	8	4	98.39	**08010**
8	1.5	25	7.7	32	37	73	8	4	98.39	**08015**
8	2.0	25	7.7	32	37	73	8	4	98.39	**08020**
10	0.2	31	9.7	40	49	89	10	4	134.18	**10002**
10	1.0	31	9.7	40	49	89	10	4	135.67	**10010**
10	1.5	31	9.7	40	49	89	10	4	135.67	**10015**
10	1.6	31	9.7	40	49	89	10	4	135.67	**10016**
10	2.0	31	9.7	40	49	89	10	4	135.67	**10020**
12	0.2	37	11.6	48	56	101	12	4	161.00	**12002**
12	1.0	37	11.6	48	56	101	12	4	163.99	**12010**
12	1.5	37	11.6	48	56	101	12	4	163.99	**12015**
12	1.6	37	11.6	48	56	101	12	4	163.99	**12016**
12	2.0	37	11.6	48	56	101	12	4	163.99	**12020**
12	3.0	37	11.6	48	56	101	12	4	163.99	**12030**
14	0.2	43	13.0	56	60	105	14	4	242.08	**14002**
14	1.0	43	13.0	56	60	105	14	4	247.33	**14010**
14	1.5	43	13.0	56	60	105	14	4	247.33	**14015**
14	1.6	43	13.0	56	60	105	14	4	247.33	**14016**
14	2.0	43	13.0	56	60	105	14	4	247.33	**14020**
14	3.0	43	13.0	56	60	105	14	4	247.33	**14030**
16	0.2	49	15.5	64	72	120	16	4	329.47	**16002**
16	1.0	49	15.5	64	72	120	16	4	332.45	**16010**
16	1.5	49	15.5	64	72	120	16	4	332.45	**16015**
16	1.6	49	15.5	64	72	120	16	4	332.45	**16016**
16	2.0	49	15.5	64	72	120	16	4	332.45	**16020**
16	3.0	49	15.5	64	72	120	16	4	332.45	**16030**
16	4.0	49	15.5	64	72	120	16	4	332.45	**16040**
18	0.2	56	17.0	72	76	124	18	4	372.03	**18002**
18	1.0	56	17.0	72	76	124	18	4	375.55	**18010**
18	1.5	56	17.0	72	76	124	18	4	375.55	**18015**
18	1.6	56	17.0	72	76	124	18	4	375.55	**18016**
18	2.0	56	17.0	72	76	124	18	4	375.55	**18020**

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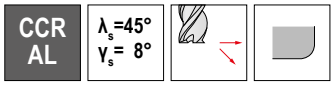
→ v_c/f_z Page 374+375

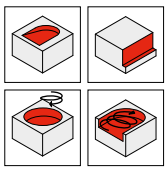
Continued on next page

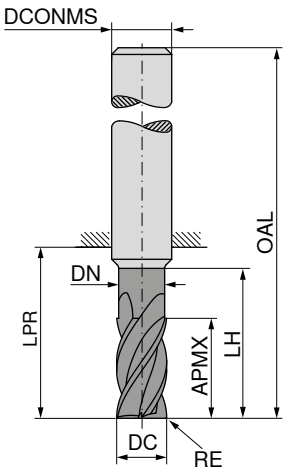
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 1.8 x DC
▲ Cutting depth: 3 x DC









DRAGONSKIN





Factory standard



53 594 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
18	3.0	56	17.0	72	76	124	18	4	375.55	**18030**
18	4.0	56	17.0	72	76	124	18	4	375.55	**18040**
20	0.2	62	19.5	80	84	134	20	4	462.15	**20002**
20	1.0	62	19.5	80	84	134	20	4	468.11	**20010**
20	1.5	62	19.5	80	84	134	20	4	468.11	**20015**
20	1.6	62	19.5	80	84	134	20	4	468.11	**20016**
20	2.0	62	19.5	80	84	134	20	4	468.11	**20020**
20	3.0	62	19.5	80	84	134	20	4	468.11	**20030**
20	4.0	62	19.5	80	84	134	20	4	468.11	**20040**

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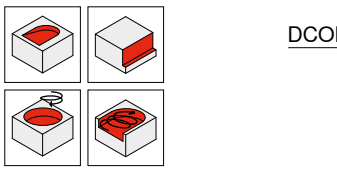
→ v_c/f_z Page 374+375

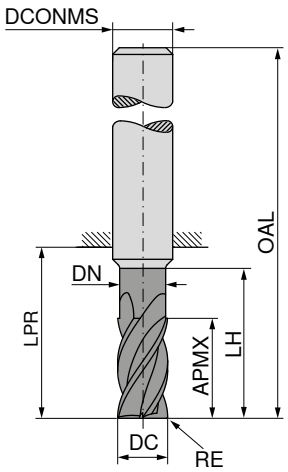
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 1.8 x DC
▲ Cutting depth: 4 x DC

CCR AL | λ_s=45° γ_s= 8°





DLC

DRAGONSKIN





Factory standard



53 595 ...

DC $_{e8}$ mm	RE $_{\pm 0.05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ V1/5B	
6	0.2	25	5.8	30	35	71	6	4	76.03	**06002**
6	1.0	25	5.8	30	35	71	6	4	77.52	**06010**
6	1.5	25	5.8	30	35	71	6	4	77.52	**06015**
8	0.2	33	7.7	40	44	80	8	4	98.39	**08002**
8	1.0	33	7.7	40	44	80	8	4	101.39	**08010**
8	1.5	33	7.7	40	44	80	8	4	101.39	**08015**
8	2.0	33	7.7	40	44	80	8	4	101.39	**08020**
10	0.2	41	9.7	50	55	95	10	4	135.67	**10002**
10	1.0	41	9.7	50	55	95	10	4	138.65	**10010**
10	1.5	41	9.7	50	55	95	10	4	138.65	**10015**
10	1.6	41	9.7	50	55	95	10	4	138.65	**10016**
10	2.0	41	9.7	50	55	95	10	4	138.65	**10020**
12	0.2	49	11.6	60	64	109	12	4	168.46	**12002**
12	1.0	49	11.6	60	64	109	12	4	172.93	**12010**
12	1.5	49	11.6	60	64	109	12	4	172.93	**12015**
12	1.6	49	11.6	60	64	109	12	4	172.93	**12016**
12	2.0	49	11.6	60	64	109	12	4	172.93	**12020**
12	3.0	49	11.6	60	64	109	12	4	172.93	**12030**
14	0.2	57	13.0	70	74	119	14	4	247.92	**14002**
14	1.0	57	13.0	70	74	119	14	4	250.57	**14010**
14	1.5	57	13.0	70	74	119	14	4	250.57	**14015**
14	1.6	57	13.0	70	74	119	14	4	250.57	**14016**
14	2.0	57	13.0	70	74	119	14	4	250.57	**14020**
14	3.0	57	13.0	70	74	119	14	4	250.57	**14030**
16	0.2	65	15.5	80	84	132	16	4	336.93	**16002**
16	1.0	65	15.5	80	84	132	16	4	341.41	**16010**
16	1.5	65	15.5	80	84	132	16	4	341.41	**16015**
16	1.6	65	15.5	80	84	132	16	4	341.41	**16016**
16	2.0	65	15.5	80	84	132	16	4	341.41	**16020**
16	3.0	65	15.5	80	84	132	16	4	341.41	**16030**
16	4.0	65	15.5	80	84	132	16	4	341.41	**16040**
18	0.2	74	17.0	90	94	142	18	4	401.35	**18002**
18	1.0	74	17.0	90	94	142	18	4	402.66	**18010**
18	1.5	74	17.0	90	94	142	18	4	402.66	**18015**
18	1.6	74	17.0	90	94	142	18	4	402.66	**18016**
18	2.0	74	17.0	90	94	142	18	4	402.66	**18020**

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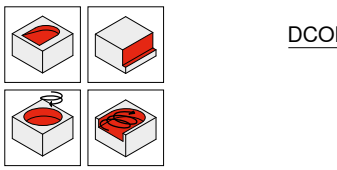
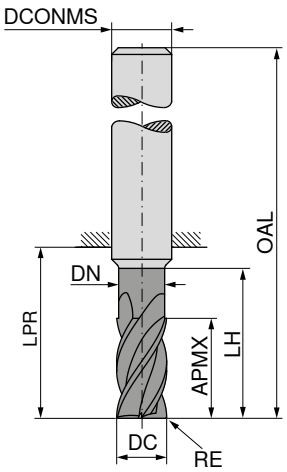
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 1.8 x DC
▲ Cutting depth: 4 x DC

CCR AL | λ_s=45° γ_s= 8°





DLC

DRAGONSKIN





Factory standard



53 595 ...

DC e8 mm	RE ±0.05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
18	3.0	74	17.0	90	94	142	18	4	402.66	**18030**
18	4.0	74	17.0	90	94	142	18	4	402.66	**18040**
20	0.2	82	19.5	100	104	154	20	4	474.05	**20002**
20	1.0	82	19.5	100	104	154	20	4	478.55	**20010**
20	1.5	82	19.5	100	104	154	20	4	478.55	**20015**
20	1.6	82	19.5	100	104	154	20	4	478.55	**20016**
20	2.0	82	19.5	100	104	154	20	4	478.55	**20020**
20	3.0	82	19.5	100	104	154	20	4	478.55	**20030**
20	4.0	82	19.5	100	104	154	20	4	478.55	**20040**

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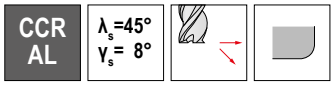
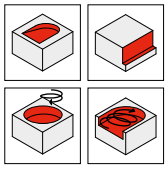
→ v_c/f_z Page 374+375

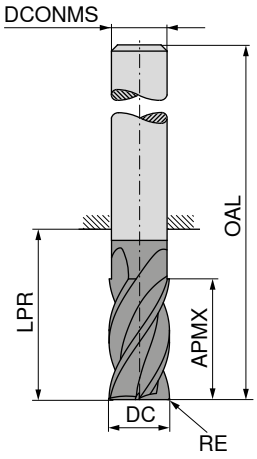
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 1.8 x DC
▲ Cutting depth: 5 x DC













Factory standard



53 641 ...

DC h8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
6	0.2	31	40	76	6	4	101.45	**06002**
6	1.0	31	40	76	6	4	104.53	**06010**
6	1.5	31	40	76	6	4	104.53	**06015**
8	0.2	41	50	86	8	4	120.30	**08002**
8	1.0	41	50	86	8	4	123.37	**08010**
8	1.5	41	50	86	8	4	123.37	**08015**
8	2.0	41	50	86	8	4	123.37	**08020**
10	0.2	51	61	101	10	4	166.38	**10002**
10	1.0	51	61	101	10	4	169.90	**10010**
10	1.5	51	61	101	10	4	169.90	**10015**
10	2.0	51	61	101	10	4	169.90	**10020**
12	0.2	61	71	116	12	4	205.91	**12002**
12	1.0	61	71	116	12	4	210.74	**12010**
12	1.5	61	71	116	12	4	210.74	**12015**
12	2.0	61	71	116	12	4	210.74	**12020**
14	0.2	71	82	127	14	4	308.84	**14002**
14	1.0	71	82	127	14	4	312.25	**14010**
14	1.5	71	82	127	14	4	312.25	**14015**
14	2.0	71	82	127	14	4	312.25	**14020**
16	0.2	81	93	141	16	4	411.34	**16002**
16	1.0	81	93	141	16	4	416.62	**16010**
16	1.5	81	93	141	16	4	416.62	**16015**
16	2.0	81	93	141	16	4	416.62	**16020**
18	0.2	91	103	151	18	4	500.02	**18002**
18	1.0	91	103	151	18	4	501.76	**18010**
18	1.5	91	103	151	18	4	501.76	**18015**
18	2.0	91	103	151	18	4	501.76	**18020**
20	0.2	102	114	164	20	4	580.34	**20002**
20	1.0	102	114	164	20	4	586.91	**20010**
20	1.5	102	114	164	20	4	586.91	**20015**
20	2.0	102	114	164	20	4	586.91	**20020**

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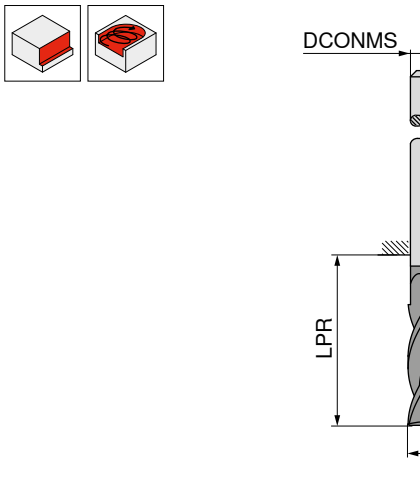
CircularLine – End milling cutter with corner radius

The specialist for machining titanium and titanium alloys

- ▲ Chip breaker 0.9 x DC
- ▲ Long cutting depth version: 3 x DC
- ▲ Extra-long cutting depth version: 4 x DC

CCR Ti | λ_s=40° γ_s=10° | HPC







Factory standard | Factory standard

DC e8 mm	RE ±0,01 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 510 ... £ V1		52 510 ... £ V1	
6	0.1	18	29	65	6	5	100.96	**06000**		
6	0.1	24	31	67	6	5			108.84	**06100**
8	0.2	24	34	70	8	5	133.36	**08000**		
8	0.2	32	44	80	8	5			138.24	**08100**
10	0.2	30	40	80	10	5	166.44	**10000**		
10	0.2	40	50	90	10	5			175.22	**10100**
12	0.2	36	50	95	12	5	210.59	**12000**		
12	0.2	48	55	100	12	5			218.92	**12100**
16	0.2	48	62	110	16	5	319.35	**16000**		
16	0.3	64	72	120	16	5			338.27	**16100**
20	0.3	60	75	125	20	5	419.18	**20000**		
20	0.3	80	90	140	20	5			511.01	**20100**

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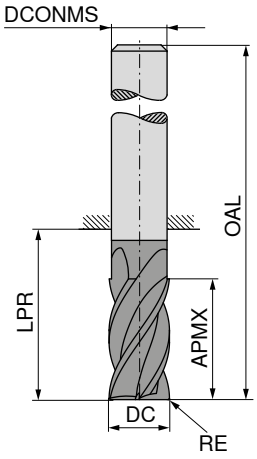
CircularLine – End milling cutter with corner radius

The specialist for trochoidal machining

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 3 x DC

CCR H | λ_s=50° γ_s=–6° | 45–70 HRC





DPX62S

DRAGONSKIN





Factory standard



53 596 ...

DC e8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
6	0.2	19	24	60	6	6	78.26	**06002**
6	1.0	19	24	60	6	6	78.26	**06010**
8	0.2	25	31	67	8	6	107.81	**08002**
8	1.0	25	31	67	8	6	107.81	**08010**
10	0.2	31	37	77	10	6	149.35	**10002**
10	1.0	31	37	77	10	6	149.35	**10010**
10	1.5	31	37	77	10	6	149.35	**10015**
12	0.2	37	43	88	12	6	177.38	**12002**
12	1.0	37	43	88	12	6	177.38	**12010**
12	1.5	37	43	88	12	6	177.38	**12015**
12	2.0	37	43	88	12	6	177.38	**12020**
12	3.0	37	43	88	12	6	177.38	**12030**
16	0.2	49	56	104	16	6	355.25	**16002**
16	1.0	49	56	104	16	6	355.25	**16010**
16	1.5	49	56	104	16	6	355.25	**16015**
16	2.0	49	56	104	16	6	355.25	**16020**
16	3.0	49	56	104	16	6	355.25	**16030**
20	0.2	61	68	118	20	6	512.32	**20002**
20	1.0	61	68	118	20	6	512.32	**20010**
20	1.5	61	68	118	20	6	512.32	**20015**
20	2.0	61	68	118	20	6	512.32	**20020**
20	3.0	61	68	118	20	6	512.32	**20030**

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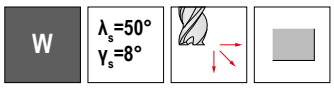
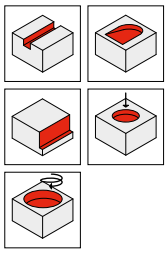
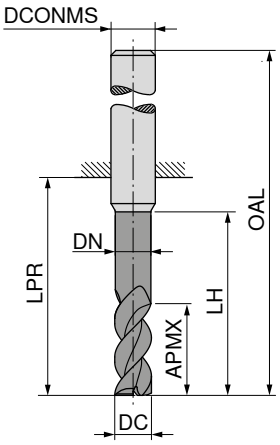
AluLine – End milling cutter

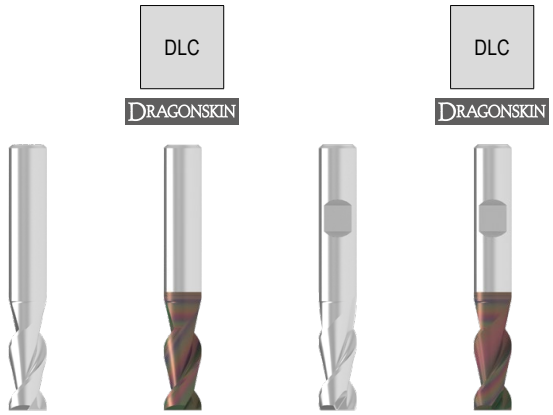
The specialist for machining non-ferrous metals

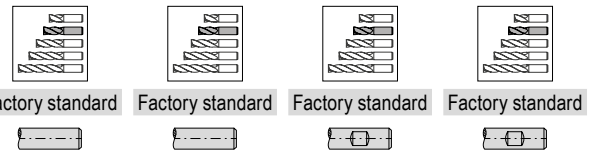
▲ With polished chip flutes











Factory standard | Factory standard | Factory standard | Factory standard

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 623 ... £ V1/5B		53 625 ... £ V1/5B		53 624 ... £ V1/5B		53 626 ... £ V1/5B	
5.0	10.5	4.8	15	22	58	6	2	51.74	**05100**	65.73	**05100**	51.74	**05100**	65.73	**05100**
5.5	13.0	5.3	18	22	58	6	2	62.92	**05600**	76.91	**05600**	62.92	**05600**	76.91	**05600**
6.0	13.0	5.8	18	22	58	6	2	58.72	**06100**	74.12	**06100**	58.72	**06100**	74.12	**06100**
6.5	17.0	6.2	24	28	64	8	2	67.13	**06600**	82.51	**06600**	67.13	**06600**	82.51	**06600**
7.0	17.0	6.7	24	28	64	8	2	65.73	**07100**	81.11	**07100**	65.73	**07100**	81.11	**07100**
7.5	17.0	7.2	24	28	64	8	2	64.32	**07600**	79.70	**07600**	64.32	**07600**	79.70	**07600**
8.0	17.0	7.7	24	28	64	8	2	61.54	**08100**	78.32	**08100**	61.54	**08100**	78.32	**08100**
8.5	21.0	8.2	30	34	74	10	2	103.49	**08600**	121.66	**08600**	103.49	**08600**	121.66	**08600**
9.0	21.0	8.7	30	34	74	10	2	100.69	**09100**	118.85	**09100**	100.69	**09100**	118.85	**09100**
9.5	21.0	9.2	30	34	74	10	2	97.89	**09600**	116.07	**09600**	97.89	**09600**	116.07	**09600**
10.0	21.0	9.7	30	34	74	10	2	93.70	**10100**	113.26	**10100**	93.70	**10100**	113.26	**10100**
10.5	25.0	10.1	36	40	85	12	2	142.63	**10600**	162.22	**10600**	142.63	**10600**	162.22	**10600**
11.0	25.0	10.6	36	40	85	12	2	139.84	**11100**	159.42	**11100**	139.84	**11100**	159.42	**11100**
11.5	25.0	11.1	36	40	85	12	2	135.65	**11600**	155.24	**11600**	135.65	**11600**	155.24	**11600**
12.0	25.0	11.6	36	40	85	12	2	132.86	**12100**	159.42	**12100**	132.86	**12100**	159.42	**12100**
12.5	29.0	12.1	42	46	91	14	2					191.58	**12600**	218.16	**12600**
13.0	29.0	12.6	42	46	91	14	2					190.18	**13100**	216.75	**13100**
13.5	29.0	13.1	42	46	91	14	2					187.38	**13600**	215.35	**13600**
14.0	29.0	13.6	42	46	91	14	2					190.18	**14100**	226.55	**14100**
14.5	33.0	14.0	48	52	100	16	2					260.10	**14600**	296.46	**14600**
15.0	33.0	14.5	48	52	100	16	2					253.12	**15100**	290.88	**15100**
15.5	33.0	15.0	48	52	100	16	2					247.52	**15600**	283.88	**15600**
16.0	33.0	15.5	48	52	100	16	2					260.10	**16100**	303.47	**16100**
16.5	38.0	16.0	54	58	106	18	2					337.01	**16600**	380.38	**16600**
17.0	38.0	16.5	54	58	106	18	2					327.23	**17100**	370.59	**17100**
17.5	38.0	17.0	54	58	106	18	2					318.84	**17600**	360.79	**17600**
18.0	38.0	17.5	54	58	106	18	2					314.65	**18100**	360.79	**18100**
18.5	42.0	18.0	60	64	114	20	2					416.73	**18600**	462.86	**18600**
19.0	42.0	18.5	60	64	114	20	2					405.53	**19100**	451.69	**19100**
19.5	42.0	19.0	60	64	114	20	2					392.96	**19600**	440.50	**19600**
20.0	42.0	19.5	60	64	114	20	2					385.96	**20100**	444.70	**20100**

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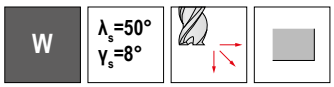
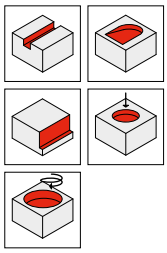
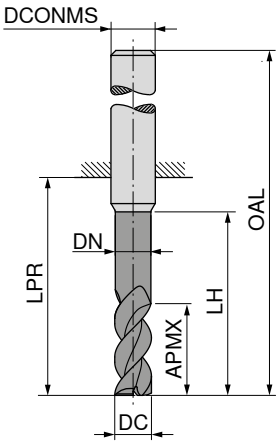
AluLine – End milling cutter

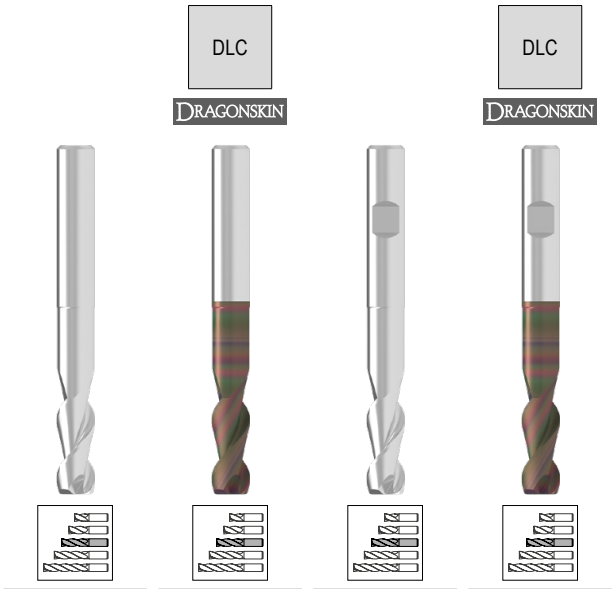
The specialist for machining non-ferrous metals

▲ With polished chip flutes









Factory standard | Factory standard | Factory standard | Factory standard

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 633 ... £ V1/5B		53 635 ... £ V1/5B		53 634 ... £ V1/5B		53 636 ... £ V1/5B	
2.0	5.5	1.8	10.0	19	55	6	2	50.90	**02300**	65.46	**02300**	50.90	**02300**	65.46	**02300**
2.5	6.5	2.3	12.5	22	58	6	2	65.15	**02800**	79.69	**02800**	65.15	**02800**	79.69	**02800**
3.0	8.0	2.8	15.0	22	58	6	2	66.84	**03300**	81.42	**03300**	66.84	**03300**	81.42	**03300**
3.5	10.5	3.3	20.0	26	62	6	2	62.98	**03800**	77.56	**03800**	62.98	**03800**	77.56	**03800**
4.0	10.5	3.8	20.0	26	62	6	2	64.37	**04300**	78.91	**04300**	64.37	**04300**	78.91	**04300**
4.5	13.0	4.3	25.0	34	70	6	2	66.52	**04800**	81.06	**04800**	66.52	**04800**	81.06	**04800**
5.0	13.0	4.8	25.0	34	70	6	2	68.10	**05300**	82.65	**05300**	68.10	**05300**	82.65	**05300**
5.5	16.0	5.3	30.0	34	70	6	2	83.06	**05800**	97.60	**05800**	83.06	**05800**	97.60	**05800**
6.0	16.0	5.8	30.0	34	70	6	2	76.46	**06300**	93.35	**06300**	76.46	**06300**	93.35	**06300**
6.5	21.0	6.2	40.0	44	80	8	2	91.53	**06800**	108.41	**06800**	91.53	**06800**	108.41	**06800**
7.0	21.0	6.7	40.0	44	80	8	2	89.25	**07300**	106.17	**07300**	89.25	**07300**	106.17	**07300**
7.5	21.0	7.2	40.0	44	80	8	2	86.86	**07800**	103.76	**07800**	86.86	**07800**	103.76	**07800**
8.0	21.0	7.7	40.0	44	80	8	2	82.85	**08300**	101.85	**08300**	82.85	**08300**	101.85	**08300**
8.5	26.0	8.2	50.0	54	94	10	2	141.05	**08800**	160.02	**08800**	141.05	**08800**	160.02	**08800**
9.0	26.0	8.7	50.0	54	94	10	2	131.90	**09300**	150.93	**09300**	131.90	**09300**	150.93	**09300**
9.5	26.0	9.2	50.0	54	94	10	2	128.21	**09800**	147.26	**09800**	128.21	**09800**	147.26	**09800**
10.0	26.0	9.7	50.0	54	94	10	2	122.31	**10300**	143.47	**10300**	122.31	**10300**	143.47	**10300**
10.5	31.0	10.1	60.0	64	109	12	2	187.26	**10800**	208.52	**10800**	187.26	**10800**	208.52	**10800**
11.0	31.0	10.6	60.0	64	109	12	2	189.76	**11300**	210.85	**11300**	189.76	**11300**	210.85	**11300**
11.5	31.0	11.1	60.0	64	109	12	2	176.71	**11800**	197.96	**11800**	176.71	**11800**	197.96	**11800**
12.0	31.0	11.6	60.0	64	109	12	2	173.63	**12300**	203.09	**12300**	173.63	**12300**	203.09	**12300**
12.5	36.0	12.1	70.0	74	119	14	2					270.78	**12800**	300.39	**12800**
13.0	36.0	12.6	70.0	74	119	14	2					268.29	**13300**	297.90	**13300**
13.5	36.0	13.1	70.0	74	119	14	2					266.24	**13800**	295.84	**13800**
14.0	36.0	13.6	70.0	74	119	14	2					268.74	**14300**	308.45	**14300**
14.5	41.0	14.0	80.0	84	132	16	2					367.64	**14800**	407.35	**14800**
15.0	41.0	14.5	80.0	84	132	16	2					359.44	**15300**	399.14	**15300**
15.5	41.0	15.0	80.0	84	132	16	2					350.81	**15800**	390.51	**15800**
16.0	41.0	15.5	80.0	84	132	16	2					369.25	**16300**	415.56	**16300**
16.5	47.0	16.0	90.0	94	142	18	2					477.40	**16800**	523.84	**16800**
17.0	47.0	16.5	90.0	94	142	18	2					464.35	**17300**	510.80	**17300**
17.5	47.0	17.0	90.0	94	142	18	2					450.72	**17800**	497.32	**17800**
18.0	47.0	17.5	90.0	94	142	18	2					445.30	**18300**	495.85	**18300**
18.5	52.0	18.0	100.0	104	154	20	2					590.37	**18800**	641.06	**18800**
19.0	52.0	18.5	100.0	104	154	20	2					574.24	**19300**	624.79	**19300**
19.5	52.0	19.0	100.0	104	154	20	2					557.41	**19800**	608.24	**19800**
20.0	52.0	19.5	100.0	104	154	20	2					547.58	**20300**	611.03	**20300**

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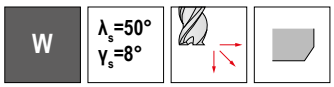
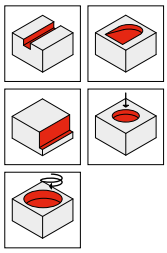
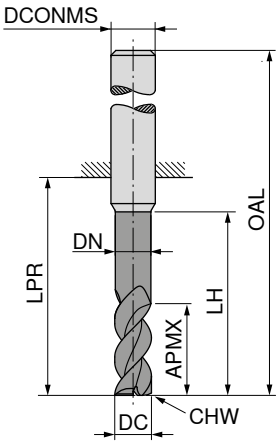
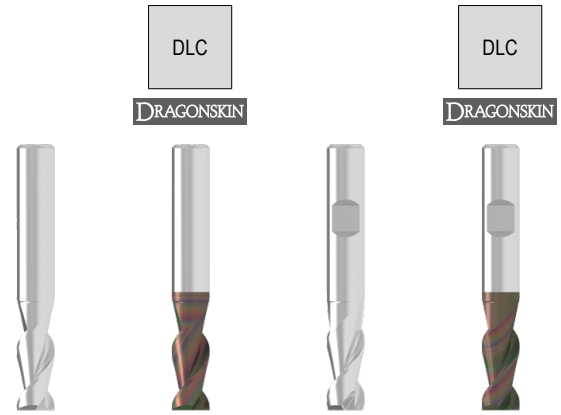
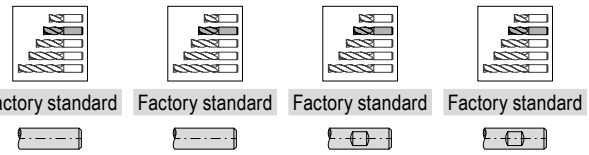
▲ With polished chip flutes











Factory standard | Factory standard | Factory standard | Factory standard

DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	53 619 ... £ V1/5B		53 621 ... £ V1/5B		53 620 ... £ V1/5B		53 622 ... £ V1/5B	
mm	mm	mm	mm	mm	mm	mm	mm									
5.0	10.5	4.8	15	22	58	6	0.1	2	51.74	05100	65.73	05100	51.74	05100	65.73	05100
5.5	13.0	5.3	18	22	58	6	0.1	2	62.92	05600	76.91	05600	62.92	05600	76.91	05600
6.0	13.0	5.8	18	22	58	6	0.1	2	58.72	06100	74.12	06100	58.72	06100	74.12	06100
6.5	17.0	6.2	24	28	64	8	0.1	2	67.13	06600	82.51	06600	67.13	06600	82.51	06600
7.0	17.0	6.7	24	28	64	8	0.1	2	65.73	07100	81.11	07100	65.73	07100	81.11	07100
7.5	17.0	7.2	24	28	64	8	0.1	2	64.32	07600	79.70	07600	64.32	07600	79.70	07600
8.0	17.0	7.7	24	28	64	8	0.1	2	61.54	08100	78.32	08100	61.54	08100	78.32	08100
8.5	21.0	8.2	30	34	74	10	0.1	2	103.49	08600	121.66	08600	103.49	08600	121.66	08600
9.0	21.0	8.7	30	34	74	10	0.1	2	100.69	09100	118.85	09100	100.69	09100	118.85	09100
9.5	21.0	9.2	30	34	74	10	0.1	2	97.89	09600	116.07	09600	97.89	09600	116.07	09600
10.0	21.0	9.7	30	34	74	10	0.1	2	93.70	10100	113.26	10100	93.70	10100	113.26	10100
10.5	25.0	10.1	36	40	85	12	0.1	2	142.63	10600	162.22	10600	142.63	10600	162.22	10600
11.0	25.0	10.6	36	40	85	12	0.1	2	139.84	11100	159.42	11100	139.84	11100	159.42	11100
11.5	25.0	11.1	36	40	85	12	0.1	2	135.65	11600	155.24	11600	135.65	11600	155.24	11600
12.0	25.0	11.6	36	40	85	12	0.1	2	132.86	12100	159.42	12100	132.86	12100	159.42	12100
12.5	29.0	12.1	42	46	91	14	0.1	2					191.58	12600	218.16	12600
13.0	29.0	12.6	42	46	91	14	0.1	2					190.18	13100	216.75	13100
13.5	29.0	13.1	42	46	91	14	0.1	2					187.38	13600	215.35	13600
14.0	29.0	13.6	42	46	91	14	0.1	2					190.18	14100	226.55	14100
14.5	33.0	14.0	48	52	100	16	0.1	2					260.10	14600	296.46	14600
15.0	33.0	14.5	48	52	100	16	0.1	2					253.12	15100	290.88	15100
15.5	33.0	15.0	48	52	100	16	0.1	2					247.52	15600	283.88	15600
16.0	33.0	15.5	48	52	100	16	0.1	2					260.10	16100	303.47	16100
16.5	38.0	16.0	54	58	106	18	0.1	2					337.01	16600	380.38	16600
17.0	38.0	16.5	54	58	106	18	0.1	2					327.23	17100	370.59	17100
17.5	38.0	17.0	54	58	106	18	0.1	2					318.84	17600	360.79	17600
18.0	38.0	17.5	54	58	106	18	0.1	2					314.65	18100	360.79	18100
18.5	42.0	18.0	60	64	114	20	0.1	2					416.73	18600	462.86	18600
19.0	42.0	18.5	60	64	114	20	0.1	2					405.53	19100	451.69	19100
19.5	42.0	19.0	60	64	114	20	0.1	2					392.96	19600	440.50	19600
20.0	42.0	19.5	60	64	114	20	0.1	2					385.96	20100	444.70	20100

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AluLine – End milling cutter

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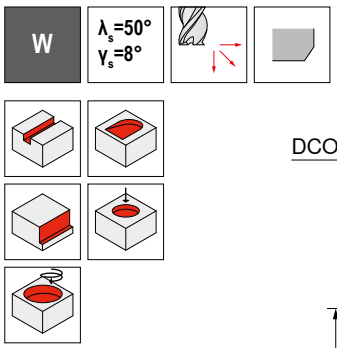
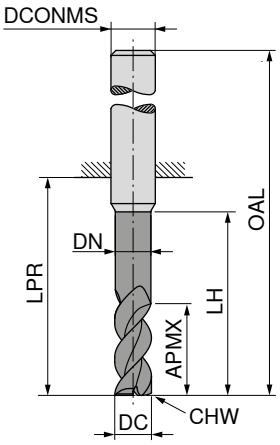
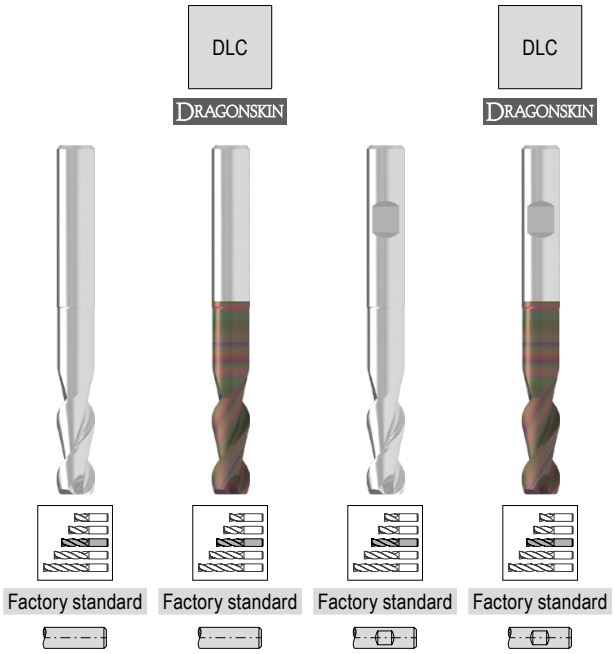
▲ With polished chip flutes







									Factory standard	Factory standard	Factory standard	Factory standard
									53 629 ...	**53 631 ...**	**53 630 ...**	**53 632 ...**
DC_{h6}	APMX	DN	LH	LPR	OAL	$DCONMS_{h6}$	CHW	ZEFP	£ V1/5B	£ V1/5B	£ V1/5B	£ V1/5B
mm	mm	mm	mm	mm	mm	mm	mm					
2.0	5.5	1.8	10.0	19	55	6	0.05	2	50.90 **02300**	65.46 **02300**	50.90 **02300**	65.46 **02300**
2.5	6.5	2.3	12.5	22	58	6	0.05	2	65.15 **02800**	79.69 **02800**	65.15 **02800**	79.69 **02800**
3.0	8.0	2.8	15.0	22	58	6	0.10	2	66.84 **03300**	81.42 **03300**	66.84 **03300**	81.42 **03300**
3.5	10.5	3.3	20.0	26	62	6	0.10	2	62.98 **03800**	77.56 **03800**	62.98 **03800**	77.56 **03800**
4.0	10.5	3.8	20.0	26	62	6	0.10	2	64.37 **04300**	78.91 **04300**	64.37 **04300**	78.91 **04300**
4.5	13.0	4.3	25.0	34	70	6	0.10	2	66.52 **04800**	81.06 **04800**	66.52 **04800**	81.06 **04800**
5.0	13.0	4.8	25.0	34	70	6	0.10	2	68.10 **05300**	82.65 **05300**	68.10 **05300**	82.65 **05300**
5.5	16.0	5.3	30.0	34	70	6	0.10	2	83.06 **05800**	97.60 **05800**	83.06 **05800**	97.60 **05800**
6.0	16.0	5.8	30.0	34	70	6	0.10	2	68.10 **06300**	85.00 **06300**	68.10 **06300**	85.00 **06300**
6.5	21.0	6.2	40.0	44	80	8	0.10	2	91.53 **06800**	108.41 **06800**	91.53 **06800**	108.41 **06800**
7.0	21.0	6.7	40.0	44	80	8	0.10	2	89.25 **07300**	106.17 **07300**	89.25 **07300**	106.17 **07300**
7.5	21.0	7.2	40.0	44	80	8	0.10	2	86.86 **07800**	103.76 **07800**	86.86 **07800**	103.76 **07800**
8.0	21.0	7.7	40.0	44	80	8	0.10	2	82.85 **08300**	101.85 **08300**	82.85 **08300**	101.85 **08300**
8.5	26.0	8.2	50.0	54	94	10	0.10	2	141.05 **08800**	160.02 **08800**	141.05 **08800**	160.02 **08800**
9.0	26.0	8.7	50.0	54	94	10	0.10	2	131.90 **09300**	150.93 **09300**	131.90 **09300**	150.93 **09300**
9.5	26.0	9.2	50.0	54	94	10	0.10	2	128.21 **09800**	147.26 **09800**	128.21 **09800**	147.26 **09800**
10.0	26.0	9.7	50.0	54	94	10	0.10	2	122.31 **10300**	143.47 **10300**	122.31 **10300**	143.47 **10300**
10.5	31.0	10.1	60.0	64	109	12	0.10	2	187.26 **10800**	208.52 **10800**	187.26 **10800**	208.52 **10800**
11.0	31.0	10.6	60.0	64	109	12	0.10	2	189.76 **11300**	210.85 **11300**	189.76 **11300**	210.85 **11300**
11.5	31.0	11.1	60.0	64	109	12	0.10	2	176.71 **11800**	197.96 **11800**	176.71 **11800**	197.96 **11800**
12.0	31.0	11.6	60.0	64	109	12	0.10	2	173.63 **12300**	203.09 **12300**	173.63 **12300**	203.09 **12300**
12.5	36.0	12.1	70.0	74	119	14	0.10	2			270.78 **12800**	300.39 **12800**
13.0	36.0	12.6	70.0	74	119	14	0.10	2			268.29 **13300**	297.90 **13300**
13.5	36.0	13.1	70.0	74	119	14	0.10	2			266.24 **13800**	295.84 **13800**
14.0	36.0	13.6	70.0	74	119	14	0.10	2			268.74 **14300**	308.45 **14300**
14.5	41.0	14.0	80.0	84	132	16	0.10	2			367.64 **14800**	407.35 **14800**
15.0	41.0	14.5	80.0	84	132	16	0.10	2			359.44 **15300**	399.14 **15300**
15.5	41.0	15.0	80.0	84	132	16	0.10	2			350.81 **15800**	390.51 **15800**
16.0	41.0	15.5	80.0	84	132	16	0.10	2			369.25 **16300**	415.56 **16300**
16.5	47.0	16.0	90.0	94	142	18	0.10	2			477.40 **16800**	523.84 **16800**
17.0	47.0	16.5	90.0	94	142	18	0.10	2			464.35 **17300**	510.80 **17300**
17.5	47.0	17.0	90.0	94	142	18	0.10	2			450.72 **17800**	497.32 **17800**
18.0	47.0	17.5	90.0	94	142	18	0.10	2			445.30 **18300**	495.85 **18300**
18.5	52.0	18.0	100.0	104	154	20	0.10	2			590.37 **18800**	641.06 **18800**
19.0	52.0	18.5	100.0	104	154	20	0.10	2			574.24 **19300**	624.79 **19300**
19.5	52.0	19.0	100.0	104	154	20	0.10	2			557.41 **19800**	608.24 **19800**
20.0	52.0	19.5	100.0	104	154	20	0.10	2			547.58 **20300**	611.03 **20300**
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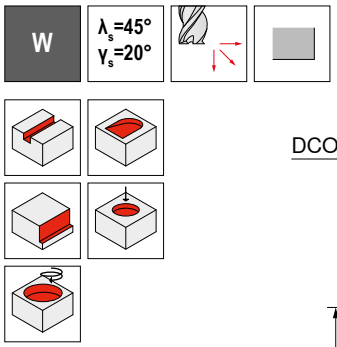
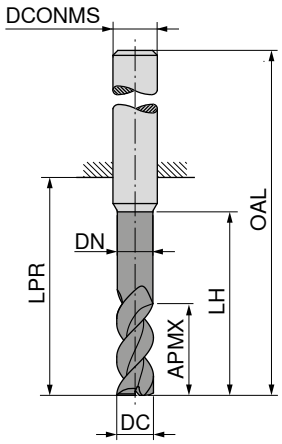
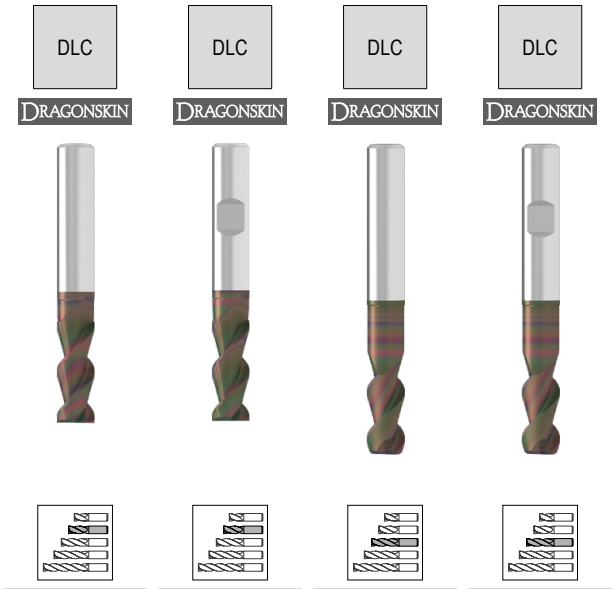
AluLine – End milling cutter

The specialist for machining non-ferrous metals







DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 627 ... £ V1/5B		53 628 ... £ V1/5B		53 637 ... £ V1/5B		53 638 ... £ V1/5B	
2.0	5.5	1.8	10.0	19	55	6	2					68.75	**02300**	68.75	**02300**
2.5	6.5	2.3	12.5	22	58	6	2					83.02	**02800**	83.02	**02800**
3.0	8.0	2.8	15.0	22	58	6	2					84.70	**03300**	84.70	**03300**
3.5	10.5	3.3	20.0	26	62	6	2					80.90	**03800**	80.90	**03800**
4.0	10.5	3.8	20.0	26	62	6	2					82.20	**04300**	82.20	**04300**
4.5	13.0	4.3	25.0	34	70	6	2					84.35	**04800**	84.35	**04800**
5.0	10.5	4.8	15.0	22	58	6	2	78.32	**05100**	78.32	**05100**				
5.0	13.0	4.8	25.0	34	70	6	2					81.91	**05300**	81.91	**05300**
5.5	13.0	5.3	18.0	22	58	6	2	79.70	**05600**	79.70	**05600**				
5.5	16.0	5.3	30.0	34	70	6	2					83.10	**05800**	83.10	**05800**
6.0	13.0	5.8	18.0	22	58	6	2	75.51	**06100**	75.51	**06100**				
6.0	16.0	5.8	30.0	34	70	6	2					76.80	**06300**	76.80	**06300**
6.5	17.0	6.2	24.0	28	64	8	2	86.71	**06600**	86.71	**06600**				
6.5	21.0	6.2	40.0	44	80	8	2					116.58	**06800**	116.58	**06800**
7.0	17.0	6.7	24.0	28	64	8	2	85.30	**07100**	85.30	**07100**				
7.0	21.0	6.7	40.0	44	80	8	2					113.61	**07300**	113.61	**07300**
7.5	17.0	7.2	24.0	28	64	8	2	83.91	**07600**	83.91	**07600**				
7.5	21.0	7.2	40.0	44	80	8	2					110.37	**07800**	110.37	**07800**
8.0	17.0	7.7	24.0	28	64	8	2	81.11	**08100**	81.11	**08100**				
8.0	21.0	7.7	40.0	44	80	8	2					105.37	**08300**	105.37	**08300**
8.5	21.0	8.2	30.0	34	74	10	2	125.85	**08600**	125.85	**08600**				
8.5	26.0	8.2	50.0	54	94	10	2					161.92	**08800**	161.92	**08800**
9.0	21.0	8.7	30.0	34	74	10	2	124.46	**09100**	124.46	**09100**				
9.0	26.0	8.7	50.0	54	94	10	2					156.93	**09300**	156.93	**09300**
9.5	21.0	9.2	30.0	34	74	10	2	121.66	**09600**	121.66	**09600**				
9.5	26.0	9.2	50.0	54	94	10	2					151.81	**09800**	151.81	**09800**
10.0	21.0	9.7	30.0	34	74	10	2	116.07	**10100**	116.07	**10100**				
10.0	26.0	9.7	50.0	54	94	10	2					144.81	**10300**	144.81	**10300**
10.5	25.0	10.1	36.0	40	85	12	2	169.21	**10600**	169.21	**10600**				
10.5	31.0	10.1	60.0	64	109	12	2					220.38	**10800**	220.38	**10800**
11.0	25.0	10.6	36.0	40	85	12	2	165.01	**11100**	165.01	**11100**				
11.0	31.0	10.6	60.0	64	109	12	2					213.20	**11300**	213.20	**11300**
11.5	25.0	11.1	36.0	40	85	12	2	160.82	**11600**	160.82	**11600**				
11.5	31.0	11.1	60.0	64	109	12	2					205.72	**11800**	205.72	**11800**
12.0	25.0	11.6	36.0	40	85	12	2	159.42	**12100**	159.42	**12100**				
12.0	31.0	11.6	60.0	64	109	12	2					200.44	**12300**	200.44	**12300**
12.5	29.0	12.1	42.0	46	91	14	2			218.16	**12600**				
12.5	36.0	12.1	70.0	74	119	14	2							292.62	**12800**

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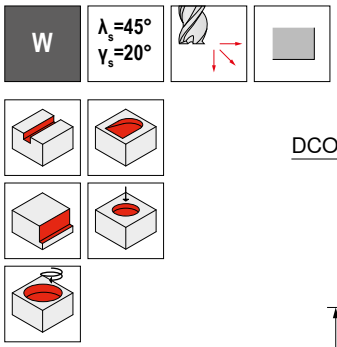
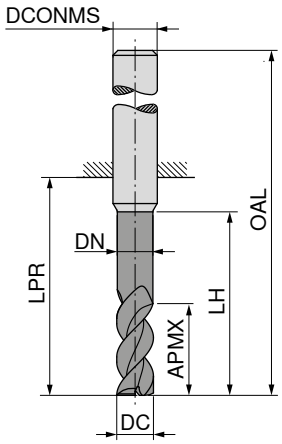
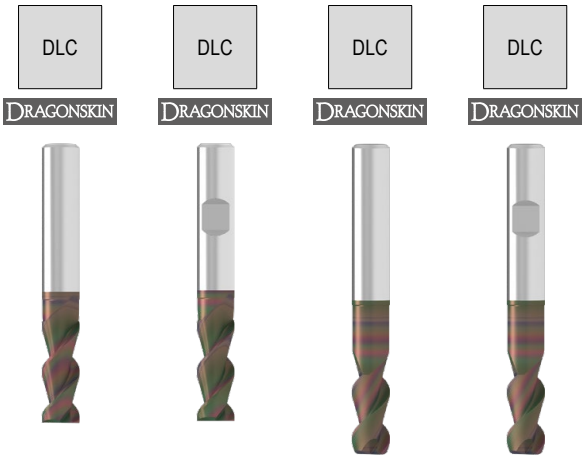
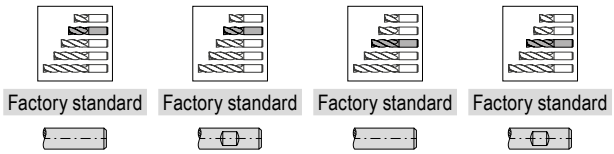
AluLine – End milling cutter

The specialist for machining non-ferrous metals









DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	53 627 ...		53 628 ...		53 637 ...		53 638 ...	
mm	mm	mm	mm	mm	mm	mm		£ V1/5B		£ V1/5B		£ V1/5B		£ V1/5B	
13.0	29.0	12.6	42.0	46	91	14	2			213.95	**13100**				
13.0	36.0	12.6	70.0	74	119	14	2							282.65	**13300**
13.5	29.0	13.1	42.0	46	91	14	2			206.97	**13600**				
13.5	36.0	13.1	70.0	74	119	14	2							272.40	**13800**
14.0	29.0	13.6	42.0	46	91	14	2			206.97	**14100**				
14.0	36.0	13.6	70.0	74	119	14	2							267.57	**14300**
14.5	33.0	14.0	48.0	52	100	16	2			283.88	**14600**				
14.5	41.0	14.0	80.0	84	132	16	2							392.41	**14800**
15.0	33.0	14.5	48.0	52	100	16	2			276.88	**15100**				
15.0	41.0	14.5	80.0	84	132	16	2							379.37	**15300**
15.5	33.0	15.0	48.0	52	100	16	2			269.90	**15600**				
15.5	41.0	15.0	80.0	84	132	16	2							365.73	**15800**
16.0	33.0	15.5	48.0	52	100	16	2			276.88	**16100**				
16.0	41.0	15.5	80.0	84	132	16	2							371.44	**16300**
16.5	38.0	16.0	54.0	58	106	18	2			376.19	**16600**				
16.5	47.0	16.0	90.0	94	142	18	2							442.23	**16800**
17.0	38.0	16.5	54.0	58	106	18	2			367.80	**17100**				
17.0	47.0	16.5	90.0	94	142	18	2							425.67	**17300**
17.5	38.0	17.0	54.0	58	106	18	2			358.00	**17600**				
17.5	47.0	17.0	90.0	94	142	18	2							408.23	**17800**
18.0	38.0	17.5	54.0	58	106	18	2			353.80	**18100**				
18.0	47.0	17.5	90.0	94	142	18	2							397.39	**18300**
18.5	42.0	18.0	60.0	64	114	20	2			465.67	**18600**				
18.5	52.0	18.0	100.0	104	154	20	2							661.57	**18800**
19.0	42.0	18.5	60.0	64	114	20	2			454.49	**19100**				
19.0	52.0	18.5	100.0	104	154	20	2							640.63	**19300**
19.5	42.0	19.0	60.0	64	114	20	2			443.31	**19600**				
19.5	52.0	19.0	100.0	104	154	20	2							619.38	**19800**
20.0	42.0	19.5	60.0	64	114	20	2			436.31	**20100**				
20.0	52.0	19.5	100.0	104	154	20	2							603.98	**20300**

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AluLine – End milling cutter

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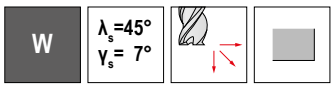
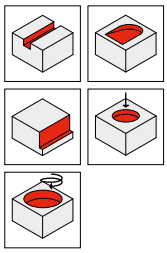
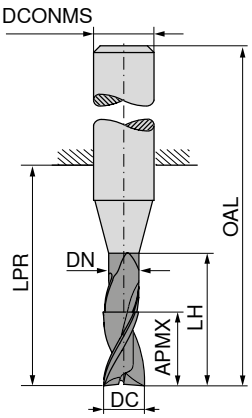
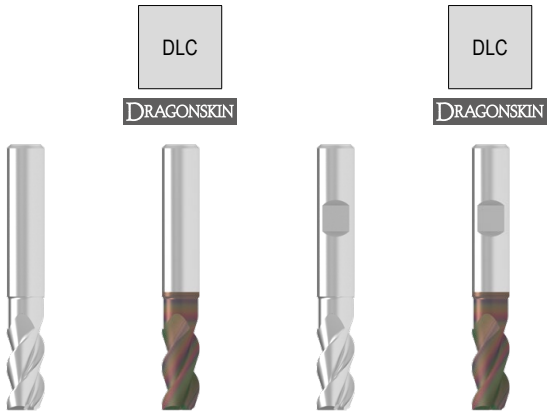
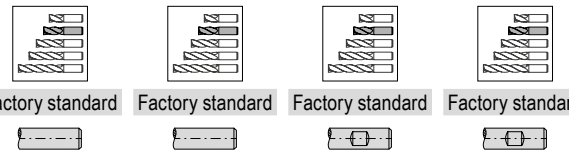
▲ With polished chip flutes











								53 615 ...		53 617 ...		53 616 ...		53 618 ...	
								Factory standard		Factory standard		Factory standard		Factory standard	
								£		£		£		£	
DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	V1/5B		V1/5B		V1/5B		V1/5B	
mm	mm	mm	mm	mm	mm	mm									
2.0	4.5	1.8	6.0	14	50	6	3	47.53	**02100**	61.54	**02100**	47.53	**02100**	61.54	**02100**
2.5	5.5	2.3	7.5	19	55	6	3	47.53	**02600**	60.14	**02600**	47.53	**02600**	60.14	**02600**
3.0	6.5	2.8	9.0	19	55	6	3	47.53	**03100**	61.54	**03100**	47.53	**03100**	61.54	**03100**
3.5	8.5	3.3	12.0	19	55	6	3	50.33	**03600**	64.32	**03600**	50.33	**03600**	64.32	**03600**
4.0	8.5	3.8	12.0	19	55	6	3	51.74	**04100**	64.32	**04100**	51.74	**04100**	64.32	**04100**
4.5	10.5	4.3	15.0	22	58	6	3	65.73	**04600**	78.32	**04600**	65.73	**04600**	78.32	**04600**
5.0	10.5	4.8	15.0	22	58	6	3	57.34	**05100**	69.93	**05100**	57.34	**05100**	69.93	**05100**
5.5	13.0	5.3	18.0	22	58	6	3	67.13	**05600**	79.70	**05600**	67.13	**05600**	79.70	**05600**
6.0	13.0	5.8	18.0	22	58	6	3	58.72	**06100**	74.12	**06100**	58.72	**06100**	74.12	**06100**
6.5	17.0	6.2	24.0	28	64	8	3	69.93	**06600**	86.71	**06600**	69.93	**06600**	86.71	**06600**
7.0	17.0	6.7	24.0	28	64	8	3	68.52	**07100**	83.91	**07100**	68.52	**07100**	83.91	**07100**
7.5	17.0	7.2	24.0	28	64	8	3	67.13	**07600**	82.51	**07600**	67.13	**07600**	82.51	**07600**
8.0	17.0	7.7	24.0	28	64	8	3	64.32	**08100**	81.11	**08100**	64.32	**08100**	81.11	**08100**
8.5	21.0	8.2	30.0	34	74	10	3	109.06	**08600**	125.85	**08600**	109.06	**08600**	125.85	**08600**
9.0	21.0	8.7	30.0	34	74	10	3	106.27	**09100**	123.06	**09100**	106.27	**09100**	123.06	**09100**
9.5	21.0	9.2	30.0	34	74	10	3	103.49	**09600**	120.26	**09600**	103.49	**09600**	120.26	**09600**
10.0	21.0	9.7	30.0	34	74	10	3	97.89	**10100**	117.46	**10100**	97.89	**10100**	117.46	**10100**
10.5	25.0	10.1	36.0	40	85	12	3	151.04	**10600**	169.21	**10600**	151.04	**10600**	169.21	**10600**
11.0	25.0	10.6	36.0	40	85	12	3	146.83	**11100**	166.42	**11100**	146.83	**11100**	166.42	**11100**
11.5	25.0	11.1	36.0	40	85	12	3	142.63	**11600**	160.82	**11600**	142.63	**11600**	160.82	**11600**
12.0	25.0	11.6	36.0	40	85	12	3	139.84	**12100**	166.42	**12100**	139.84	**12100**	166.42	**12100**
12.5	29.0	12.1	42.0	46	91	14	3					191.58	**12600**	218.16	**12600**
13.0	29.0	12.6	42.0	46	91	14	3					190.18	**13100**	216.75	**13100**
13.5	29.0	13.1	42.0	46	91	14	3					187.38	**13600**	215.35	**13600**
14.0	29.0	13.6	42.0	46	91	14	3					190.18	**14100**	226.55	**14100**
14.5	33.0	14.0	48.0	52	100	16	3					260.10	**14600**	296.46	**14600**
15.0	33.0	14.5	48.0	52	100	16	3					253.12	**15100**	290.88	**15100**
15.5	33.0	15.0	48.0	52	100	16	3					247.52	**15600**	283.88	**15600**
16.0	33.0	15.5	48.0	52	100	16	3					260.10	**16100**	303.47	**16100**
16.5	38.0	16.0	54.0	58	106	18	3					337.01	**16600**	380.38	**16600**
17.0	38.0	16.5	54.0	58	106	18	3					327.23	**17100**	370.59	**17100**
17.5	38.0	17.0	54.0	58	106	18	3					318.84	**17600**	360.79	**17600**
18.0	38.0	17.5	54.0	58	106	18	3					314.65	**18100**	360.79	**18100**
18.5	42.0	18.0	60.0	64	114	20	3					416.73	**18600**	462.86	**18600**
19.0	42.0	18.5	60.0	64	114	20	3					405.53	**19100**	451.69	**19100**
19.5	42.0	19.0	60.0	64	114	20	3					392.96	**19600**	440.50	**19600**
20.0	42.0	19.5	60.0	64	114	20	3					385.96	**20100**	444.70	**20100**
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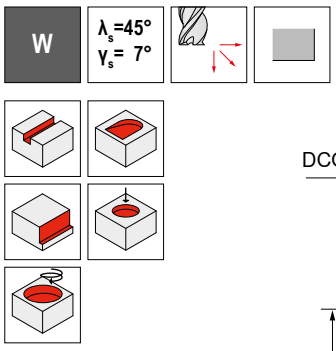
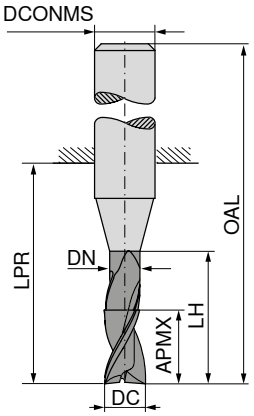
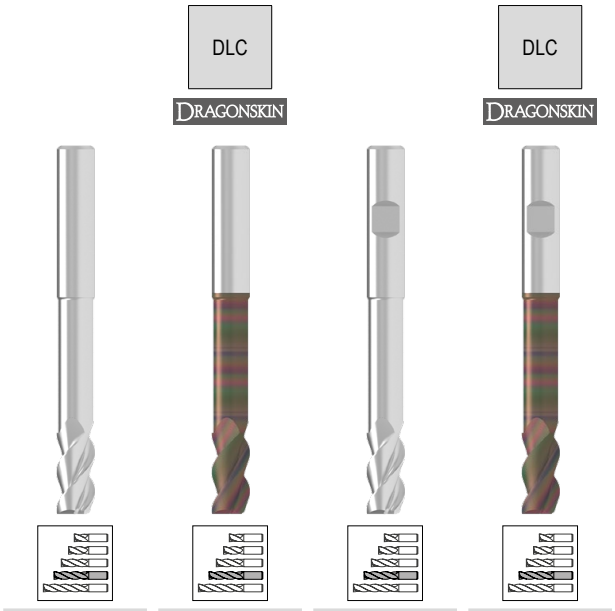
▲ With polished chip flutes







Factory standard | Factory standard | Factory standard | Factory standard



DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 615 ... £ V1/5B	53 617 ... £ V1/5B	53 616 ... £ V1/5B	53 618 ... £ V1/5B
2.0	5.5	1.8	10.0	19	55	6	3	57.34 **02200**	69.93 **02200**	57.34 **02200**	69.93 **02200**
2.5	6.5	2.3	12.5	22	58	6	3	55.93 **02700**	69.93 **02700**	55.93 **02700**	69.93 **02700**
3.0	8.0	2.8	15.0	22	58	6	3	57.34 **03200**	71.32 **03200**	57.34 **03200**	71.32 **03200**
3.5	10.5	3.3	20.0	26	62	6	3	60.14 **03700**	74.12 **03700**	60.14 **03700**	74.12 **03700**
4.0	10.5	3.8	20.0	26	62	6	3	61.54 **04200**	75.51 **04200**	61.54 **04200**	75.51 **04200**
4.5	13.0	4.3	25.0	34	70	6	3	78.32 **04700**	90.90 **04700**	78.32 **04700**	90.90 **04700**
5.0	13.0	4.8	25.0	34	70	6	3	68.52 **05200**	82.51 **05200**	68.52 **05200**	82.51 **05200**
5.5	16.0	5.3	30.0	34	70	6	3	79.70 **05700**	93.70 **05700**	79.70 **05700**	93.70 **05700**
6.0	16.0	5.8	30.0	34	70	6	3	69.93 **06200**	85.30 **06200**	69.93 **06200**	85.30 **06200**
6.5	21.0	6.2	40.0	44	80	8	3	85.30 **06700**	100.69 **06700**	85.30 **06700**	100.69 **06700**
7.0	21.0	6.7	40.0	44	80	8	3	82.51 **07200**	97.89 **07200**	82.51 **07200**	97.89 **07200**
7.5	21.0	7.2	40.0	44	80	8	3	79.70 **07700**	96.49 **07700**	79.70 **07700**	96.49 **07700**
8.0	21.0	7.7	40.0	44	80	8	3	76.91 **08200**	93.70 **08200**	76.91 **08200**	93.70 **08200**
8.5	26.0	8.2	50.0	54	94	10	3	130.06 **08700**	148.22 **08700**	130.06 **08700**	148.22 **08700**
9.0	26.0	8.7	50.0	54	94	10	3	127.26 **09200**	144.05 **09200**	127.26 **09200**	144.05 **09200**
9.5	26.0	9.2	50.0	54	94	10	3	123.06 **09700**	141.25 **09700**	123.06 **09700**	141.25 **09700**
10.0	26.0	9.7	50.0	54	94	10	3	117.46 **10200**	137.04 **10200**	117.46 **10200**	137.04 **10200**
10.5	31.0	10.1	60.0	64	109	12	3	180.40 **10700**	199.97 **10700**	180.40 **10700**	199.97 **10700**
11.0	31.0	10.6	60.0	64	109	12	3	176.19 **11200**	194.38 **11200**	176.19 **11200**	194.38 **11200**
11.5	31.0	11.1	60.0	64	109	12	3	170.61 **11700**	190.18 **11700**	170.61 **11700**	190.18 **11700**
12.0	31.0	11.6	60.0	64	109	12	3	167.82 **12200**	194.38 **12200**	167.82 **12200**	194.38 **12200**
12.5	36.0	12.1	70.0	74	119	14	3			229.34 **12700**	255.91 **12700**
13.0	36.0	12.6	70.0	74	119	14	3			227.94 **13200**	254.50 **13200**
13.5	36.0	13.1	70.0	74	119	14	3			225.15 **13700**	253.12 **13700**
14.0	36.0	13.6	70.0	74	119	14	3			227.94 **14200**	264.31 **14200**
14.5	41.0	14.0	80.0	84	132	16	3			311.86 **14700**	348.21 **14700**
15.0	41.0	14.5	80.0	84	132	16	3			304.86 **15200**	341.22 **15200**
15.5	41.0	15.0	80.0	84	132	16	3			297.86 **15700**	334.22 **15700**
16.0	41.0	15.5	80.0	84	132	16	3			313.25 **16200**	355.20 **16200**
16.5	47.0	16.0	90.0	94	142	18	3			404.15 **16700**	447.51 **16700**
17.0	47.0	16.5	90.0	94	142	18	3			392.96 **17200**	436.31 **17200**
17.5	47.0	17.0	90.0	94	142	18	3			381.77 **17700**	425.13 **17700**
18.0	47.0	17.5	90.0	94	142	18	3			377.58 **18200**	423.71 **18200**
18.5	52.0	18.0	100.0	104	154	20	3			541.19 **18700**	588.74 **18700**
19.0	52.0	18.5	100.0	104	154	20	3			527.21 **19200**	573.35 **19200**
19.5	52.0	19.0	100.0	104	154	20	3			511.83 **19700**	557.96 **19700**
20.0	52.0	19.5	100.0	104	154	20	3			502.04 **20200**	560.76 **20200**
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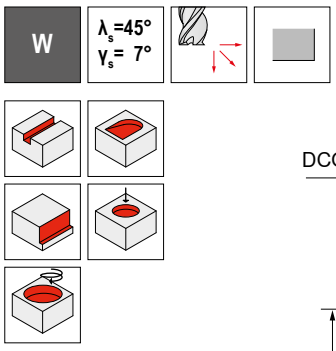
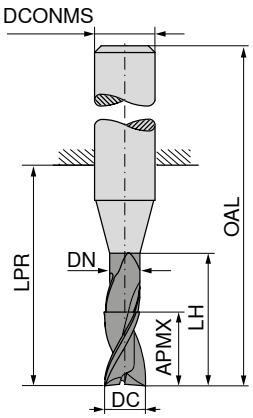
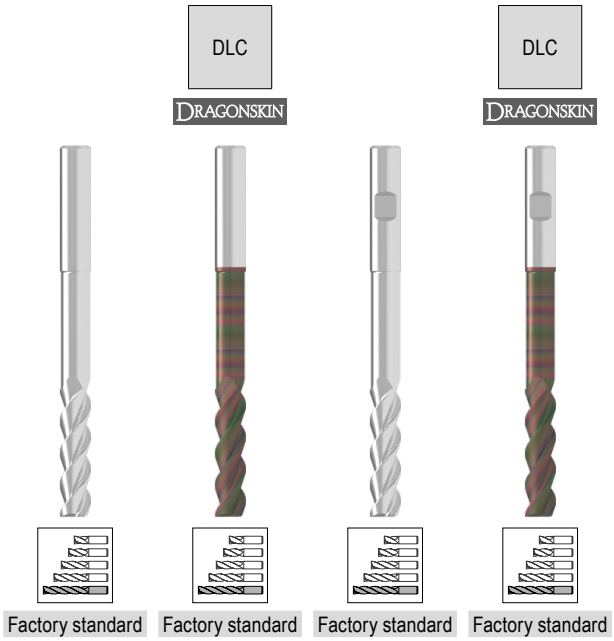
AluLine – End milling cutter

The specialist for machining non-ferrous metals

▲ With polished chip flutes







DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	53 615 ...	53 617 ...	53 616 ...	53 618 ...
mm	mm	mm	mm	mm	mm	mm		Factory standard	Factory standard	Factory standard	Factory standard
								£ V1/5B	£ V1/5B	£ V1/5B	£ V1/5B
2.0	8.5	1.8	16	26	62	6	3	75.51 02400	89.51 02400	75.51 02400	89.51 02400
2.5	10.5	2.3	20	31	67	6	3	75.51 02900	88.11 02900	75.51 02900	88.11 02900
3.0	12.5	2.8	24	31	67	6	3	76.91 03400	90.90 03400	76.91 03400	90.90 03400
3.5	16.5	3.3	32	38	74	6	3	81.11 03900	95.10 03900	81.11 03900	95.10 03900
4.0	16.5	3.8	32	38	74	6	3	82.51 04400	95.10 04400	82.51 04400	95.10 04400
4.5	20.5	4.3	40	52	88	6	3	103.49 04900	117.46 04900	103.49 04900	117.46 04900
5.0	20.5	4.8	40	52	88	6	3	90.90 05400	104.88 05400	90.90 05400	104.88 05400
5.5	25.0	5.3	48	52	88	6	3	106.27 05900	120.26 05900	106.27 05900	120.26 05900
6.0	25.0	5.8	48	52	88	6	3	93.70 06400	109.06 06400	93.70 06400	109.06 06400
6.5	33.0	6.2	64	68	104	8	3	113.26 06900	128.66 06900	113.26 06900	128.66 06900
7.0	33.0	6.7	64	68	104	8	3	110.47 07400	125.85 07400	110.47 07400	125.85 07400
7.5	33.0	7.2	64	68	104	8	3	107.67 07900	123.06 07900	107.67 07900	123.06 07900
8.0	33.0	7.7	64	68	104	8	3	102.09 08400	120.26 08400	102.09 08400	120.26 08400
8.5	41.0	8.2	80	84	124	10	3	173.40 08900	191.58 08900	173.40 08900	191.58 08900
9.0	41.0	8.7	80	84	124	10	3	169.21 09400	187.38 09400	169.21 09400	187.38 09400
9.5	41.0	9.2	80	84	124	10	3	165.01 09900	181.78 09900	165.01 09900	181.78 09900
10.0	41.0	9.7	80	84	124	10	3	156.63 10400	176.19 10400	156.63 10400	176.19 10400
10.5	49.0	10.1	96	100	145	12	3	240.54 10900	260.10 10900	240.54 10900	260.10 10900
11.0	49.0	10.6	96	100	145	12	3	233.54 11400	253.12 11400	233.54 11400	253.12 11400
11.5	49.0	11.1	96	100	145	12	3	226.55 11900	246.12 11900	226.55 11900	246.12 11900
12.0	49.0	11.6	96	100	145	12	3	222.36 12400	250.32 12400	222.36 12400	250.32 12400
12.5	57.0	12.1	112	116	161	14	3			363.60 12900	390.15 12900
13.0	57.0	12.6	112	116	161	14	3			359.40 13400	387.36 13400
13.5	57.0	13.1	112	116	161	14	3			356.60 13900	384.58 13900
14.0	57.0	13.6	112	116	161	14	3			360.79 14400	397.15 14400
14.5	65.0	14.0	128	132	180	16	3			493.65 14900	529.99 14900
15.0	65.0	14.5	128	132	180	16	3			482.46 15400	518.81 15400
15.5	65.0	15.0	128	132	180	16	3			469.88 15900	506.23 15900
16.0	65.0	15.5	128	132	180	16	3			495.04 16400	538.39 16400
16.5	74.0	16.0	144	148	196	18	3			640.47 16900	682.45 16900
17.0	74.0	16.5	144	148	196	18	3			622.31 17400	665.65 17400
17.5	74.0	17.0	144	148	196	18	3			604.12 17900	647.47 17900
18.0	74.0	17.5	144	148	196	18	3			597.12 18400	643.28 18400
18.5	82.0	18.0	160	164	214	20	3			791.52 18900	839.05 18900
19.0	82.0	18.5	160	164	214	20	3			770.53 19400	816.68 19400
19.5	82.0	19.0	160	164	214	20	3			748.16 19900	794.30 19900
20.0	82.0	19.5	160	164	214	20	3			734.18 20400	792.91 20400

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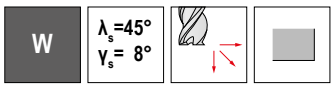
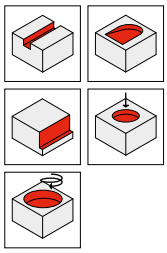
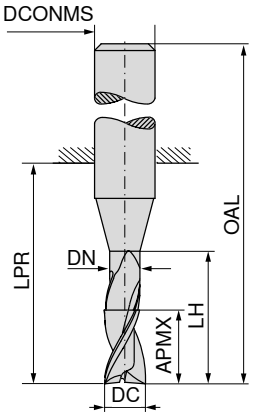
AluLine – End milling cutter

The specialist for machining non-ferrous metals

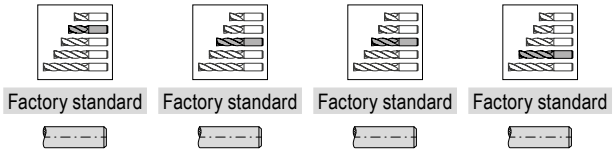
▲ With polished chip flutes











Factory standard | Factory standard | Factory standard | Factory standard

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	53 517 ... £ V1/5B		53 518 ... £ V1/5B		53 519 ... £ V1/5B		53 520 ... £ V1/5B	
3	8	2.7	13	21	57	6	3							37.83	030
4	11	3.7	17	21	57	6	3							41.49	040
5	13	4.7	19	21	57	6	3					40.98	050		
6	13	5.7	19	21	57	6	3					38.31	060		
6	18	5.7	24	26	62	6	3							41.63	060
8	21	7.4	25	27	63	8	3			50.51	080				
8	24	7.4	30	32	68	8	3					61.38	080		
10	22	9.2	30	32	72	10	3			69.92	100				
10	30	9.2	38	40	80	10	3					80.95	100		
12	26	11.0	36	38	83	12	3			108.91	120				
12	36	11.0	46	48	93	12	3					125.92	120		
14	26	13.0	36	38	83	14	3	139.34	140						
16	36	15.0	42	44	92	16	3	193.40	160						
16	48	15.0	58	60	108	16	3					226.94	160		
18	36	17.0	42	44	92	18	3	234.72	180						
20	41	19.0	52	54	104	20	3	277.42	200						
20	60	19.0	74	76	126	20	3					425.51	200		
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AluLine – End milling cutter

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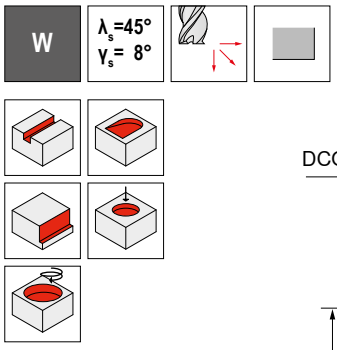

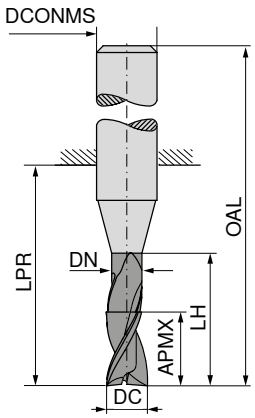

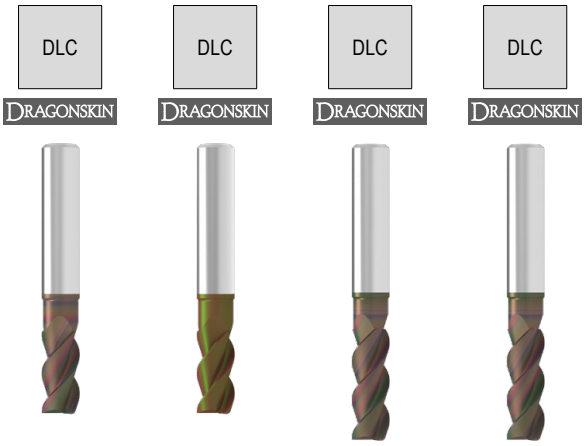

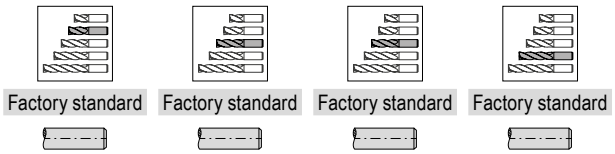

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	53 521 ... £ V1/5B		53 522 ... £ V1/5B		53 523 ... £ V1/5B		53 524 ... £ V1/5B	
3	8	2.7	13	21	57	6	3							51.43	**030**
4	11	3.7	17	21	57	6	3							55.07	**040**
5	13	4.7	19	21	57	6	3					54.43	**050**		
6	13	5.7	19	21	57	6	3					51.94	**060**		
6	18	5.7	24	26	62	6	3							55.24	**060**
8	21	7.4	25	27	63	8	3			67.37	**080**				
8	24	7.4	30	32	68	8	3					74.65	**080**		
10	22	9.2	30	32	72	10	3			88.11	**100**				
10	30	9.2	38	40	80	10	3					94.58	**100**		
12	26	11.0	36	38	83	12	3			129.72	**120**				
12	36	11.0	46	48	93	12	3					139.35	**120**		
14	26	13.0	36	38	83	14	3	162.42	**140**						
16	36	15.0	42	44	92	16	3	220.65	**160**						
18	36	17.0	42	44	92	18	3	263.30	**180**						
20	41	19.0	52	54	104	20	3	310.56	**200**						
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AluLine – End milling cutter

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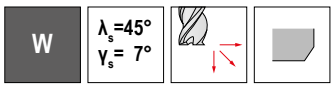
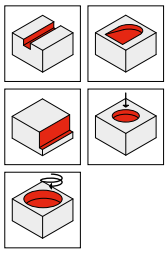
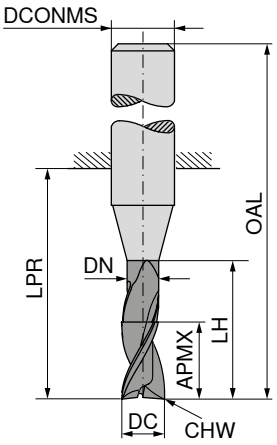
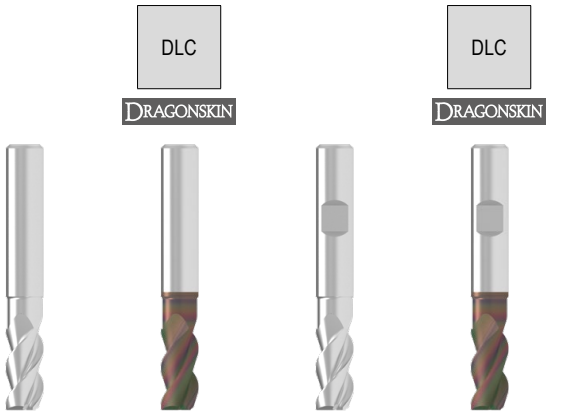
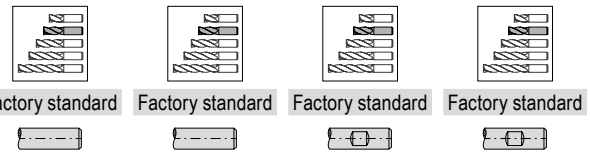
▲ With polished chip flutes











Factory standard | Factory standard | Factory standard | Factory standard

DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	53 611 ... £ V1/5B	53 613 ... £ V1/5B	53 612 ... £ V1/5B	53 614 ... £ V1/5B
mm	mm	mm	mm	mm	mm	mm	mm					
2.0	4.5	1.8	6.0	14	50	6	0.05	3	47.53 **02100**	61.54 **02100**	47.53 **02100**	61.54 **02100**
2.5	5.5	2.3	7.5	19	55	6	0.05	3	47.53 **02600**	60.14 **02600**	47.53 **02600**	60.14 **02600**
3.0	6.5	2.8	9.0	19	55	6	0.10	3	47.53 **03100**	61.54 **03100**	47.53 **03100**	61.54 **03100**
3.5	8.5	3.3	12.0	19	55	6	0.10	3	50.33 **03600**	64.32 **03600**	50.33 **03600**	64.32 **03600**
4.0	8.5	3.8	12.0	19	55	6	0.10	3	51.74 **04100**	64.32 **04100**	51.74 **04100**	64.32 **04100**
4.5	10.5	4.3	15.0	22	58	6	0.10	3	65.73 **04600**	78.32 **04600**	65.73 **04600**	78.32 **04600**
5.0	10.5	4.8	15.0	22	58	6	0.10	3	57.34 **05100**	69.93 **05100**	57.34 **05100**	69.93 **05100**
5.5	13.0	5.3	18.0	22	58	6	0.10	3	67.13 **05600**	79.70 **05600**	67.13 **05600**	79.70 **05600**
6.0	13.0	5.8	18.0	22	58	6	0.20	3	58.72 **06100**	74.12 **06100**	58.72 **06100**	74.12 **06100**
6.5	17.0	6.2	24.0	28	64	8	0.20	3	69.93 **06600**	86.71 **06600**	69.93 **06600**	86.71 **06600**
7.0	17.0	6.7	24.0	28	64	8	0.20	3	68.52 **07100**	83.91 **07100**	68.52 **07100**	83.91 **07100**
7.5	17.0	7.2	24.0	28	64	8	0.20	3	67.13 **07600**	82.51 **07600**	67.13 **07600**	82.51 **07600**
8.0	17.0	7.7	24.0	28	64	8	0.20	3	64.32 **08100**	81.11 **08100**	64.32 **08100**	81.11 **08100**
8.5	21.0	8.2	30.0	34	74	10	0.20	3	109.06 **08600**	125.85 **08600**	109.06 **08600**	125.85 **08600**
9.0	21.0	8.7	30.0	34	74	10	0.20	3	106.27 **09100**	123.06 **09100**	106.27 **09100**	123.06 **09100**
9.5	21.0	9.2	30.0	34	74	10	0.20	3	103.49 **09600**	120.26 **09600**	103.49 **09600**	120.26 **09600**
10.0	21.0	9.7	30.0	34	74	10	0.20	3	97.89 **10100**	117.46 **10100**	97.89 **10100**	117.46 **10100**
10.5	25.0	10.1	36.0	40	85	12	0.20	3	151.04 **10600**	169.21 **10600**	151.04 **10600**	169.21 **10600**
11.0	25.0	10.6	36.0	40	85	12	0.20	3	146.83 **11100**	166.42 **11100**	146.83 **11100**	166.42 **11100**
11.5	25.0	11.1	36.0	40	85	12	0.20	3	142.63 **11600**	160.82 **11600**	142.63 **11600**	160.82 **11600**
12.0	25.0	11.6	36.0	40	85	12	0.20	3	139.84 **12100**	166.42 **12100**	139.84 **12100**	166.42 **12100**
12.5	29.0	12.1	42.0	46	91	14	0.20	3			191.58 **12600**	218.16 **12600**
13.0	29.0	12.6	42.0	46	91	14	0.20	3			190.18 **13100**	216.75 **13100**
13.5	29.0	13.1	42.0	46	91	14	0.20	3			187.38 **13600**	215.35 **13600**
14.0	29.0	13.6	42.0	46	91	14	0.20	3			190.18 **14100**	226.55 **14100**
14.5	33.0	14.0	48.0	52	100	16	0.20	3			260.10 **14600**	296.46 **14600**
15.0	33.0	14.5	48.0	52	100	16	0.20	3			253.12 **15100**	290.88 **15100**
15.5	33.0	15.0	48.0	52	100	16	0.20	3			247.52 **15600**	283.88 **15600**
16.0	33.0	15.5	48.0	52	100	16	0.20	3			260.10 **16100**	303.47 **16100**
16.5	38.0	16.0	54.0	58	106	18	0.20	3			337.01 **16600**	380.38 **16600**
17.0	38.0	16.5	54.0	58	106	18	0.20	3			327.23 **17100**	370.59 **17100**
17.5	38.0	17.0	54.0	58	106	18	0.20	3			318.84 **17600**	360.79 **17600**
18.0	38.0	17.5	54.0	58	106	18	0.20	3			314.65 **18100**	360.79 **18100**
18.5	42.0	18.0	60.0	64	114	20	0.20	3			416.73 **18600**	462.86 **18600**
19.0	42.0	18.5	60.0	64	114	20	0.20	3			405.53 **19100**	451.69 **19100**
19.5	42.0	19.0	60.0	64	114	20	0.20	3			392.96 **19600**	440.50 **19600**
20.0	42.0	19.5	60.0	64	114	20	0.20	3			385.96 **20100**	444.70 **20100**

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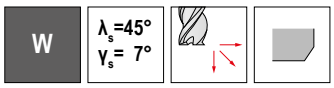
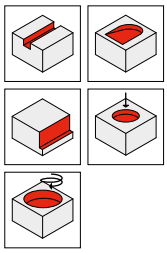
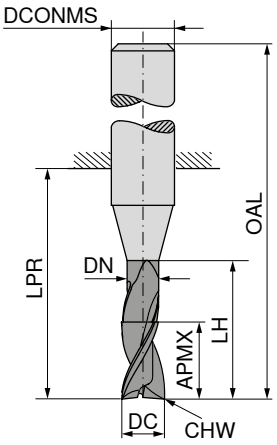
AluLine – End milling cutter

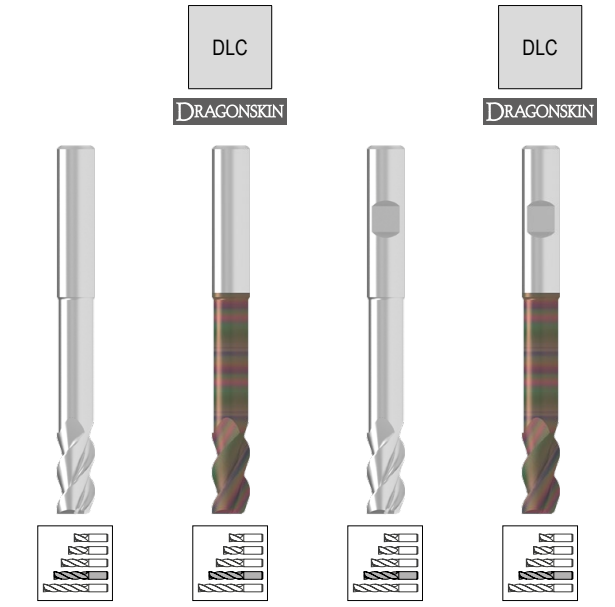
The specialist for machining non-ferrous metals

▲ With polished chip flutes









Factory standard | Factory standard | Factory standard | Factory standard



DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	53 611 ... £ V1/5B	53 613 ... £ V1/5B	53 612 ... £ V1/5B	53 614 ... £ V1/5B
mm	mm	mm	mm	mm	mm	mm	mm					
2.0	5.5	1.8	10.0	19	55	6	0.05	3	57.34 **02200**	69.93 **02200**	57.34 **02200**	69.93 **02200**
2.5	6.5	2.3	12.5	22	58	6	0.05	3	55.93 **02700**	69.93 **02700**	55.93 **02700**	69.93 **02700**
3.0	8.0	2.8	15.0	22	58	6	0.10	3	57.34 **03200**	71.32 **03200**	57.34 **03200**	71.32 **03200**
3.5	10.5	3.3	20.0	26	62	6	0.10	3	60.14 **03700**	74.12 **03700**	60.14 **03700**	74.12 **03700**
4.0	10.5	3.8	20.0	26	62	6	0.10	3	61.54 **04200**	75.51 **04200**	61.54 **04200**	75.51 **04200**
4.5	13.0	4.3	25.0	34	70	6	0.10	3	78.32 **04700**	90.90 **04700**	78.32 **04700**	90.90 **04700**
5.0	13.0	4.8	25.0	34	70	6	0.10	3	68.52 **05200**	82.51 **05200**	68.52 **05200**	82.51 **05200**
5.5	16.0	5.3	30.0	34	70	6	0.10	3	79.70 **05700**	93.70 **05700**	79.70 **05700**	93.70 **05700**
6.0	16.0	5.8	30.0	34	70	6	0.20	3	69.93 **06200**	85.30 **06200**	69.93 **06200**	85.30 **06200**
6.5	21.0	6.2	40.0	44	80	8	0.20	3	85.30 **06700**	100.69 **06700**	85.30 **06700**	100.69 **06700**
7.0	21.0	6.7	40.0	44	80	8	0.20	3	82.51 **07200**	97.89 **07200**	82.51 **07200**	97.89 **07200**
7.5	21.0	7.2	40.0	44	80	8	0.20	3	79.70 **07700**	96.49 **07700**	79.70 **07700**	96.49 **07700**
8.0	21.0	7.7	40.0	44	80	8	0.20	3	76.91 **08200**	93.70 **08200**	76.91 **08200**	93.70 **08200**
8.5	26.0	8.2	50.0	54	94	10	0.20	3	130.06 **08700**	148.22 **08700**	130.06 **08700**	148.22 **08700**
9.0	26.0	8.7	50.0	54	94	10	0.20	3	127.26 **09200**	144.05 **09200**	127.26 **09200**	144.05 **09200**
9.5	26.0	9.2	50.0	54	94	10	0.20	3	123.06 **09700**	141.25 **09700**	123.06 **09700**	141.25 **09700**
10.0	26.0	9.7	50.0	54	94	10	0.20	3	117.46 **10200**	137.04 **10200**	117.46 **10200**	137.04 **10200**
10.5	31.0	10.1	60.0	64	109	12	0.20	3	180.40 **10700**	199.97 **10700**	180.40 **10700**	199.97 **10700**
11.0	31.0	10.6	60.0	64	109	12	0.20	3	176.19 **11200**	194.38 **11200**	176.19 **11200**	194.38 **11200**
11.5	31.0	11.1	60.0	64	109	12	0.20	3	170.61 **11700**	190.18 **11700**	170.61 **11700**	190.18 **11700**
12.0	31.0	11.6	60.0	64	109	12	0.20	3	167.82 **12200**	194.38 **12200**	167.82 **12200**	194.38 **12200**
12.5	36.0	12.1	70.0	74	119	14	0.20	3			267.11 **12700**	295.08 **12700**
13.0	36.0	12.6	70.0	74	119	14	0.20	3			265.70 **13200**	292.27 **13200**
13.5	36.0	13.1	70.0	74	119	14	0.20	3			262.90 **13700**	290.88 **13700**
14.0	36.0	13.6	70.0	74	119	14	0.20	3			265.70 **14200**	302.07 **14200**
14.5	41.0	14.0	80.0	84	132	16	0.20	3			363.60 **14700**	399.94 **14700**
15.0	41.0	14.5	80.0	84	132	16	0.20	3			355.20 **15200**	391.56 **15200**
15.5	41.0	15.0	80.0	84	132	16	0.20	3			346.81 **15700**	383.17 **15700**
16.0	41.0	15.5	80.0	84	132	16	0.20	3			365.00 **16200**	406.93 **16200**
16.5	47.0	16.0	90.0	94	142	18	0.20	3			471.26 **16700**	514.63 **16700**
17.0	47.0	16.5	90.0	94	142	18	0.20	3			458.69 **17200**	502.04 **17200**
17.5	47.0	17.0	90.0	94	142	18	0.20	3			446.10 **17700**	488.06 **17700**
18.0	47.0	17.5	90.0	94	142	18	0.20	3			440.50 **18200**	486.66 **18200**
18.5	52.0	18.0	100.0	104	154	20	0.20	3			583.15 **18700**	630.69 **18700**
19.0	52.0	18.5	100.0	104	154	20	0.20	3			567.77 **19200**	613.91 **19200**
19.5	52.0	19.0	100.0	104	154	20	0.20	3			550.98 **19700**	597.12 **19700**
20.0	52.0	19.5	100.0	104	154	20	0.20	3			541.19 **20200**	599.91 **20200**

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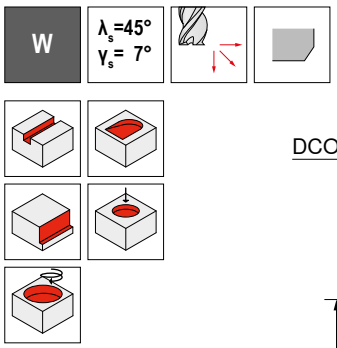
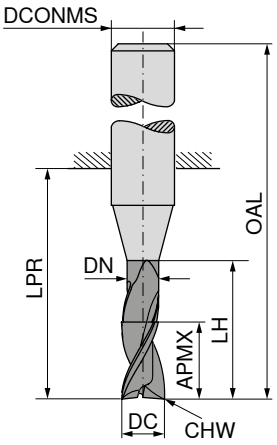
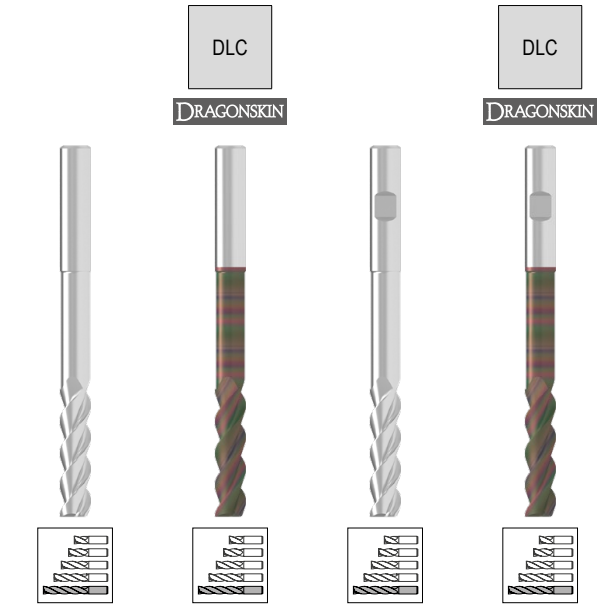
AluLine – End milling cutter

The specialist for machining non-ferrous metals

▲ With polished chip flutes







Factory standard | Factory standard | Factory standard | Factory standard



DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	53 611 ... £ V1/5B	53 613 ... £ V1/5B	53 612 ... £ V1/5B	53 614 ... £ V1/5B
mm	mm	mm	mm	mm	mm	mm	mm					
2.0	8.5	1.8	16	26	62	6	0.05	3	75.51 02400	89.51 02400	75.51 02400	89.51 02400
2.5	10.5	2.3	20	31	67	6	0.05	3	75.51 02900	88.11 02900	75.51 02900	88.11 02900
3.0	12.5	2.8	24	31	67	6	0.10	3	76.91 03400	90.90 03400	76.91 03400	90.90 03400
3.5	16.5	3.3	32	38	74	6	0.10	3	81.11 03900	95.10 03900	81.11 03900	95.10 03900
4.0	16.5	3.8	32	38	74	6	0.10	3	82.51 04400	95.10 04400	82.51 04400	95.10 04400
4.5	20.5	4.3	40	52	88	6	0.10	3	103.49 04900	117.46 04900	103.49 04900	117.46 04900
5.0	20.5	4.8	40	52	88	6	0.10	3	90.90 05400	104.88 05400	90.90 05400	104.88 05400
5.5	25.0	5.3	48	52	88	6	0.10	3	106.27 05900	120.26 05900	106.27 05900	120.26 05900
6.0	25.0	5.8	48	52	88	6	0.20	3	93.70 06400	109.06 06400	93.70 06400	109.06 06400
6.5	33.0	6.2	64	68	104	8	0.20	3	113.26 06900	128.66 06900	113.26 06900	128.66 06900
7.0	33.0	6.7	64	68	104	8	0.20	3	110.47 07400	125.85 07400	110.47 07400	125.85 07400
7.5	33.0	7.2	64	68	104	8	0.20	3	107.67 07900	123.06 07900	107.67 07900	123.06 07900
8.0	33.0	7.7	64	68	104	8	0.20	3	102.09 08400	120.26 08400	102.09 08400	120.26 08400
8.5	41.0	8.2	80	84	124	10	0.20	3	173.40 08900	191.58 08900	173.40 08900	191.58 08900
9.0	41.0	8.7	80	84	124	10	0.20	3	169.21 09400	187.38 09400	169.21 09400	187.38 09400
9.5	41.0	9.2	80	84	124	10	0.20	3	165.01 09900	181.78 09900	165.01 09900	181.78 09900
10.0	41.0	9.7	80	84	124	10	0.20	3	156.63 10400	176.19 10400	156.63 10400	176.19 10400
10.5	49.0	10.1	96	100	145	12	0.20	3	240.54 10900	260.10 10900	240.54 10900	260.10 10900
11.0	49.0	10.6	96	100	145	12	0.20	3	233.54 11400	253.12 11400	233.54 11400	253.12 11400
11.5	49.0	11.1	96	100	145	12	0.20	3	226.55 11900	246.12 11900	226.55 11900	246.12 11900
12.0	49.0	11.6	96	100	145	12	0.20	3	222.36 12400	250.32 12400	222.36 12400	250.32 12400
12.5	57.0	12.1	112	116	161	14	0.20	3			363.60 12900	390.15 12900
13.0	57.0	12.6	112	116	161	14	0.20	3			359.40 13400	387.36 13400
13.5	57.0	13.1	112	116	161	14	0.20	3			356.60 13900	384.58 13900
14.0	57.0	13.6	112	116	161	14	0.20	3			360.79 14400	397.15 14400
14.5	65.0	14.0	128	132	180	16	0.20	3			493.65 14900	529.99 14900
15.0	65.0	14.5	128	132	180	16	0.20	3			482.46 15400	518.81 15400
15.5	65.0	15.0	128	132	180	16	0.20	3			469.88 15900	506.23 15900
16.0	65.0	15.5	128	132	180	16	0.20	3			495.04 16400	538.39 16400
16.5	74.0	16.0	144	148	196	18	0.20	3			640.47 16900	682.45 16900
17.0	74.0	16.5	144	148	196	18	0.20	3			622.31 17400	665.65 17400
17.5	74.0	17.0	144	148	196	18	0.20	3			604.12 17900	647.47 17900
18.0	74.0	17.5	144	148	196	18	0.20	3			597.12 18400	643.28 18400
18.5	82.0	18.0	160	164	214	20	0.20	3			791.52 18900	839.05 18900
19.0	82.0	18.5	160	164	214	20	0.20	3			770.53 19400	816.68 19400
19.5	82.0	19.0	160	164	214	20	0.20	3			748.16 19900	794.30 19900
20.0	82.0	19.5	160	164	214	20	0.20	3			734.18 20400	792.91 20400

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AluLine – End milling cutter

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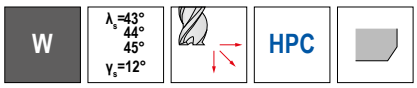
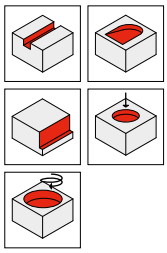
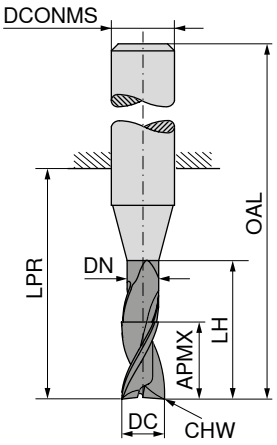
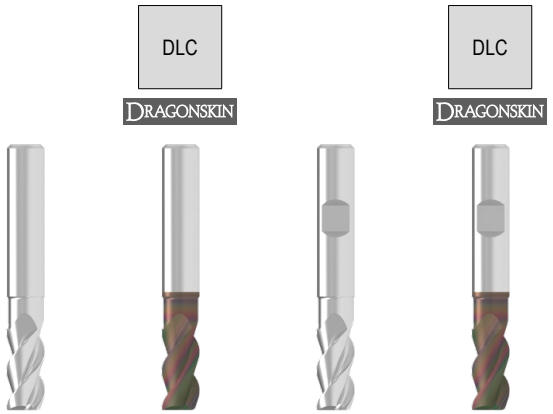
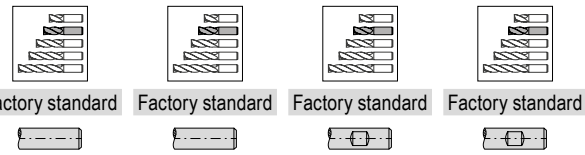
▲ With graduated flute depth











									Factory standard	Factory standard	Factory standard	Factory standard
									53 584 ...	53 598 ...	53 597 ...	53 599 ...
DC f8	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	£ V1/5B	£ V1/5B	£ V1/5B	£ V1/5B
mm	mm	mm	mm	mm	mm	mm	mm					
3.0	8	2.7	12	21	57	6	0.1	3	58.72 03000	72.73 03000	58.72 03000	72.73 03000
3.5	8	3.2	12	21	57	6	0.1	3	60.14 03600	72.73 03600	60.14 03600	72.73 03600
4.0	11	3.7	18	21	57	6	0.1	3	58.72 04000	72.73 04000	58.72 04000	72.73 04000
4.5	11	4.2	18	21	57	6	0.1	3	58.72 04600	74.12 04600	58.72 04600	74.12 04600
5.0	13	4.7	18	21	57	6	0.1	3	58.72 05000	74.12 05000	58.72 05000	74.12 05000
5.5	13	5.2	18	21	57	6	0.1	3	58.72 05600	74.12 05600	58.72 05600	74.12 05600
6.0	13	5.7	18	21	57	6	0.2	3	60.14 06000	75.51 06000	60.14 06000	75.51 06000
6.5	21	6.1	25	27	63	8	0.2	3	69.93 06600	89.51 06600	69.93 06600	89.51 06600
7.0	21	6.6	25	27	63	8	0.2	3	68.52 07000	89.51 07000	68.52 07000	89.51 07000
7.5	21	7.1	25	27	63	8	0.2	3	69.93 07600	86.71 07600	69.93 07600	86.71 07600
8.0	21	7.4	25	27	63	8	0.2	3	69.93 08000	88.11 08000	69.93 08000	88.11 08000
8.5	22	7.9	30	33	73	10	0.2	3	127.26 08600	146.83 08600	127.26 08600	146.83 08600
9.0	22	8.4	30	33	73	10	0.2	3	127.26 09000	146.83 09000	127.26 09000	146.83 09000
9.5	22	8.9	30	33	73	10	0.2	3	127.26 09600	146.83 09600	127.26 09600	146.83 09600
10.0	22	9.2	30	33	73	10	0.2	3	127.26 10000	146.83 10000	127.26 10000	146.83 10000
10.5	26	9.7	36	38	83	12	0.2	3	177.60 10600	205.57 10600	177.60 10600	205.57 10600
11.0	26	10.0	36	38	83	12	0.2	3	177.60 11000	205.57 11000	177.60 11000	205.57 11000
11.5	26	10.5	36	38	83	12	0.2	3	177.60 11600	204.17 11600	177.60 11600	204.17 11600
12.0	26	11.0	36	38	83	12	0.2	3	177.60 12000	204.17 12000	177.60 12000	204.17 12000
12.5	26	11.5	36	38	83	14	0.2	3			219.55 12600	255.91 12600
13.0	26	12.0	36	38	83	14	0.2	3			219.55 13000	255.91 13000
13.5	26	12.5	36	38	83	14	0.2	3			219.55 13600	255.91 13600
14.0	26	13.0	36	38	83	14	0.2	3			219.55 14000	255.91 14000
14.5	36	13.5	42	44	92	16	0.2	3			344.01 14600	385.96 14600
15.0	36	14.0	42	44	92	16	0.2	3			344.01 15000	385.96 15000
15.5	36	14.5	42	44	92	16	0.2	3			344.01 15600	385.96 15600
16.0	36	15.0	42	44	92	16	0.2	3			344.01 16000	385.96 16000
16.5	36	15.5	42	44	92	18	0.2	3			450.29 16600	497.84 16600
17.0	36	16.0	42	44	92	18	0.2	3			450.29 17000	496.44 17000
17.5	36	16.5	42	44	92	18	0.2	3			450.29 17600	496.44 17600
18.0	36	17.0	42	44	92	18	0.2	3			450.29 18000	496.44 18000
18.5	41	17.5	52	54	104	20	0.2	3			520.22 18600	578.95 18600
19.0	41	18.0	52	54	104	20	0.2	3			520.22 19000	578.95 19000
19.5	41	18.5	52	54	104	20	0.2	3			520.22 19600	578.95 19600
20.0	41	19.0	52	54	104	20	0.2	3			520.22 20000	578.95 20000
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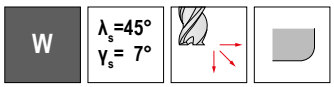
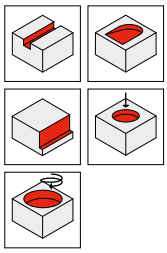
→ v_c/f_z Page 414+415

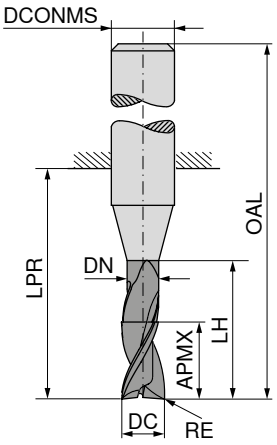
AluLine – End milling cutter with corner radius

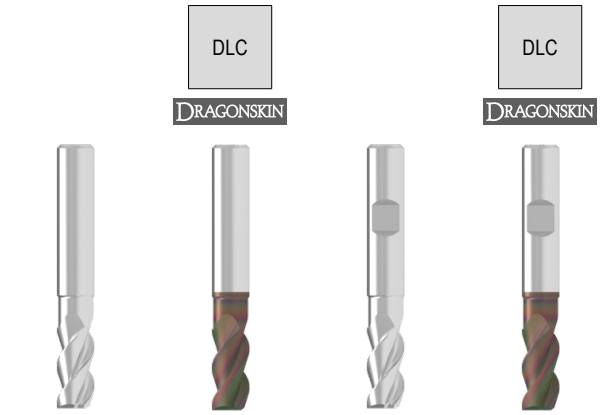
The specialist for machining non-ferrous metals

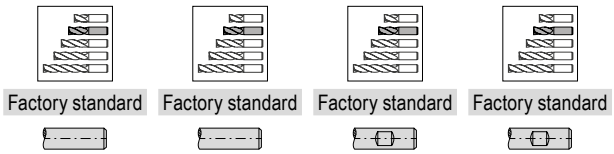
▲ With polished chip flutes











									53 708 ...		53 710 ...		53 709 ...		53 711 ...	
DC h6	RE ±0.05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	£		£		£		£	
mm	mm	mm	mm	mm	mm	mm	mm		V1/5B		V1/5B		V1/5B		V1/5B	
2	0.3	4.5	1.8	6	14	50	6	3	50.33	02103	62.92	02103	50.33	02103	62.92	02103
2	0.5	4.5	1.8	6	14	50	6	3	50.33	02105	62.92	02105	50.33	02105	62.92	02105
3	0.3	6.5	2.7	9	19	55	6	3	51.74	03103	64.32	03103	51.74	03103	64.32	03103
3	0.5	6.5	2.7	9	19	55	6	3	51.74	03105	64.32	03105	51.74	03105	64.32	03105
3	1.0	6.5	2.7	9	19	55	6	3	51.74	03110	64.32	03110	51.74	03110	64.32	03110
4	0.3	8.5	3.7	12	19	55	6	3	54.54	04103	68.52	04103	54.54	04103	68.52	04103
4	0.5	8.5	3.7	12	19	55	6	3	54.54	04105	68.52	04105	54.54	04105	68.52	04105
4	1.0	8.5	3.7	12	19	55	6	3	54.54	04110	68.52	04110	54.54	04110	68.52	04110
5	0.3	10.5	4.7	15	22	58	6	3	61.54	05103	74.12	05103	61.54	05103	74.12	05103
5	0.5	10.5	4.7	15	22	58	6	3	61.54	05105	74.12	05105	61.54	05105	74.12	05105
5	1.0	10.5	4.7	15	22	58	6	3	61.54	05110	74.12	05110	61.54	05110	74.12	05110
6	0.3	13.0	5.7	18	22	58	6	3	61.54	06103	78.32	06103	61.54	06103	78.32	06103
6	0.5	13.0	5.7	18	22	58	6	3	61.54	06105	78.32	06105	61.54	06105	78.32	06105
6	1.0	13.0	5.7	18	22	58	6	3	61.54	06110	78.32	06110	61.54	06110	78.32	06110
6	1.5	13.0	5.7	18	22	58	6	3	61.54	06115	78.32	06115	61.54	06115	78.32	06115
8	0.3	17.0	7.4	24	28	64	8	3	68.52	08103	85.30	08103	68.52	08103	85.30	08103
8	0.5	17.0	7.4	24	28	64	8	3	68.52	08105	85.30	08105	68.52	08105	85.30	08105
8	1.0	17.0	7.4	24	28	64	8	3	68.52	08110	85.30	08110	68.52	08110	85.30	08110
8	1.5	17.0	7.4	24	28	64	8	3	68.52	08115	85.30	08115	68.52	08115	85.30	08115
8	2.0	17.0	7.4	24	28	64	8	3	68.52	08120	85.30	08120	68.52	08120	85.30	08120
10	0.3	21.0	9.2	30	34	74	10	3	104.88	10103	124.46	10103	104.88	10103	124.46	10103
10	0.5	21.0	9.2	30	34	74	10	3	104.88	10105	124.46	10105	104.88	10105	124.46	10105
10	1.0	21.0	9.2	30	34	74	10	3	104.88	10110	124.46	10110	104.88	10110	124.46	10110
10	1.5	21.0	9.2	30	34	74	10	3	104.88	10115	124.46	10115	104.88	10115	124.46	10115
10	2.0	21.0	9.2	30	34	74	10	3	104.88	10120	124.46	10120	104.88	10120	124.46	10120
10	3.0	21.0	9.2	30	34	74	10	3	104.88	10130	124.46	10130	104.88	10130	124.46	10130
12	0.3	25.0	11.0	36	40	85	12	3	148.22	12103	176.19	12103	148.22	12103	176.19	12103
12	0.5	25.0	11.0	36	40	85	12	3	148.22	12105	176.19	12105	148.22	12105	176.19	12105
12	1.0	25.0	11.0	36	40	85	12	3	148.22	12110	176.19	12110	148.22	12110	176.19	12110
12	1.5	25.0	11.0	36	40	85	12	3	148.22	12115	176.19	12115	148.22	12115	176.19	12115
12	2.0	25.0	11.0	36	40	85	12	3	148.22	12120	176.19	12120	148.22	12120	176.19	12120
12	3.0	25.0	11.0	36	40	85	12	3	148.22	12130	176.19	12130	148.22	12130	176.19	12130
12	4.0	25.0	11.0	36	40	85	12	3	148.22	12140	176.19	12140	148.22	12140	176.19	12140
16	0.3	33.0	15.0	48	52	100	16	3					239.15	16103	281.09	16103
16	0.5	33.0	15.0	48	52	100	16	3					239.15	16105	281.09	16105
16	1.0	33.0	15.0	48	52	100	16	3					239.15	16110	281.09	16110
16	1.5	33.0	15.0	48	52	100	16	3					239.15	16115	281.09	16115
Factory standard									Factory standard		Factory standard		Factory standard		Factory standard	
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→ v_c/f_z Page 414+415

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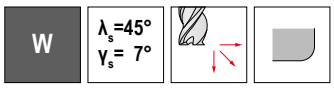
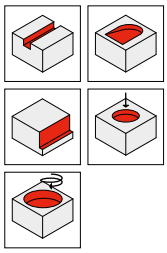
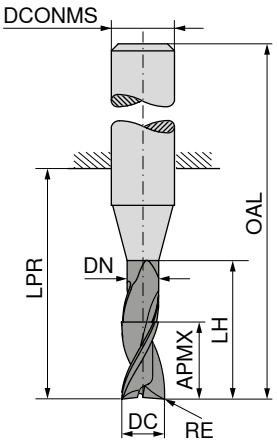
AluLine – End milling cutter with corner radius

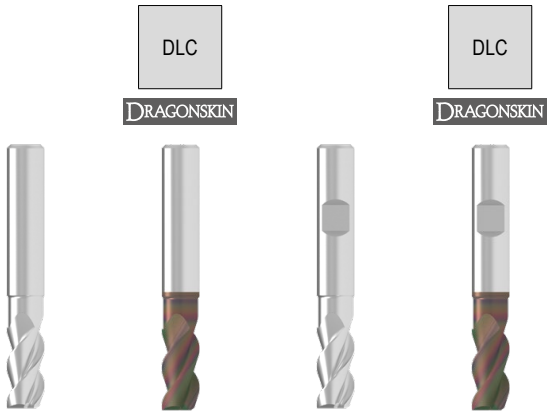
The specialist for machining non-ferrous metals

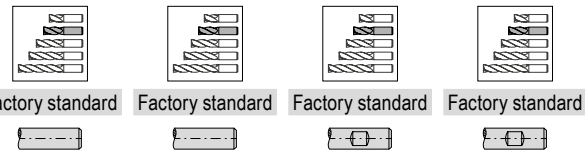
▲ With polished chip flutes











DC h6	RE ±0.05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	53 708 ... £ V1/5B		53 710 ... £ V1/5B		53 709 ... £ V1/5B		53 711 ... £ V1/5B	
mm	mm	mm	mm	mm	mm	mm	mm									
16	2.0	33.0	15.0	48	52	100	16	3					239.15	**16120**	281.09	**16120**
16	3.0	33.0	15.0	48	52	100	16	3					239.15	**16130**	281.09	**16130**
16	4.0	33.0	15.0	48	52	100	16	3					239.15	**16140**	281.09	**16140**
20	0.5	42.0	19.0	60	64	114	20	3					376.19	**20105**	434.90	**20105**
20	1.0	42.0	19.0	60	64	114	20	3					376.19	**20110**	434.90	**20110**
20	1.5	42.0	19.0	60	64	114	20	3					376.19	**20115**	434.90	**20115**
20	2.0	42.0	19.0	60	64	114	20	3					376.19	**20120**	434.90	**20120**
20	3.0	42.0	19.0	60	64	114	20	3					376.19	**20130**	434.90	**20130**
20	4.0	42.0	19.0	60	64	114	20	3					376.19	**20140**	434.90	**20140**

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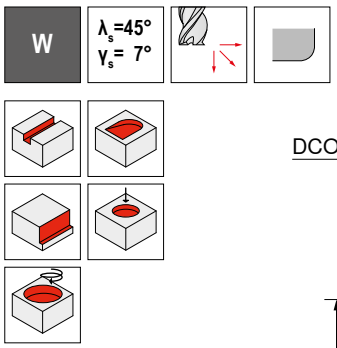
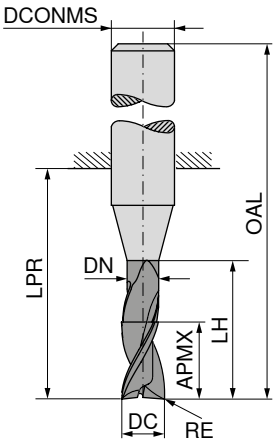
→ v_c/f_z Page 414+415

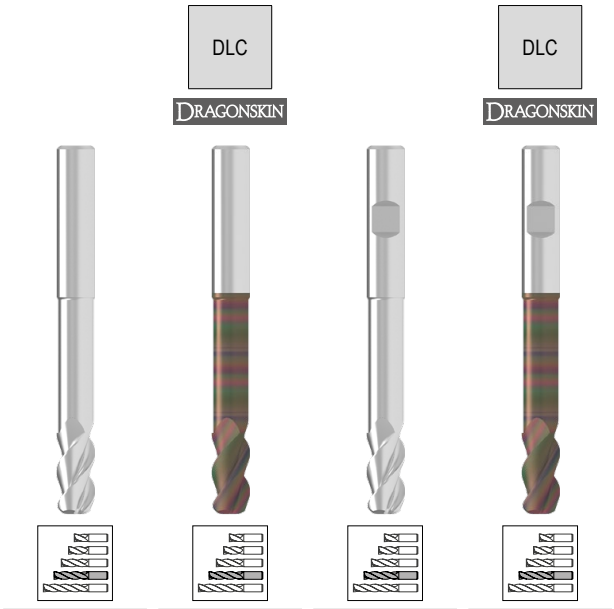
AluLine – End milling cutter with corner radius

The specialist for machining non-ferrous metals

▲ With polished chip flutes







Factory standard | Factory standard | Factory standard | Factory standard



DC h6	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	53 708 ...	53 710 ...	53 709 ...	53 711 ...
mm	mm	mm	mm	mm	mm	mm	mm		£ V1/5B	£ V1/5B	£ V1/5B	£ V1/5B
2	0.3	5.5	1.8	10	19	55	6	3	60.14 02203	72.73 02203	60.14 02203	72.73 02203
2	0.5	5.5	1.8	10	19	55	6	3	60.14 02205	72.73 02205	60.14 02205	72.73 02205
3	0.3	8.0	2.7	15	22	58	6	3	61.54 03203	75.51 03203	61.54 03203	75.51 03203
3	0.5	8.0	2.7	15	22	58	6	3	61.54 03205	75.51 03205	61.54 03205	75.51 03205
3	1.0	8.0	2.7	15	22	58	6	3	61.54 03210	75.51 03210	61.54 03210	75.51 03210
4	0.3	10.5	3.7	20	26	62	6	3	65.73 04203	78.32 04203	65.73 04203	78.32 04203
4	0.5	10.5	3.7	20	26	62	6	3	65.73 04205	78.32 04205	65.73 04205	78.32 04205
4	1.0	10.5	3.7	20	26	62	6	3	65.73 04210	78.32 04210	65.73 04210	78.32 04210
5	0.3	13.0	4.7	25	34	70	6	3	72.73 05203	86.71 05203	72.73 05203	86.71 05203
5	0.5	13.0	4.7	25	34	70	6	3	72.73 05205	86.71 05205	72.73 05205	86.71 05205
5	1.0	13.0	4.7	25	34	70	6	3	72.73 05210	86.71 05210	72.73 05210	86.71 05210
6	0.3	16.0	5.7	30	34	70	6	3	74.12 06203	89.51 06203	74.12 06203	89.51 06203
6	0.5	16.0	5.7	30	34	70	6	3	74.12 06205	89.51 06205	74.12 06205	89.51 06205
6	1.0	16.0	5.7	30	34	70	6	3	74.12 06210	89.51 06210	74.12 06210	89.51 06210
6	1.5	16.0	5.7	30	34	70	6	3	74.12 06215	89.51 06215	74.12 06215	89.51 06215
8	0.3	21.0	7.4	40	44	80	8	3	81.11 08203	99.30 08203	81.11 08203	99.30 08203
8	0.5	21.0	7.4	40	44	80	8	3	81.11 08205	99.30 08205	81.11 08205	99.30 08205
8	1.0	21.0	7.4	40	44	80	8	3	81.11 08210	99.30 08210	81.11 08210	99.30 08210
8	1.5	21.0	7.4	40	44	80	8	3	81.11 08215	99.30 08215	81.11 08215	99.30 08215
8	2.0	21.0	7.4	40	44	80	8	3	81.11 08220	99.30 08220	81.11 08220	99.30 08220
10	0.3	26.0	9.2	50	54	94	10	3	125.85 10203	145.43 10203	125.85 10203	145.43 10203
10	0.5	26.0	9.2	50	54	94	10	3	125.85 10205	145.43 10205	125.85 10205	145.43 10205
10	1.0	26.0	9.2	50	54	94	10	3	125.85 10210	145.43 10210	125.85 10210	145.43 10210
10	1.5	26.0	9.2	50	54	94	10	3	125.85 10215	145.43 10215	125.85 10215	145.43 10215
10	2.0	26.0	9.2	50	54	94	10	3	125.85 10220	145.43 10220	125.85 10220	145.43 10220
10	3.0	26.0	9.2	50	54	94	10	3	125.85 10230	145.43 10230	125.85 10230	145.43 10230
12	0.3	31.0	11.0	60	64	109	12	3	177.60 12203	205.57 12203	177.60 12203	205.57 12203
12	0.5	31.0	11.0	60	64	109	12	3	177.60 12205	205.57 12205	177.60 12205	205.57 12205
12	1.0	31.0	11.0	60	64	109	12	3	177.60 12210	205.57 12210	177.60 12210	205.57 12210
12	1.5	31.0	11.0	60	64	109	12	3	177.60 12215	205.57 12215	177.60 12215	205.57 12215
12	2.0	31.0	11.0	60	64	109	12	3	177.60 12220	205.57 12220	177.60 12220	205.57 12220
12	3.0	31.0	11.0	60	64	109	12	3	177.60 12230	205.57 12230	177.60 12230	205.57 12230
12	4.0	31.0	11.0	60	64	109	12	3	177.60 12240	205.57 12240	177.60 12240	205.57 12240
16	0.3	41.0	15.0	80	84	132	16	3			381.77 16203	425.13 16203
16	0.5	41.0	15.0	80	84	132	16	3			381.77 16205	425.13 16205
16	1.0	41.0	15.0	80	84	132	16	3			381.77 16210	425.13 16210

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→ v_c/f_z Page 414+415

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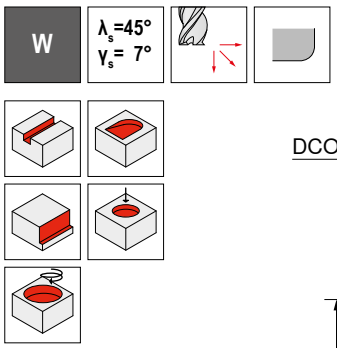
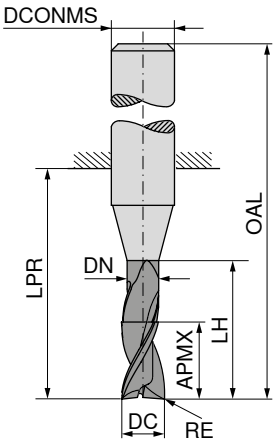
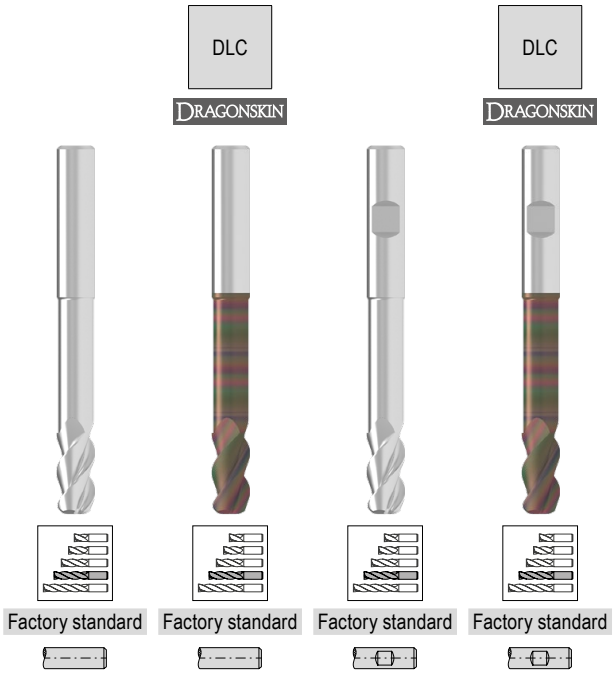
AluLine – End milling cutter with corner radius

The specialist for machining non-ferrous metals

▲ With polished chip flutes







DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 708 ... £ V1/5B	53 710 ... £ V1/5B	53 709 ... £ V1/5B		53 711 ... £ V1/5B	
									Factory standard	Factory standard	Factory standard		Factory standard	
16	1.5	41.0	15.0	80	84	132	16	3			381.77	**16215**	425.13	**16215**
16	2.0	41.0	15.0	80	84	132	16	3			381.77	**16220**	425.13	**16220**
16	3.0	41.0	15.0	80	84	132	16	3			381.77	**16230**	425.13	**16230**
16	4.0	41.0	15.0	80	84	132	16	3			381.77	**16240**	425.13	**16240**
20	0.5	52.0	19.0	100	104	154	20	3			601.32	**20205**	660.06	**20205**
20	1.0	52.0	19.0	100	104	154	20	3			601.32	**20210**	660.06	**20210**
20	1.5	52.0	19.0	100	104	154	20	3			601.32	**20215**	660.06	**20215**
20	2.0	52.0	19.0	100	104	154	20	3			601.32	**20220**	660.06	**20220**
20	3.0	52.0	19.0	100	104	154	20	3			601.32	**20230**	660.06	**20230**
20	4.0	52.0	19.0	100	104	154	20	3			601.32	**20240**	660.06	**20240**

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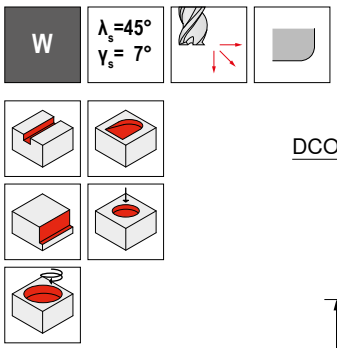
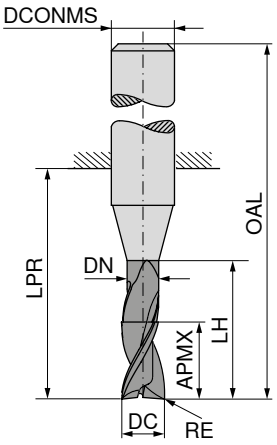
→ v_c/f_z Page 414+415

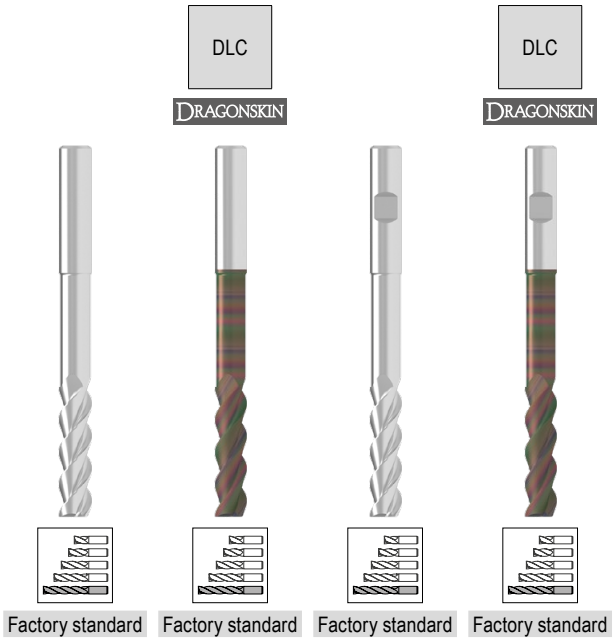
AluLine – End milling cutter with corner radius

The specialist for machining non-ferrous metals

▲ With polished chip flutes







									Factory standard	Factory standard	Factory standard	Factory standard
									53 708 ...	53 710 ...	53 709 ...	53 711 ...
DC h6	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	£ V1/5B	£ V1/5B	£ V1/5B	£ V1/5B
mm	mm	mm	mm	mm	mm	mm	mm					
2	0.3	8.5	1.8	16	26	62	6	3	65.73 02403	78.32 02403	65.73 02403	78.32 02403
2	0.5	8.5	1.8	16	26	62	6	3	65.73 02405	78.32 02405	65.73 02405	78.32 02405
3	0.3	12.5	2.7	24	31	67	6	3	67.13 03403	79.70 03403	67.13 03403	79.70 03403
3	0.5	12.5	2.7	24	31	67	6	3	67.13 03405	79.70 03405	67.13 03405	79.70 03405
3	1.0	12.5	2.7	24	31	67	6	3	67.13 03410	79.70 03410	67.13 03410	79.70 03410
4	0.3	16.5	3.7	32	38	74	6	3	74.12 04403	86.71 04403	74.12 04403	86.71 04403
4	0.5	16.5	3.7	32	38	74	6	3	74.12 04405	86.71 04405	74.12 04405	86.71 04405
4	1.0	16.5	3.7	32	38	74	6	3	74.12 04410	86.71 04410	71.32 04410	83.91 04410
5	0.3	20.5	4.7	40	52	88	6	3	79.70 05403	92.29 05403	79.70 05403	92.29 05403
5	0.5	20.5	4.7	40	52	88	6	3	79.70 05405	92.29 05405	79.70 05405	92.29 05405
5	1.0	20.5	4.7	40	52	88	6	3	79.70 05410	92.29 05410	79.70 05410	92.29 05410
6	0.3	25.0	5.7	48	52	88	6	3	81.11 06403	96.49 06403	81.11 06403	96.49 06403
6	0.5	25.0	5.7	48	52	88	6	3	81.11 06405	96.49 06405	81.11 06405	96.49 06405
6	1.0	25.0	5.7	48	52	88	6	3	81.11 06410	96.49 06410	81.11 06410	96.49 06410
6	1.5	25.0	5.7	48	52	88	6	3	81.11 06415	96.49 06415	81.11 06415	96.49 06415
8	0.3	33.0	7.4	64	68	104	8	3	109.06 08403	125.85 08403	109.06 08403	125.85 08403
8	0.5	33.0	7.4	64	68	104	8	3	109.06 08405	125.85 08405	109.06 08405	125.85 08405
8	1.0	33.0	7.4	64	68	104	8	3	109.06 08410	125.85 08410	109.06 08410	125.85 08410
8	1.5	33.0	7.4	64	68	104	8	3	109.06 08415	125.85 08415	109.06 08415	125.85 08415
8	2.0	33.0	7.4	64	68	104	8	3	109.06 08420	125.85 08420	109.06 08420	125.85 08420
10	0.3	41.0	9.2	80	84	124	10	3	167.82 10403	187.38 10403	167.82 10403	187.38 10403
10	0.5	41.0	9.2	80	84	124	10	3	167.82 10405	187.38 10405	167.82 10405	187.38 10405
10	1.0	41.0	9.2	80	84	124	10	3	167.82 10410	187.38 10410	167.82 10410	187.38 10410
10	1.5	41.0	9.2	80	84	124	10	3	167.82 10415	187.38 10415	167.82 10415	187.38 10415
10	2.0	41.0	9.2	80	84	124	10	3	167.82 10420	187.38 10420	167.82 10420	187.38 10420
10	3.0	41.0	9.2	80	84	124	10	3	167.82 10430	187.38 10430	167.82 10430	187.38 10430
12	0.3	49.0	11.0	96	100	145	12	3	237.73 12403	264.31 12403	237.73 12403	264.31 12403
12	0.5	49.0	11.0	96	100	145	12	3	237.73 12405	264.31 12405	237.73 12405	264.31 12405
12	1.0	49.0	11.0	96	100	145	12	3	237.73 12410	264.31 12410	237.73 12410	264.31 12410
12	1.5	49.0	11.0	96	100	145	12	3	237.73 12415	264.31 12415	237.73 12415	264.31 12415
12	2.0	49.0	11.0	96	100	145	12	3	237.73 12420	264.31 12420	237.73 12420	264.31 12420
12	3.0	49.0	11.0	96	100	145	12	3	237.73 12430	264.31 12430	237.73 12430	264.31 12430
12	4.0	49.0	11.0	96	100	145	12	3	237.73 12440	264.31 12440	237.73 12440	264.31 12440
16	0.3	65.0	15.0	128	132	180	16	3			434.90 16403	478.26 16403
16	0.5	65.0	15.0	128	132	180	16	3			434.90 16405	478.26 16405
16	1.0	65.0	15.0	128	132	180	16	3			434.90 16410	478.26 16410

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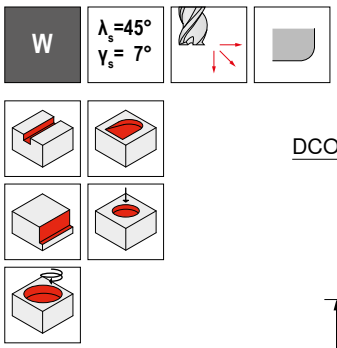
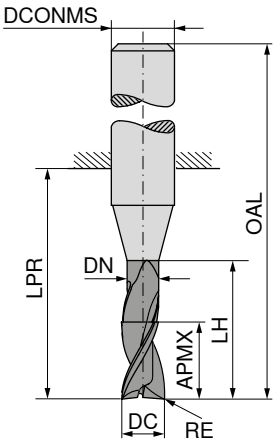
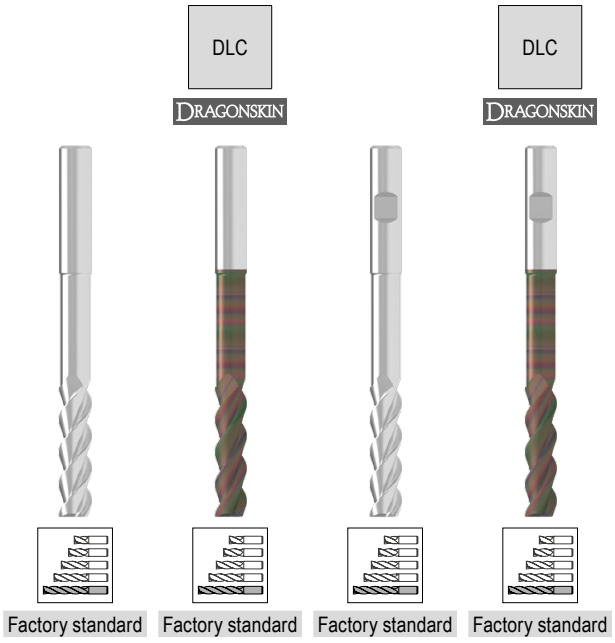
AluLine – End milling cutter with corner radius

The specialist for machining non-ferrous metals

▲ With polished chip flutes







Factory standard | Factory standard | Factory standard | Factory standard



DC h6	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	53 708 ... £ V1/5B	53 710 ... £ V1/5B	53 709 ... £ V1/5B		53 711 ... £ V1/5B	
mm	mm	mm	mm	mm	mm	mm	mm							
16	1.5	65.0	15.0	128	132	180	16	3			434.90	**16415**	478.26	**16415**
16	2.0	65.0	15.0	128	132	180	16	3			434.90	**16420**	478.26	**16420**
16	3.0	65.0	15.0	128	132	180	16	3			434.90	**16430**	478.26	**16430**
16	4.0	65.0	15.0	128	132	180	16	3			434.90	**16440**	478.26	**16440**
20	0.5	82.0	19.0	160	164	214	20	3			713.19	**20405**	771.93	**20405**
20	1.0	82.0	19.0	160	164	214	20	3			713.19	**20410**	771.93	**20410**
20	1.5	82.0	19.0	160	164	214	20	3			713.19	**20415**	771.93	**20415**
20	2.0	82.0	19.0	160	164	214	20	3			713.19	**20420**	771.93	**20420**
20	3.0	82.0	19.0	160	164	214	20	3			713.19	**20430**	771.93	**20430**
20	4.0	82.0	19.0	160	164	214	20	3			713.19	**20440**	771.93	**20440**

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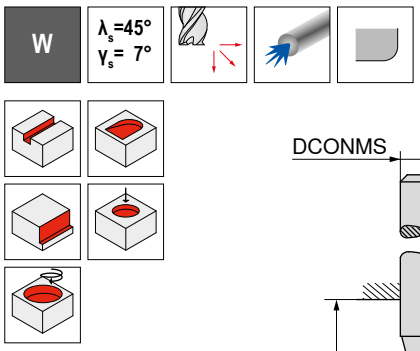
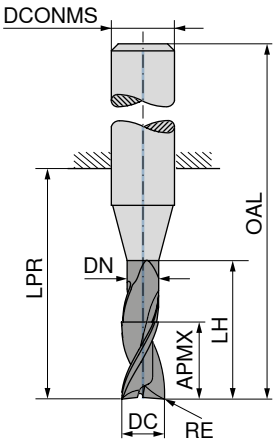
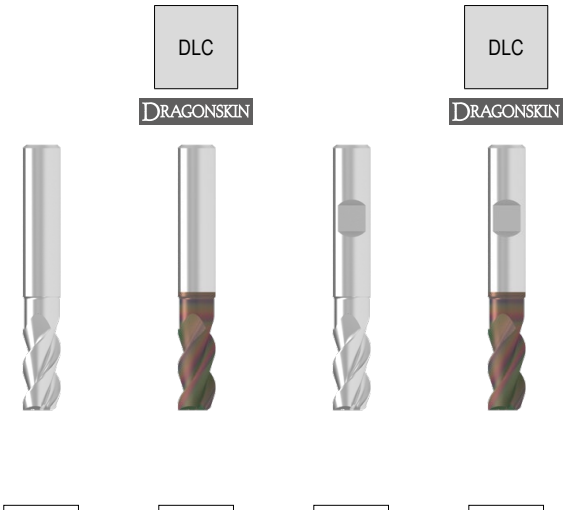
AluLine – End milling cutter with corner radius

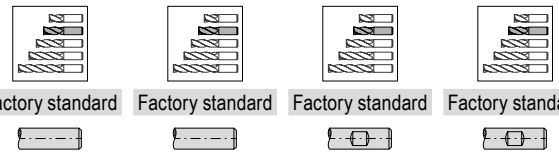
The specialist for machining non-ferrous metals

▲ With polished chip flutes









									Factory standard	Factory standard	Factory standard	Factory standard
									53 712 ...	53 714 ...	53 713 ...	53 715 ...
DC h6	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	£ V1/5B	£ V1/5B	£ V1/5B	£ V1/5B
mm	mm	mm	mm	mm	mm	mm	mm					
6	0.3	13	5.7	18	22	58	6	3	71.32 **06103**	86.71 **06103**	71.32 **06103**	86.71 **06103**
6	0.5	13	5.7	18	22	58	6	3	71.32 **06105**	86.71 **06105**	71.32 **06105**	86.71 **06105**
6	1.0	13	5.7	18	22	58	6	3	71.32 **06110**	86.71 **06110**	71.32 **06110**	86.71 **06110**
6	1.5	13	5.7	18	22	58	6	3	71.32 **06115**	86.71 **06115**	71.32 **06115**	86.71 **06115**
8	0.3	17	7.4	24	28	64	8	3	95.10 **08103**	111.88 **08103**	95.10 **08103**	111.88 **08103**
8	0.5	17	7.4	24	28	64	8	3	95.10 **08105**	111.88 **08105**	95.10 **08105**	111.88 **08105**
8	1.0	17	7.4	24	28	64	8	3	95.10 **08110**	111.88 **08110**	95.10 **08110**	111.88 **08110**
8	1.5	17	7.4	24	28	64	8	3	95.10 **08115**	111.88 **08115**	95.10 **08115**	111.88 **08115**
8	2.0	17	7.4	24	28	64	8	3	95.10 **08120**	111.88 **08120**	95.10 **08120**	111.88 **08120**
10	0.3	21	9.2	30	34	74	10	3	145.43 **10103**	165.01 **10103**	145.43 **10103**	165.01 **10103**
10	0.5	21	9.2	30	34	74	10	3	145.43 **10105**	165.01 **10105**	145.43 **10105**	165.01 **10105**
10	1.0	21	9.2	30	34	74	10	3	145.43 **10110**	165.01 **10110**	145.43 **10110**	165.01 **10110**
10	1.5	21	9.2	30	34	74	10	3	145.43 **10115**	165.01 **10115**	145.43 **10115**	165.01 **10115**
10	2.0	21	9.2	30	34	74	10	3	145.43 **10120**	165.01 **10120**	145.43 **10120**	165.01 **10120**
10	3.0	21	9.2	30	34	74	10	3	145.43 **10130**	165.01 **10130**	145.43 **10130**	165.01 **10130**
12	0.3	25	11.0	36	40	85	12	3	206.97 **12103**	233.54 **12103**	206.97 **12103**	233.54 **12103**
12	0.5	25	11.0	36	40	85	12	3	206.97 **12105**	233.54 **12105**	206.97 **12105**	233.54 **12105**
12	1.0	25	11.0	36	40	85	12	3	206.97 **12110**	233.54 **12110**	206.97 **12110**	233.54 **12110**
12	1.5	25	11.0	36	40	85	12	3	206.97 **12115**	233.54 **12115**	206.97 **12115**	233.54 **12115**
12	2.0	25	11.0	36	40	85	12	3	206.97 **12120**	233.54 **12120**	206.97 **12120**	233.54 **12120**
12	3.0	25	11.0	36	40	85	12	3	206.97 **12130**	233.54 **12130**	206.97 **12130**	233.54 **12130**
12	4.0	25	11.0	36	40	85	12	3	206.97 **12140**	233.54 **12140**	206.97 **12140**	233.54 **12140**
16	0.3	33	15.0	48	52	100	16	3			310.45 **16103**	352.40 **16103**
16	0.5	33	15.0	48	52	100	16	3			310.45 **16105**	352.40 **16105**
16	1.0	33	15.0	48	52	100	16	3			310.45 **16110**	352.40 **16110**
16	1.5	33	15.0	48	52	100	16	3			310.45 **16115**	352.40 **16115**
16	2.0	33	15.0	48	52	100	16	3			310.45 **16120**	352.40 **16120**
16	3.0	33	15.0	48	52	100	16	3			310.45 **16130**	352.40 **16130**
16	4.0	33	15.0	48	52	100	16	3			310.45 **16140**	352.40 **16140**
20	0.5	42	19.0	60	64	114	20	3			632.09 **20105**	689.42 **20105**
20	1.0	42	19.0	60	64	114	20	3			632.09 **20110**	689.42 **20110**
20	1.5	42	19.0	60	64	114	20	3			632.09 **20115**	689.42 **20115**
20	2.0	42	19.0	60	64	114	20	3			632.09 **20120**	689.42 **20120**
20	3.0	42	19.0	60	64	114	20	3			632.09 **20130**	689.42 **20130**
20	4.0	42	19.0	60	64	114	20	3			632.09 **20140**	689.42 **20140**

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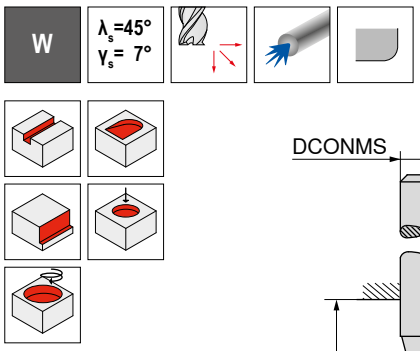
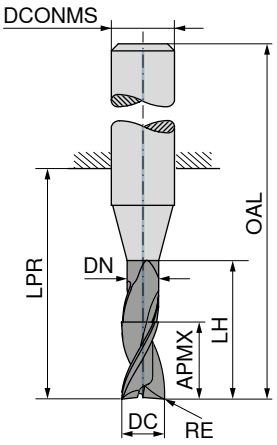
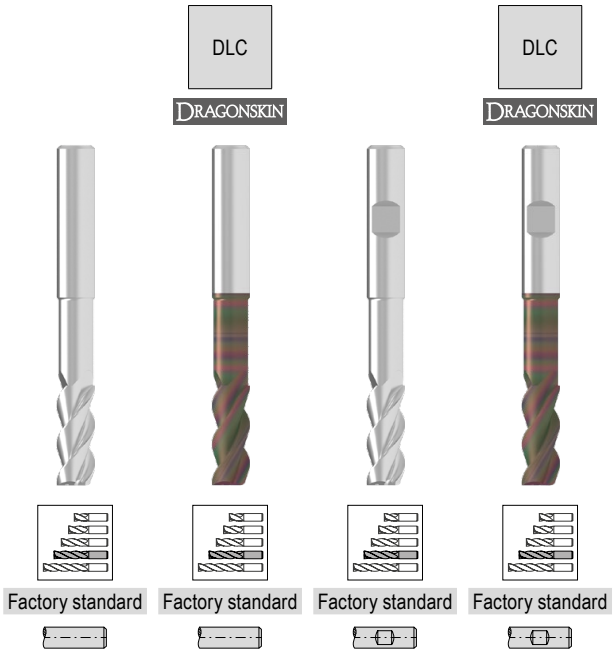
AluLine – End milling cutter with corner radius

The specialist for machining non-ferrous metals

▲ With polished chip flutes







									Factory standard	Factory standard	Factory standard	Factory standard
									53 712 ...	53 714 ...	53 713 ...	53 715 ...
DC h6	RE ±0.01	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	£ V1/5B	£ V1/5B	£ V1/5B	£ V1/5B
mm	mm	mm	mm	mm	mm	mm	mm					
6	0.3	16	5.7	30	34	70	6	3	85.30 06203	100.69 06203	85.30 06203	100.69 06203
6	0.5	16	5.7	30	34	70	6	3	85.30 06205	100.69 06205	85.30 06205	100.69 06205
6	1.0	16	5.7	30	34	70	6	3	85.30 06210	100.69 06210	85.30 06210	100.69 06210
6	1.5	16	5.7	30	34	70	6	3	85.30 06215	100.69 06215	85.30 06215	100.69 06215
8	0.3	21	7.4	40	44	80	8	3	113.26 08203	131.44 08203	113.26 08203	131.44 08203
8	0.5	21	7.4	40	44	80	8	3	113.26 08205	131.44 08205	113.26 08205	131.44 08205
8	1.0	21	7.4	40	44	80	8	3	113.26 08210	131.44 08210	113.26 08210	131.44 08210
8	1.5	21	7.4	40	44	80	8	3	113.26 08215	131.44 08215	113.26 08215	131.44 08215
8	2.0	21	7.4	40	44	80	8	3	113.26 08220	131.44 08220	113.26 08220	131.44 08220
10	0.3	26	9.2	50	54	94	10	3	174.81 10203	194.38 10203	174.81 10203	194.38 10203
10	0.5	26	9.2	50	54	94	10	3	174.81 10205	194.38 10205	174.81 10205	194.38 10205
10	1.0	26	9.2	50	54	94	10	3	174.81 10210	194.38 10210	174.81 10210	194.38 10210
10	1.5	26	9.2	50	54	94	10	3	174.81 10215	194.38 10215	174.81 10215	194.38 10215
10	2.0	26	9.2	50	54	94	10	3	174.81 10220	194.38 10220	174.81 10220	194.38 10220
10	3.0	26	9.2	50	54	94	10	3	174.81 10230	194.38 10230	174.81 10230	194.38 10230
12	0.3	31	11.0	60	64	109	12	3	247.52 12203	275.49 12203	247.52 12203	275.49 12203
12	0.5	31	11.0	60	64	109	12	3	247.52 12205	275.49 12205	247.52 12205	275.49 12205
12	1.0	31	11.0	60	64	109	12	3	247.52 12210	275.49 12210	247.52 12210	275.49 12210
12	1.5	31	11.0	60	64	109	12	3	247.52 12215	275.49 12215	247.52 12215	275.49 12215
12	2.0	31	11.0	60	64	109	12	3	247.52 12220	275.49 12220	247.52 12220	275.49 12220
12	3.0	31	11.0	60	64	109	12	3	247.52 12230	275.49 12230	247.52 12230	275.49 12230
12	4.0	31	11.0	60	64	109	12	3	247.52 12240	275.49 12240	247.52 12240	275.49 12240
16	0.3	41	15.0	80	84	132	16	3			429.31 16203	472.67 16203
16	0.5	41	15.0	80	84	132	16	3			429.31 16205	472.67 16205
16	1.0	41	15.0	80	84	132	16	3			429.31 16210	472.67 16210
16	1.5	41	15.0	80	84	132	16	3			429.31 16215	472.67 16215
16	2.0	41	15.0	80	84	132	16	3			429.31 16220	472.67 16220
16	3.0	41	15.0	80	84	132	16	3			429.31 16230	472.67 16230
16	4.0	41	15.0	80	84	132	16	3			429.31 16240	472.67 16240
20	0.5	52	19.0	100	104	154	20	3			676.85 20205	735.56 20205
20	1.0	52	19.0	100	104	154	20	3			676.85 20210	735.56 20210
20	1.5	52	19.0	100	104	154	20	3			676.85 20215	735.56 20215
20	2.0	52	19.0	100	104	154	20	3			676.85 20220	735.56 20220
20	3.0	52	19.0	100	104	154	20	3			676.85 20230	735.56 20230
20	4.0	52	19.0	100	104	154	20	3			676.85 20240	735.56 20240

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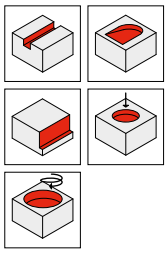
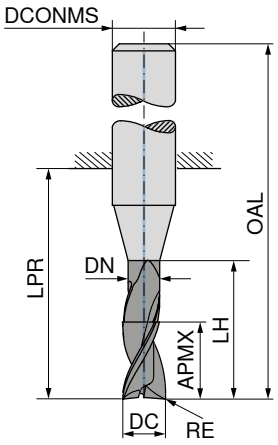
AluLine – End milling cutter with corner radius

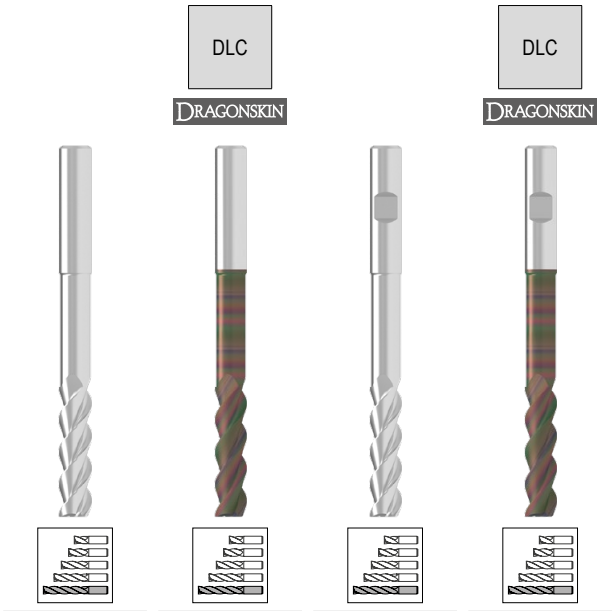
The specialist for machining non-ferrous metals

▲ With polished chip flutes









Factory standard | Factory standard | Factory standard | Factory standard



DC h6	RE ±0,01	APMX	DN	LH	LPR	OAL	DCONMS h5	ZEFP	53 712 ...	53 714 ...	53 713 ...	53 715 ...
mm	mm	mm	mm	mm	mm	mm	mm		£ V1/5B	£ V1/5B	£ V1/5B	£ V1/5B
6	0.3	25	5.7	48	52	88	6	3	107.67 06403	123.06 06403	107.67 06403	123.06 06403
6	0.5	25	5.7	48	52	88	6	3	107.67 06405	123.06 06405	107.67 06405	123.06 06405
6	1.0	25	5.7	48	52	88	6	3	107.67 06410	123.06 06410	107.67 06410	123.06 06410
6	1.5	25	5.7	48	52	88	6	3	107.67 06415	123.06 06415	107.67 06415	123.06 06415
8	0.3	33	7.4	64	68	104	8	3	142.63 08403	159.42 08403	142.63 08403	159.42 08403
8	0.5	33	7.4	64	68	104	8	3	142.63 08405	159.42 08405	142.63 08405	159.42 08405
8	1.0	33	7.4	64	68	104	8	3	142.63 08410	159.42 08410	142.63 08410	159.42 08410
8	1.5	33	7.4	64	68	104	8	3	142.63 08415	159.42 08415	142.63 08415	159.42 08415
8	2.0	33	7.4	64	68	104	8	3	142.63 08420	159.42 08420	142.63 08420	159.42 08420
10	0.3	41	9.2	80	84	124	10	3	218.16 10403	237.73 10403	218.16 10403	237.73 10403
10	0.5	41	9.2	80	84	124	10	3	218.16 10405	237.73 10405	218.16 10405	237.73 10405
10	1.0	41	9.2	80	84	124	10	3	218.16 10410	237.73 10410	218.16 10410	237.73 10410
10	1.5	41	9.2	80	84	124	10	3	218.16 10415	237.73 10415	218.16 10415	237.73 10415
10	2.0	41	9.2	80	84	124	10	3	218.16 10420	237.73 10420	218.16 10420	237.73 10420
10	3.0	41	9.2	80	84	124	10	3	218.16 10430	237.73 10430	218.16 10430	237.73 10430
12	0.3	49	11.0	96	100	145	12	3	309.06 12403	337.01 12403	309.06 12403	337.01 12403
12	0.5	49	11.0	96	100	145	12	3	309.06 12405	337.01 12405	309.06 12405	337.01 12405
12	1.0	49	11.0	96	100	145	12	3	309.06 12410	337.01 12410	309.06 12410	337.01 12410
12	1.5	49	11.0	96	100	145	12	3	309.06 12415	337.01 12415	309.06 12415	337.01 12415
12	2.0	49	11.0	96	100	145	12	3	309.06 12420	337.01 12420	309.06 12420	337.01 12420
12	3.0	49	11.0	96	100	145	12	3	309.06 12430	337.01 12430	309.06 12430	337.01 12430
12	4.0	49	11.0	96	100	145	12	3	309.06 12440	337.01 12440	309.06 12440	337.01 12440
16	0.3	65	15.0	128	132	180	16	3			799.90 16403	841.85 16403
16	0.5	65	15.0	128	132	180	16	3			799.90 16405	841.85 16405
16	1.0	65	15.0	128	132	180	16	3			799.90 16410	841.85 16410
16	1.5	65	15.0	128	132	180	16	3			799.90 16415	841.85 16415
16	2.0	65	15.0	128	132	180	16	3			799.90 16420	841.85 16420
16	3.0	65	15.0	128	132	180	16	3			799.90 16430	841.85 16430
16	4.0	65	15.0	128	132	180	16	3			799.90 16440	841.85 16440
20	0.5	82	19.0	160	164	214	20	3			1,215.22 20405	1,273.97 20405
20	1.0	82	19.0	160	164	214	20	3			1,215.22 20410	1,273.97 20410
20	1.5	82	19.0	160	164	214	20	3			1,215.22 20415	1,273.97 20415
20	2.0	82	19.0	160	164	214	20	3			1,215.22 20420	1,273.97 20420
20	3.0	82	19.0	160	164	214	20	3			1,215.22 20430	1,273.97 20430
20	4.0	82	19.0	160	164	214	20	3			1,215.22 20440	1,273.97 20440

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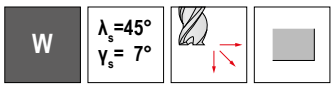
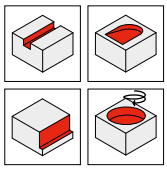
→ v_c/f_z Page 414+415

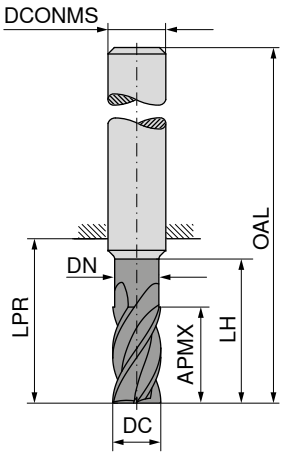
AluLine – End milling cutter

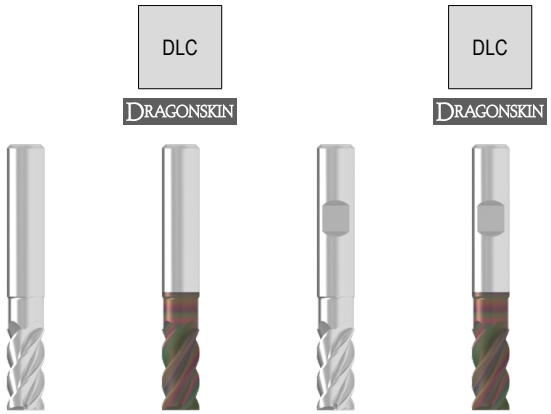
The specialist for machining non-ferrous metals

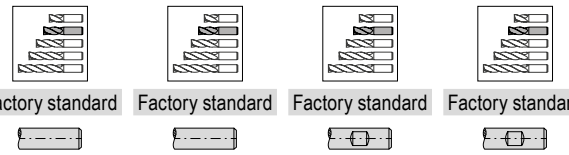
▲ With polished chip flutes











DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 704 ... £ V1/5B		53 706 ... £ V1/5B		53 705 ... £ V1/5B		53 707 ... £ V1/5B	
								Factory standard		Factory standard		Factory standard		Factory standard	
5	10.5	4.8	15	22	58	6	4	61.54	**05100**	78.32	**05100**	61.54	**05100**	78.32	**05100**
6	13.0	5.8	18	22	58	6	4	62.92	**06100**	78.32	**06100**	62.92	**06100**	78.32	**06100**
8	17.0	7.7	24	28	64	8	4	89.51	**08100**	107.67	**08100**	89.51	**08100**	107.67	**08100**
10	21.0	9.7	30	34	74	10	4	118.85	**10100**	138.45	**10100**	118.85	**10100**	138.45	**10100**
12	25.0	11.6	36	40	85	12	4	183.20	**12100**	209.77	**12100**	183.20	**12100**	209.77	**12100**
14	29.0	13.6	42	46	91	14	4					211.16	**14100**	247.52	**14100**
16	33.0	15.5	48	52	100	16	4					334.22	**16100**	376.19	**16100**
18	38.0	17.5	54	58	106	18	4					359.40	**18100**	406.93	**18100**
20	42.0	19.5	60	64	114	20	4					613.91	**20100**	671.24	**20100**

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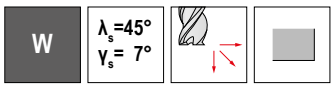
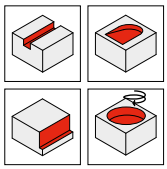
→ v_c/f_z Page 414+415

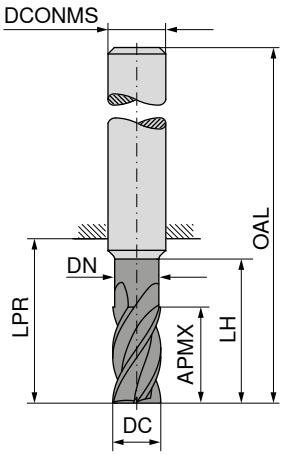
AluLine – End milling cutter

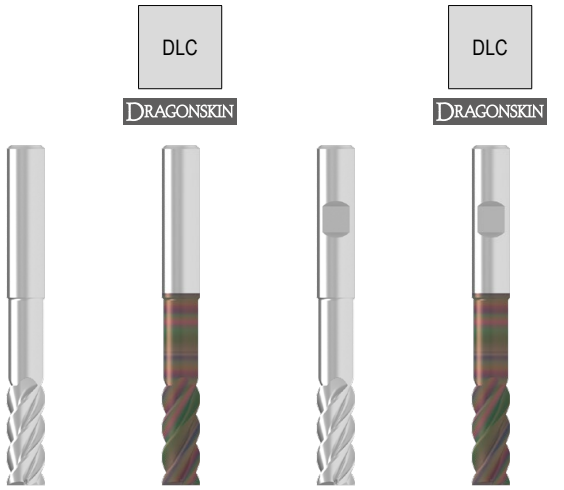
The specialist for machining non-ferrous metals

▲ With polished chip flutes









Factory standard | Factory standard | Factory standard | Factory standard

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 704 ... £ V1/5B	53 706 ... £ V1/5B	53 705 ... £ V1/5B	53 707 ... £ V1/5B
2	5.5	1.8	10	19	55	6	4	50.33 **02200**	64.32 **02200**	50.33 **02200**	64.32 **02200**
3	8.0	2.8	15	22	58	6	4	65.73 **03200**	79.70 **03200**	65.73 **03200**	79.70 **03200**
4	10.5	3.8	20	26	62	6	4	62.92 **04200**	76.91 **04200**	62.92 **04200**	76.91 **04200**
5	13.0	4.8	25	34	70	6	4	60.14 **05200**	75.51 **05200**	60.14 **05200**	75.51 **05200**
6	16.0	5.8	30	34	70	6	4	62.92 **06200**	78.32 **06200**	62.92 **06200**	78.32 **06200**
8	21.0	7.7	40	44	80	8	4	89.51 **08200**	107.67 **08200**	89.51 **08200**	107.67 **08200**
10	26.0	9.7	50	54	94	10	4	118.85 **10200**	138.45 **10200**	118.85 **10200**	138.45 **10200**
12	31.0	11.6	60	64	109	12	4	183.20 **12200**	209.77 **12200**	183.20 **12200**	209.77 **12200**
14	36.0	13.6	70	74	119	14	4			220.95 **14200**	257.31 **14200**
16	41.0	15.5	80	84	132	16	4			334.22 **16200**	376.19 **16200**
18	47.0	17.5	90	94	142	18	4			359.40 **18200**	406.93 **18200**
20	52.0	19.5	100	104	154	20	4			613.91 **20200**	671.24 **20200**

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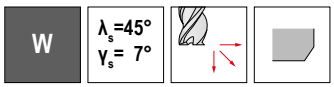
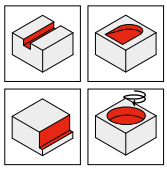
→ v_c/f_z Page 414+415

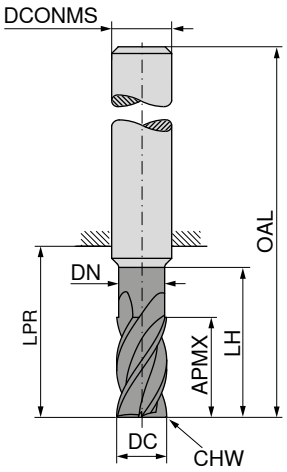
AluLine – End milling cutter

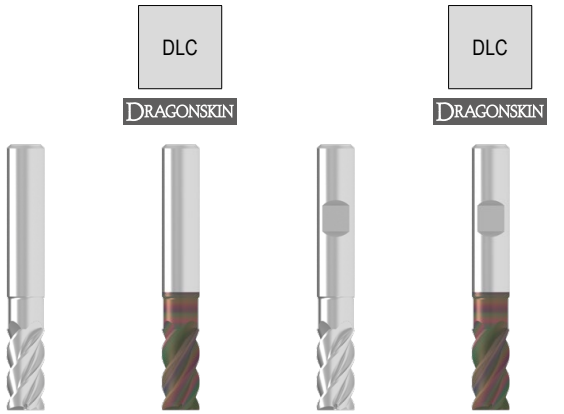
The specialist for machining non-ferrous metals

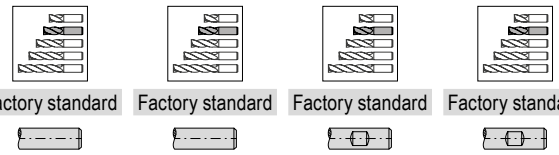
▲ With polished chip flutes











DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP		53 700 ... £ V1/5B		53 702 ... £ V1/5B		53 701 ... £ V1/5B		53 703 ... £ V1/5B	
										Factory standard		Factory standard		Factory standard		Factory standard	
5	10.5	4.8	15	22	58	6	0.1	4		61.54	**05100**	78.32	**05100**	61.54	**05100**	78.32	**05100**
6	13.0	5.8	18	22	58	6	0.2	4		62.92	**06100**	78.32	**06100**	62.92	**06100**	78.32	**06100**
8	17.0	7.7	24	28	64	8	0.2	4		89.51	**08100**	107.67	**08100**	89.51	**08100**	107.67	**08100**
10	21.0	9.7	30	34	74	10	0.2	4		118.85	**10100**	138.45	**10100**	118.85	**10100**	138.45	**10100**
12	25.0	11.6	36	40	85	12	0.2	4		183.20	**12100**	209.77	**12100**	183.20	**12100**	209.77	**12100**
14	29.0	13.6	42	46	91	14	0.2	4						211.16	**14100**	247.52	**14100**
16	33.0	15.5	48	52	100	16	0.2	4						334.22	**16100**	376.19	**16100**
18	38.0	17.5	54	58	106	18	0.2	4						359.40	**18100**	406.93	**18100**
20	42.0	19.5	60	64	114	20	0.2	4						613.91	**20100**	671.24	**20100**
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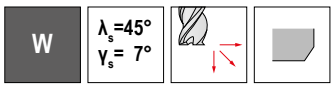
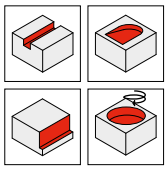
→ v_c/f_z Page 414+415

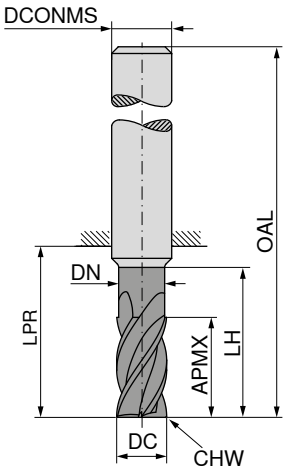
AluLine – End milling cutter

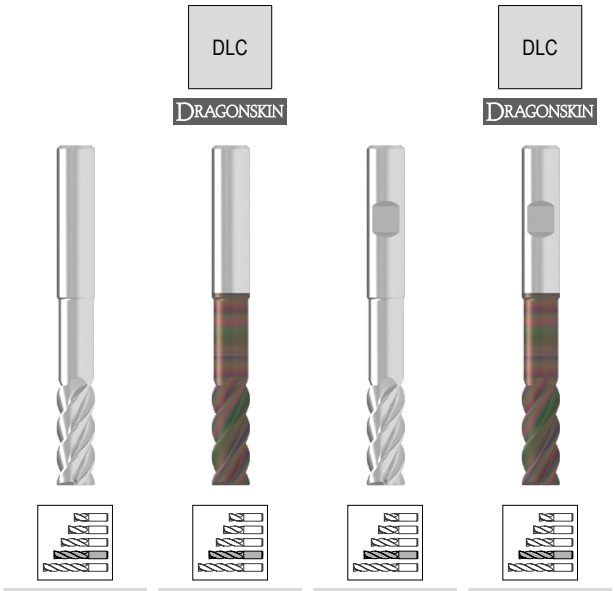
The specialist for machining non-ferrous metals

▲ With polished chip flutes









Factory standard | Factory standard | Factory standard | Factory standard

DC h6	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	53 700 ... £ V1/5B		53 702 ... £ V1/5B		53 701 ... £ V1/5B		53 703 ... £ V1/5B	
mm	mm	mm	mm	mm	mm	mm	mm									
2	5.5	1.8	10	19	55	6	0.05	4	50.33	02200	62.92	02200	50.33	02200	62.92	02200
3	8.0	2.8	15	22	58	6	0.10	4	65.73	03200	78.32	03200	65.73	03200	78.32	03200
4	10.5	3.8	20	26	62	6	0.10	4	62.92	04200	75.51	04200	62.92	04200	75.51	04200
5	13.0	4.8	25	34	70	6	0.10	4	60.14	05200	75.51	05200	60.14	05200	75.51	05200
6	16.0	5.8	30	34	70	6	0.20	4	62.92	06200	78.32	06200	62.92	06200	78.32	06200
8	21.0	7.7	40	44	80	8	0.20	4	89.51	08200	107.67	08200	89.51	08200	107.67	08200
10	26.0	9.7	50	54	94	10	0.20	4	118.85	10200	138.45	10200	118.85	10200	138.45	10200
12	31.0	11.6	60	64	109	12	0.20	4	183.20	12200	209.77	12200	183.20	12200	209.77	12200
14	36.0	13.6	70	74	119	14	0.20	4					220.95	14200	257.31	14200
16	41.0	15.5	80	84	132	16	0.20	4					334.22	16200	376.19	16200
18	47.0	17.5	90	94	142	18	0.20	4					359.40	18200	406.93	18200
20	52.0	19.5	100	104	154	20	0.20	4					613.91	20200	671.24	20200

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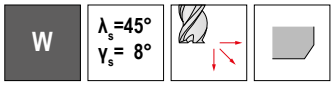
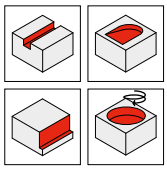
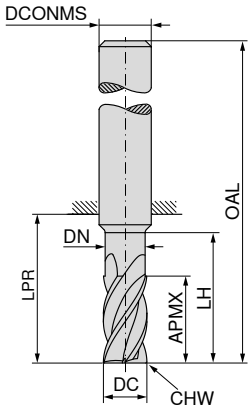
AluLine – End milling cutter

The specialist for machining non-ferrous metals

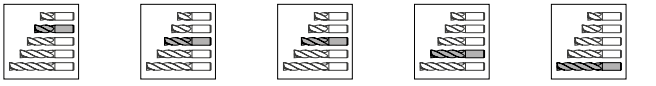
▲ With polished chip flutes



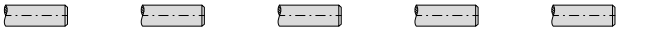








Factory standard | Factory standard | Factory standard | Factory standard | Factory standard



DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 560 ... £ V1/5B		53 561 ... £ V1/5B		53 562 ... £ V1/5B		53 563 ... £ V1/5B		53 564 ... £ V1/5B	
3.0	8	2.7	13	21	57	6	0.1	4							40.65	**030**		
3.5	11	3.2	17	21	57	6	0.1	4							45.46	**035**		
4.0	11	3.7	17	21	57	6	0.1	4							45.46	**040**		
4.5	13	4.2	19	21	57	6	0.1	4							47.94	**045**		
5.0	13	4.7	19	21	57	6	0.1	4					44.46	**050**				
5.5	13	5.2	19	21	57	6	0.1	4					43.81	**055**				
6.0	10	5.7	42	44	80	6	0.2	4									46.93	**060**
6.0	13	5.7	19	21	57	6	0.2	4					46.93	**060**				
6.0	18	5.7	24	26	62	6	0.2	4							46.93	**060**		
6.5	21	6.1	25	27	63	8	0.2	4					62.88	**065**				
8.0	13	7.4	62	64	100	8	0.2	4									66.86	**080**
8.0	21	7.4	25	27	63	8	0.2	4			66.86	**080**						
8.0	24	7.4	30	32	68	8	0.2	4					66.86	**080**				
8.5	22	7.9	30	32	72	10	0.2	4					83.96	**085**				
10.0	16	9.2	58	60	100	10	0.2	4							87.94	**100**		
10.0	22	9.2	30	32	72	10	0.2	4			87.94	**100**						
10.0	30	9.2	38	40	80	10	0.2	4					87.94	**100**				
12.0	19	11.0	73	75	120	12	0.2	4									135.38	**120**
12.0	26	11.0	36	38	83	12	0.2	4			135.38	**120**						
12.0	36	11.0	46	48	93	12	0.2	4					135.38	**120**				
14.0	26	13.0	36	38	83	14	0.2	4	156.93	**140**								
16.0	25	15.0	100	102	150	16	0.2	4									247.52	**160**
16.0	36	15.0	42	44	92	16	0.2	4	247.52	**160**								
16.0	48	15.0	58	60	108	16	0.2	4					247.52	**160**				
18.0	36	17.0	42	44	92	18	0.2	4	266.45	**180**								
20.0	32	19.0	98	100	150	20	0.2	4							455.53	**200**		
20.0	41	19.0	52	54	104	20	0.2	4	455.53	**200**								
20.0	60	19.0	74	76	126	20	0.2	4					455.53	**200**				
25.0	52	24.0	62	65	121	25	0.3	4	595.75	**250**								

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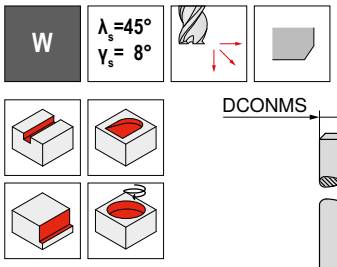
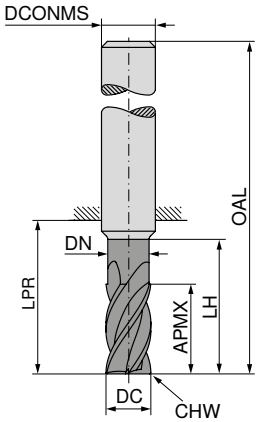
→ v_c/f_z Page 414+415

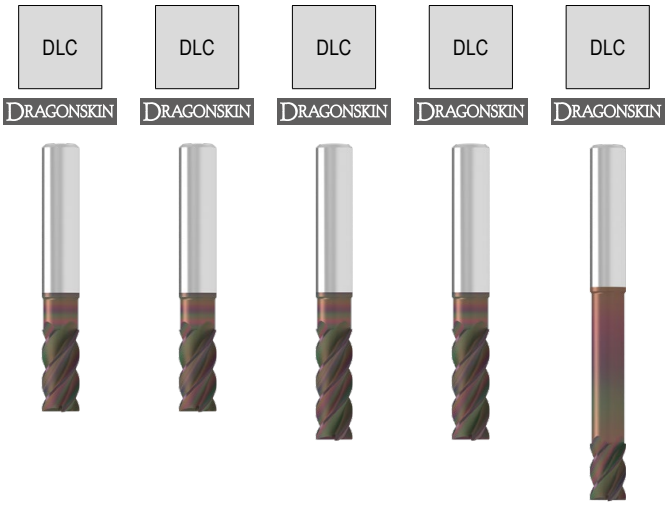
14

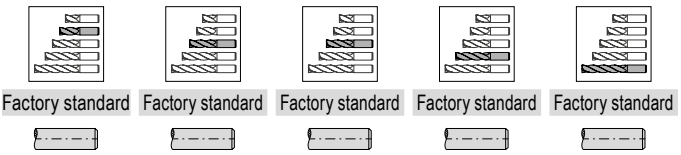
AluLine – End milling cutter

The specialist for machining non-ferrous metals









DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 565 ... £ V1/5B		53 566 ... £ V1/5B		53 567 ... £ V1/5B		53 568 ... £ V1/5B		53 569 ... £ V1/5B	
3.0	8	2.7	13	21	57	6	0.1	4							54.25	**030**		
3.5	11	3.2	17	21	57	6	0.1	4							58.72	**035**		
4.0	11	3.7	17	21	57	6	0.1	4							58.72	**040**		
4.5	13	4.2	19	21	57	6	0.1	4							61.56	**045**		
5.0	13	4.7	19	21	57	6	0.1	4					58.08	**050**				
5.5	13	5.2	19	21	57	6	0.1	4					57.24	**055**				
6.0	10	5.7	42	44	80	6	0.2	4									60.40	**060**
6.0	13	5.7	19	21	57	6	0.2	4					60.40	**060**				
6.0	18	5.7	24	26	62	6	0.2	4							60.40	**060**		
6.5	21	6.1	25	27	63	8	0.2	4					76.30	**065**				
8.0	13	7.4	62	64	100	8	0.2	4									80.29	**080**
8.0	21	7.4	25	27	63	8	0.2	4			80.29	**080**						
8.0	24	7.2	30	32	68	8	0.2	4					80.29	**080**				
8.5	22	7.9	30	32	72	10	0.2	4					97.40	**085**				
10.0	16	9.2	58	60	100	10	0.2	4							101.39	**100**		
10.0	22	9.2	30	32	72	10	0.2	4			101.39	**100**						
10.0	30	9.2	38	40	80	10	0.2	4					101.39	**100**				
12.0	19	11.0	73	75	120	12	0.2	4									148.82	**120**
12.0	26	11.0	36	38	83	12	0.2	4			148.82	**120**						
12.0	36	11.0	46	48	93	12	0.2	4					148.82	**120**				
14.0	26	13.0	36	38	83	14	0.2	4	170.21	**140**								
16.0	25	15.0	100	102	150	16	0.2	4									261.62	**160**
16.0	36	15.0	42	44	92	16	0.2	4	261.62	**160**								
16.0	48	15.0	58	60	108	16	0.2	4					261.62	**160**				
18.0	36	17.0	42	44	92	18	0.2	4	280.54	**180**								
20.0	32	19.0	98	100	150	20	0.2	4							468.15	**200**		
20.0	41	19.0	52	54	104	20	0.2	4	468.15	**200**								
20.0	60	19.0	74	76	126	20	0.2	4					468.15	**200**				
25.0	52	24.0	62	65	121	25	0.3	4	610.00	**250**								
P																		
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N									●		●		●		●		●	
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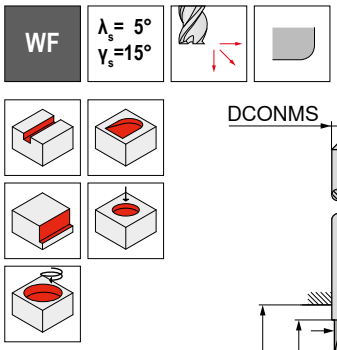
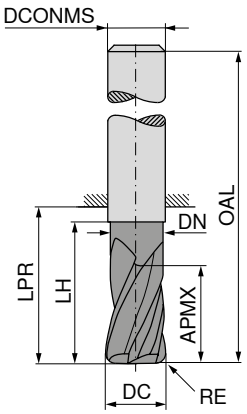
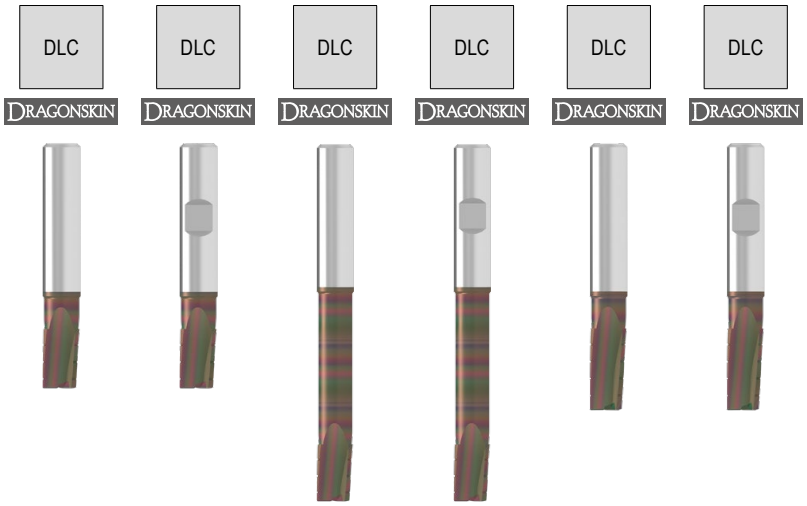
→ v_c/f_z Page 414+415

AluLine – Roughing-Finishing Cutter

The specialist for machining non-ferrous metals









Factory standard



DC e8 mm	RE ±0.05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 582 ... £ V1/5B		53 583 ... £ V1/5B		53 582 ... £ V1/5B		53 583 ... £ V1/5B		53 582 ... £ V1/5B		53 583 ... £ V1/5B	
3	0.10	5	2.7	18	44	80	6	3					83.91	03301	83.91	03301				
4	0.10	7	3.7	24	44	80	6	3					86.71	04301	86.71	04301				
5	0.15	8	4.7	16	18	54	6	3	72.73	05101	72.73	05101								
5	0.15	8	4.7	30	44	80	6	3					90.90	05301	90.90	05301				
5	0.15	13	4.7	18	21	57	6	3									72.73	05201	72.73	05201
6	0.20	10	5.7	17	18	54	6	3	72.73	06102	72.73	06102								
6	0.20	10	5.7	42	44	80	6	3					99.30	06302	99.30	06302				
6	0.20	13	5.7	18	21	57	6	3									72.73	06202	72.73	06202
8	0.25	13	7.4	20	22	58	8	3	85.30	08103	85.30	08103								
8	0.25	13	7.4	62	64	100	8	3					109.06	08303	109.06	08303				
8	0.25	21	7.4	25	27	63	8	3									89.51	08203	89.51	08203
10	0.30	16	9.2	24	26	66	10	3	116.07	10103	116.07	10103								
10	0.30	16	9.2	58	60	100	10	3					153.83	10303	153.83	10303				
10	0.30	22	9.2	30	32	72	10	3									123.06	10203	123.06	10203
12	0.35	19	11.0	26	28	73	12	3	160.82	12104	160.82	12104								
12	0.35	19	11.0	73	75	120	12	3					197.18	12304	197.18	12304				
12	0.35	26	11.0	36	38	83	12	3									166.42	12204	166.42	12204
16	0.50	25	15.0	32	34	82	16	3			269.90	16105								
16	0.50	25	15.0	100	102	150	16	3							331.42	16305				
16	0.50	36	15.0	42	44	92	16	3											282.47	16205
20	0.60	32	19.0	40	42	92	20	3			450.29	20106								
20	0.60	32	19.0	100	100	150	20	3							492.24	20306				
20	0.60	41	19.0	52	54	104	20	3											482.46	20206

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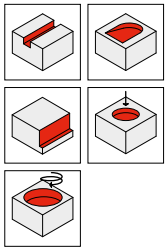
→ v_c/f_z Page 416+417

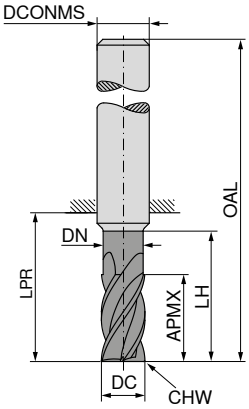
AluLine – Rough milling cutter

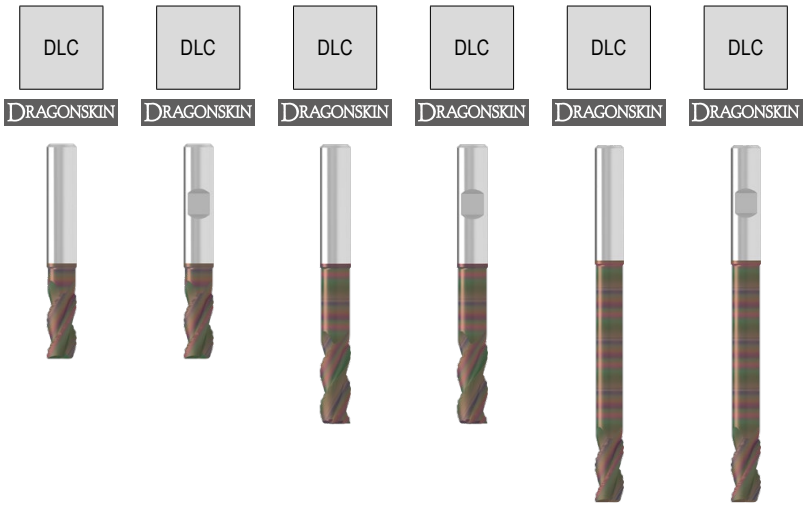
The specialist for machining non-ferrous metals

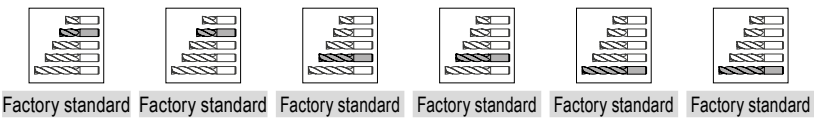
▲ With polished chip flutes

WR | λ_s=38° 40° 43° γ_s=10° | HPC









									Factory standard		Factory standard		Factory standard		Factory standard		Factory standard		Factory standard	
									53 578 ...		53 579 ...		53 578 ...		53 579 ...		53 578 ...		53 579 ...	
DC $_{d11}$	APMX	DN	LH	LPR	OAL	DCONMS $_{h6}$	CHW	ZEFP	£		£		£		£		£		£	
mm	mm	mm	mm	mm	mm	mm	mm		V1/5B		V1/5B		V1/5B		V1/5B		V1/5B		V1/5B	
6	13	5.8	18	22	58	6	0.4	3	68.52	06100	68.52	06100								
6	16	5.8	30	34	70	6	0.4	3					72.73	06200	72.73	06200				
6	13	5.8	48	52	88	6	0.4	3									79.70	06400	79.70	06400
8	17	7.7	24	28	64	8	0.4	3	83.91	08100	83.91	08100								
8	21	7.7	40	44	80	8	0.4	3					99.30	08200	99.30	08200				
8	17	7.7	65	68	104	8	0.4	3									110.47	08400	110.47	08400
10	21	9.7	30	34	74	10	0.4	3	106.27	10100	106.27	10100								
10	26	9.7	50	54	94	10	0.4	3					137.04	10200	137.04	10200				
10	21	9.7	80	84	124	10	0.4	3									156.63	10400	156.63	10400
12	25	11.6	36	40	85	12	0.4	3	137.04	12100	137.04	12100								
12	31	11.6	60	64	109	12	0.4	3					195.79	12200	195.79	12200				
12	25	11.6	96	100	145	12	0.4	3									220.95	12400	220.95	12400
16	33	15.5	48	52	100	16	0.4	3			213.95	16100								
16	41	15.5	80	84	132	16	0.4	3							345.41	16200				
16	33	15.5	128	132	180	16	0.4	3											450.29	16400
20	42	19.5	60	64	114	20	0.4	3			325.82	20100								
20	52	19.5	100	104	154	20	0.4	3							560.76	20200				
20	42	19.5	160	164	214	20	0.4	3											743.95	20400

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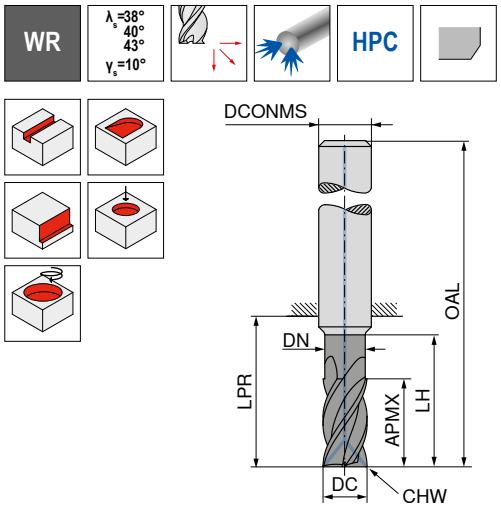
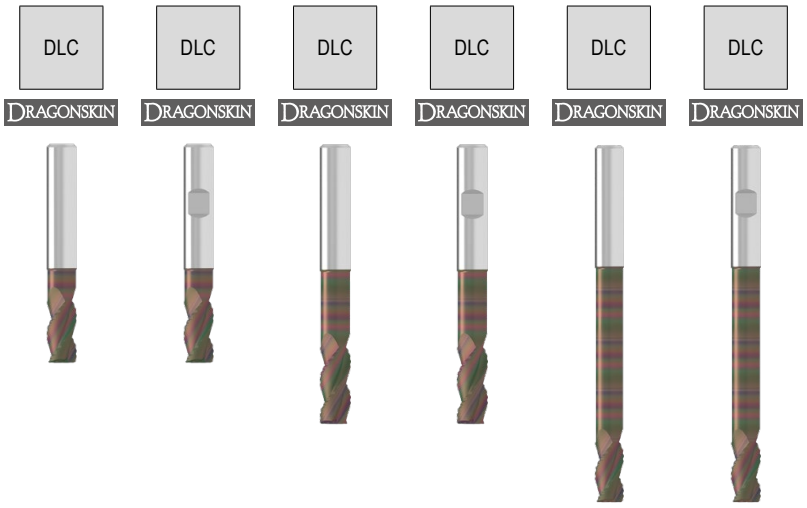
→ v_c/f_z Page 414+415

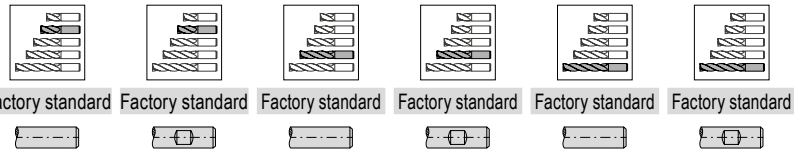
AluLine – Rough milling cutter

The specialist for machining non-ferrous metals

▲ With polished chip flutes







DC $_{d11}$	APMX	DN	LH	LPR	OAL	DCONMS $_{h6}$	CHW	ZEFP	53 580 ... £ V1/5B		53 581 ... £ V1/5B		53 580 ... £ V1/5B		53 581 ... £ V1/5B		53 580 ... £ V1/5B		53 581 ... £ V1/5B	
mm	mm	mm	mm	mm	mm	mm	mm													
6	13	5.8	18	22	58	6	0.4	3	86.71	**06100**	86.71	**06100**								
6	16	5.8	30	34	70	6	0.4	3					97.89	**06200**	97.89	**06200**				
6	13	5.8	48	52	88	6	0.4	3									110.47	**06400**	110.47	**06400**
8	17	7.7	24	28	64	8	0.4	3	110.47	**08100**	110.47	**08100**								
8	21	7.7	40	44	80	8	0.4	3					127.26	**08200**	127.26	**08200**				
8	17	7.7	64	68	104	8	0.4	3									148.22	**08400**	148.22	**08400**
10	21	9.7	30	34	74	10	0.4	3	151.04	**10100**	151.04	**10100**								
10	26	9.7	50	54	94	10	0.4	3					183.20	**10200**	183.20	**10200**				
10	21	9.7	80	84	124	10	0.4	3									239.15	**10400**	239.15	**10400**
12	25	11.6	36	40	85	12	0.4	3	223.75	**12100**	223.75	**12100**								
12	31	11.6	60	64	109	12	0.4	3					229.34	**12200**	229.34	**12200**				
12	25	11.6	96	100	145	12	0.4	3									297.86	**12400**	297.86	**12400**
16	33	15.5	48	52	100	16	0.4	3			346.81	**16100**								
16	41	15.5	80	84	132	16	0.4	3							475.46	**16200**				
16	33	15.5	128	132	180	16	0.4	3											827.86	**16400**
20	42	19.5	60	64	114	20	0.4	3			704.81	**20100**								
20	52	19.5	100	104	154	20	0.4	3							716.01	**20200**				
20	42	19.5	160	164	214	20	0.4	3											1,264.17	**20400**

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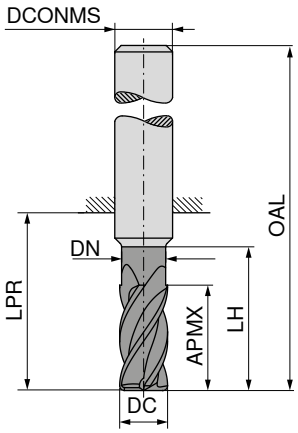
→ v_c/f_z Page 414+415

AluLine – High Accuracy Finish Milling Cutter

The specialist for machining non-ferrous metals

▲ max. taper of 0.003 mm for high precision and parallelism of vertical walls
▲ Tool with cutting edge correction

W | λ_s=44° γ_s=20° | HPC





Factory standard | Factory standard | Factory standard

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 639 ... £ V1/5B		53 639 ... £ V1/5B		53 639 ... £ V1/5B	
6	16	5.7	20	22	58	6	6	111.88	**06100**				
6	16	5.7	42	44	80	6	6					130.06	**06400**
8	19	7.4	26	28	64	8	6	123.06	**08100**				
8	19	7.4	62	64	100	8	6					146.83	**08400**
10	25	9.2	32	34	74	10	6	160.82	**10100**				
10	25	9.2	58	60	100	10	6					230.74	**10400**
12	30	11.0	37	39	84	12	6	197.18	**12100**				
12	30	11.0	73	75	120	12	6					296.46	**12400**
12	45			75	120	12	6			187.38	**12200**		
16	40	15.0	44	45	93	16	6	397.15	**16100**				
16	40	15.0	100	102	150	16	6					605.51	**16400**
16	65			102	150	16	6			321.63	**16200**		
20	50	19.0	53	54	104	20	6	571.96	**20100**				
20	50	19.0	98	100	150	20	6					748.16	**20400**
20	75			100	150	20	6			689.42	**20200**		

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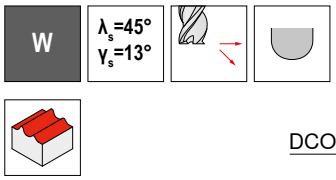
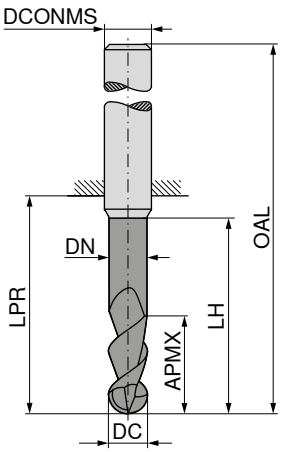
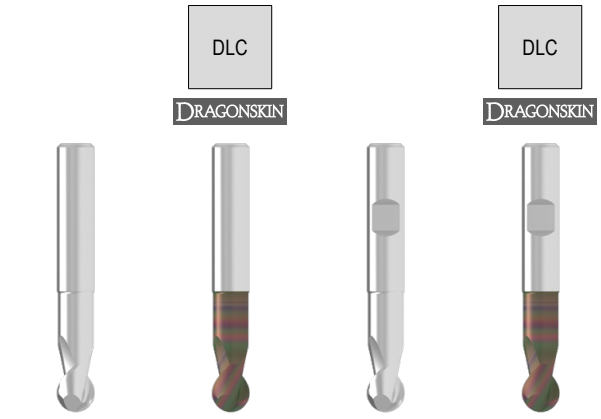
→ v_c/f_z Page 416+417

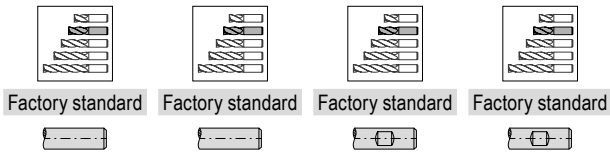
AluLine – Ball Nosed Cutter

The specialist for machining non-ferrous metals







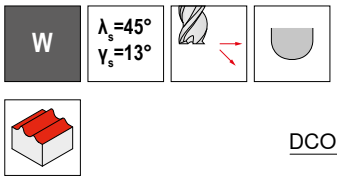


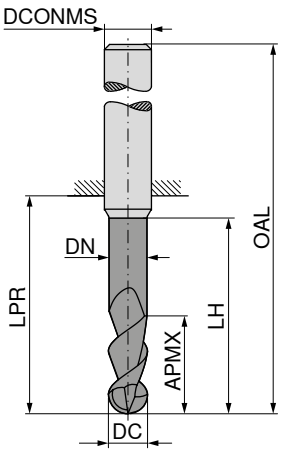
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ... £ V1/5B		53 608 ... £ V1/5B		53 609 ... £ V1/5B		53 610 ... £ V1/5B	
3	6	2.7	16	22	50	3	2	50.33	**03100**	64.32	**03100**				
4	7	3.7	17	26	54	4	2	62.92	**04100**	75.51	**04100**				
5	8	4.6	18	26	54	5	2	71.32	**05100**	86.71	**05100**				
6	10	5.5	21	26	62	6	2	69.93	**06100**	85.30	**06100**	69.93	**06100**	85.30	**06100**
8	12	7.5	27	31	67	8	2	92.29	**08100**	110.47	**08100**	92.29	**08100**	110.47	**08100**
10	13	9.4	32	34	74	10	2	125.85	**10100**	145.43	**10100**	125.85	**10100**	145.43	**10100**
12	16	11.4	38	48	93	12	2	173.40	**12100**	201.38	**12100**	173.40	**12100**	201.38	**12100**
14	16	13.2	38	55	100	14	2	219.55	**14100**	255.91	**14100**	219.55	**14100**	255.91	**14100**
16	20	15.0	44	52	100	16	2	288.07	**16100**	331.42	**16100**	288.07	**16100**	331.42	**16100**
20	25	19.0	50	54	104	20	2	406.93	**20100**	465.67	**20100**	406.93	**20100**	465.67	**20100**
P															
M															
K															
N								●		●		●		●	
S															
H															
O								○		○		○		○	

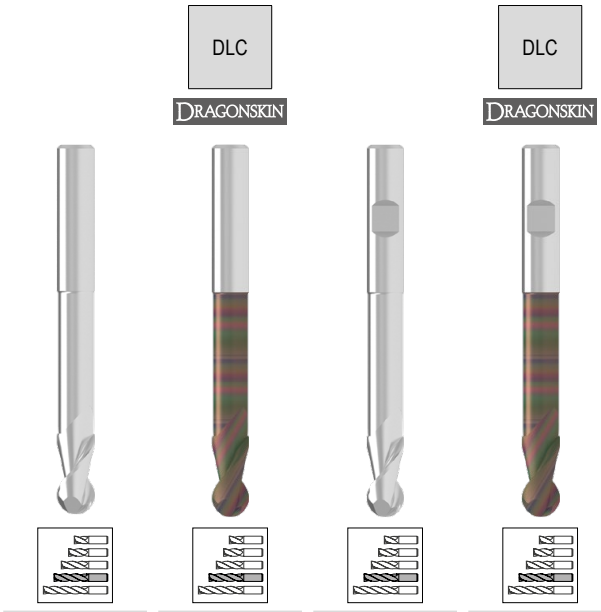
→ v_c/f_z Page 416+417

AluLine – Ball Nosed Cutter

The specialist for machining non-ferrous metals







Factory standard | Factory standard | Factory standard | Factory standard

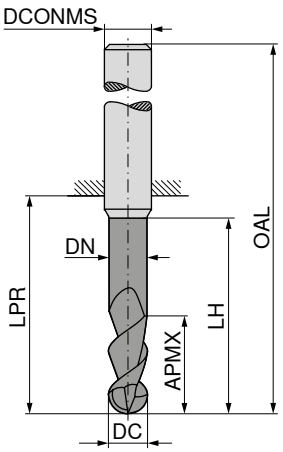
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ... £ V1/5B		53 608 ... £ V1/5B		53 609 ... £ V1/5B		53 610 ... £ V1/5B	
3	10	2.7	32	47	75	3	2	60.14	**03200**	75.51	**03200**				
4	13	3.7	36	47	75	4	2	75.51	**04200**	90.90	**04200**				
5	15	4.6	40	47	75	5	2	86.71	**05200**	103.49	**05200**				
6	16	5.5	44	64	100	6	2	83.91	**06200**	100.69	**06200**	83.91	**06200**	100.69	**06200**
8	22	7.5	54	64	100	8	2	111.88	**08200**	128.66	**08200**	111.88	**08200**	128.66	**08200**
10	25	9.4	60	61	101	10	2	151.04	**10200**	170.61	**10200**	151.04	**10200**	170.61	**10200**
12	26	11.4	60	63	108	12	2	208.36	**12200**	236.33	**12200**	208.36	**12200**	236.33	**12200**
14	26	13.2	60	65	110	14	2	262.90	**14200**	299.26	**14200**	262.90	**14200**	299.26	**14200**
16	30	15.0	92	102	150	16	2	404.15	**16200**	446.10	**16200**	404.15	**16200**	446.10	**16200**
20	40	19.0	92	100	150	20	2	488.06	**20200**	546.77	**20200**	488.06	**20200**	546.77	**20200**
P															
M															
K															
N								●		●		●		●	
S															
H															
O								○		○		○		○	

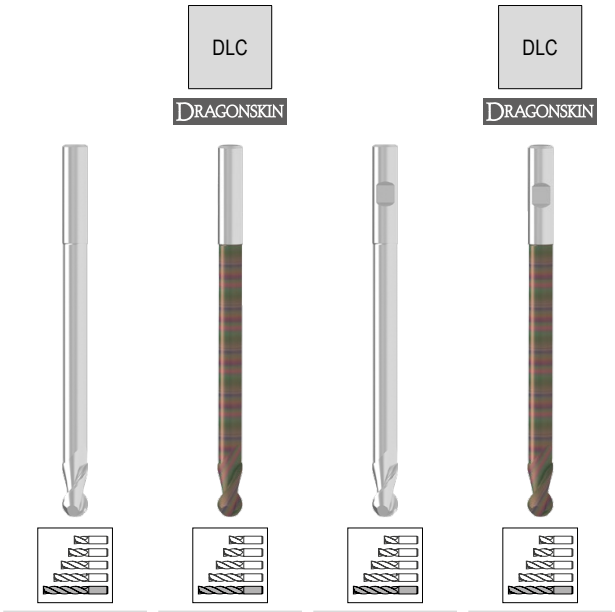
→ v_c/f_z Page 416+417

AluLine – Ball Nosed Cutter

The specialist for machining non-ferrous metals

W | λ_s=45° γ_s=13°





Factory standard | Factory standard | Factory standard | Factory standard

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ... £ V1/5B		53 608 ... £ V1/5B		53 609 ... £ V1/5B		53 610 ... £ V1/5B	
3	10	2.7	82	97	125	3	2	81.11	**03400**	93.70	**03400**				
4	13	3.7	86	97	125	4	2	100.69	**04400**	113.26	**04400**				
6	16	5.5	94	114	150	6	2	114.67	**06400**	130.06	**06400**	114.67	**06400**	130.06	**06400**
8	22	7.5	104	114	150	8	2	111.88	**08400**	128.66	**08400**	111.88	**08400**	128.66	**08400**
10	25	9.4	110	111	151	10	2	201.38	**10400**	220.95	**10400**	201.38	**10400**	220.95	**10400**
12	26	11.4	105	106	151	12	2	278.30	**12400**	304.86	**12400**	278.30	**12400**	304.86	**12400**
16	30	15.0	192	202	250	16	2	577.55	**16400**	620.90	**16400**	577.55	**16400**	620.90	**16400**

P				
M				
K				
N	●	●	●	●
S				
H				
O	○	○	○	○

→ v_c/f_z Page 416+417

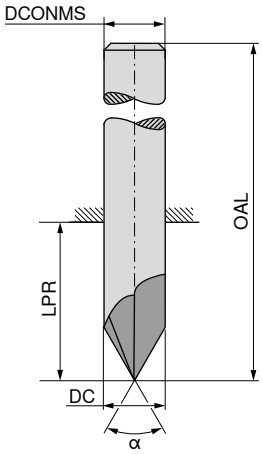
14

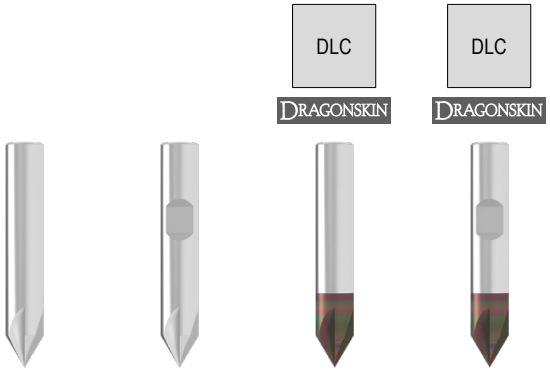
AluLine – NC deburring cutter

The specialist for machining non-ferrous metals

▲ Point angle α = 60°

W | λ_s=0° γ_s=8°





DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	α = 60° Factory standard 53 666 ... £ V1	α = 60° Factory standard 53 667 ... £ V1	α = 60° Factory standard 53 662 ... £ V1	α = 60° Factory standard 53 663 ... £ V1
4	50	22	4	4	38.52 **04000**		45.11 **04000**	
6	55	19	6	4	42.97 **06000**	42.97 **06000**	49.58 **06000**	49.58 **06000**
8	58	22	8	4	50.23 **08000**	50.23 **08000**	57.66 **08000**	57.66 **08000**
10	60	20	10	4	70.92 **10000**	70.92 **10000**	79.87 **10000**	79.87 **10000**
12	70	25	12	4	79.87 **12000**	79.87 **12000**	90.07 **12000**	90.07 **12000**
16	80	32	16	4	133.00 **16000**	133.00 **16000**	146.80 **16000**	146.80 **16000**

P				
M				
K				
N	●	●	●	●
S				
H				
O	●	●	●	●

→ v_c/f_z Page 419

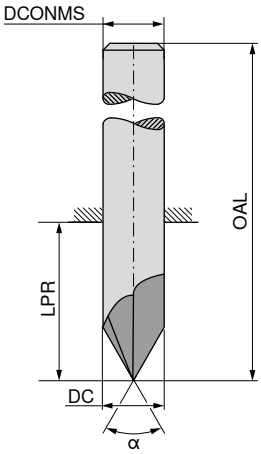
AluLine – NC deburring cutter

The specialist for machining non-ferrous metals

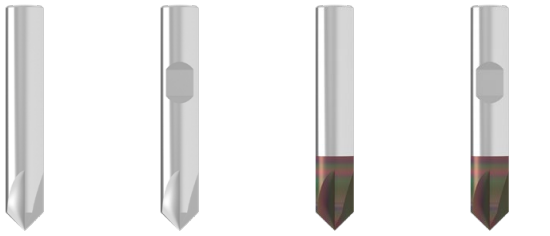
▲ Point angle α = 90°

W | λ_s=0° γ_s=8°





DLC DRAGONSKIN | DLC DRAGONSKIN



	α = 90° Factory standard	α = 90° Factory standard	α = 90° Factory standard	α = 90° Factory standard
				
	53 664 ...	**53 665 ...**	**53 660 ...**	**53 661 ...**
DC mm	£ V1	£ V1	£ V1	£ V1
4	38.52 **04000**		45.11 **04000**	
6	42.97 **06000**	42.97 **06000**	49.58 **06000**	49.58 **06000**
8	50.23 **08000**	50.23 **08000**	57.66 **08000**	57.66 **08000**
10	70.92 **10000**	70.92 **10000**	79.87 **10000**	79.87 **10000**
12	79.87 **12000**	79.87 **12000**	90.07 **12000**	90.07 **12000**
16	133.00 **16000**	133.00 **16000**	146.80 **16000**	146.80 **16000**

P				
M				
K				
N	●	●	●	●
S				
H				
O	●	●	●	●

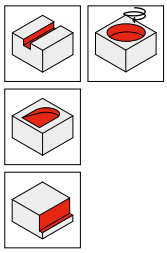
→ v_c/f_z Page 419

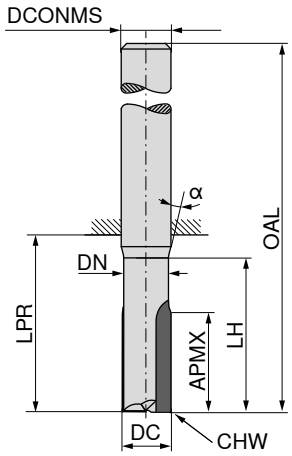
PCD end mill

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

▲ Transition angle α = 45°









DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 010 ... £ V1/5B		50 010 ... £ V1/5B	
3	6	2.8	11	21	57	6	0.15	2	315.79	**03100**		
3	6	2.8	22	64	100	6	0.15	2			325.49	**03300**
4	8	3.5	13	21	57	6	0.15	2	350.14	**04100**		
4	8	3.5	26	64	100	6	0.15	2			360.02	**04300**
5	10	4.4	15	21	57	6	0.15	2	379.63	**05100**		
5	10	4.4	30	64	100	6	0.15	2			389.51	**05300**
6	12	5.4	19	21	57	6	0.15	2	419.00	**06100**		
6	12	5.4	38	64	100	6	0.15	2			428.73	**06300**
8	16	7.2	26	28	64	8	0.15	2	547.77	**08100**		
8	16	7.2	52	64	100	8	0.15	2			567.55	**08300**
10	20	9.0	31	34	74	10	0.15	2	651.00	**10100**		
10	20	9.0	60	60	100	10	0.15	2			660.89	**10300**
P												
M												
K												
N										●		●
S												
H												
O										●		●

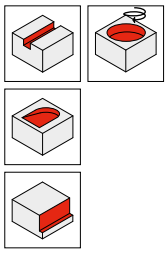
→ v_c/f_z Page 412+413

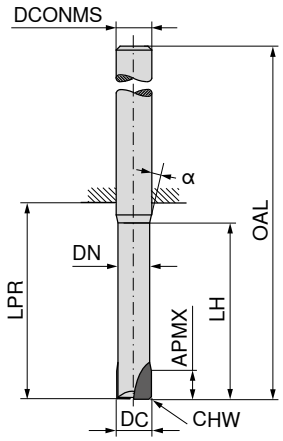
PCD end mill

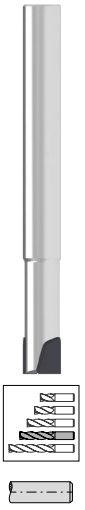
The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

▲ Transition angle α = 15°









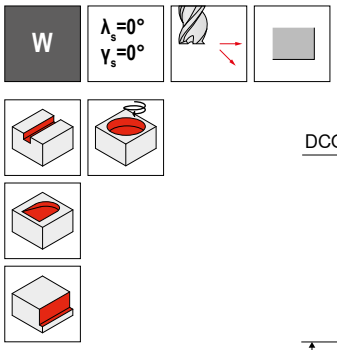
DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 011 ... £ V1/5B	
2	2.0	1.7	6	39	75	6	0.1	1	237.02	**02100**
2	2.0	1.7	10	39	75	6	0.1	1	237.02	**02300**
2	2.0	1.7	14	39	75	6	0.1	1	237.02	**02200**
3	2.5	2.5	9	39	75	6	0.2	2	286.11	**03100**
3	2.5	2.5	15	39	75	6	0.2	2	286.11	**03300**
3	2.5	2.5	21	39	75	6	0.2	2	286.11	**03200**
4	2.5	3.5	12	39	75	6	0.2	2	296.01	**04100**
4	2.5	3.5	20	39	75	6	0.2	2	296.01	**04300**
4	2.5	3.5	28	39	75	6	0.2	2	296.01	**04200**
5	3.0	4.4	15	39	75	6	0.2	2	310.75	**05100**
5	3.0	4.4	25	39	75	6	0.2	2	310.75	**05300**
5	3.0	4.4	35	39	75	6	0.2	2	310.75	**05200**
6	6.0	5.4	18	64	100	6	0.2	2	364.89	**06100**
6	6.0	5.4	30	64	100	6	0.2	2	364.89	**06300**
6	6.0	5.4	42	64	100	6	0.2	2	364.89	**06200**
8	7.0	7.2	24	64	100	8	0.2	2	474.02	**08100**
8	7.0	7.2	40	64	100	8	0.2	2	474.02	**08300**
10	8.0	9.0	30	60	100	10	0.2	2	537.89	**10100**
10	8.0	9.0	50	60	100	10	0.2	2	537.89	**10300**
12	9.0	11.0	36	60	105	12	0.2	2	601.90	**12100**
12	9.0	11.0	58	60	105	12	0.2	2	601.90	**12300**

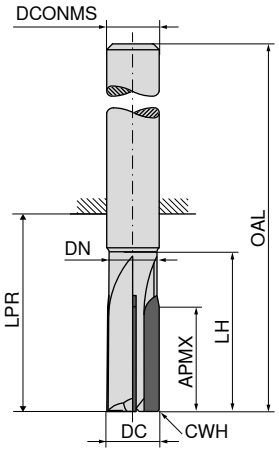
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 412+413

PCD end mill

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics







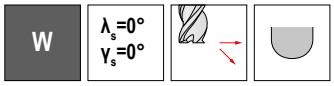
DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 013 ... £ V1/5B		50 013 ... £ V1/5B	
6	12	5.4	19	21	57	6	0.05	4	620.60	**06100**		
6	12	5.4	38	64	100	6	0.05	4			630.50	**06200**
8	16	7.2	26	28	64	8	0.05	4	823.10	**08100**		
8	16	7.2	52	64	100	8	0.05	4			837.85	**08200**
10	20	9.0	31	34	74	10	0.10	4	1,014.97	**10100**		
10	20	9.0	62	60	100	10	0.10	4			1,029.71	**10200**
12	24	11.0	37	39	84	12	0.10	4	1,162.42	**12100**		
12	24	11.0	73	70	115	12	0.10	4			1,187.08	**12200**
16	32	15.0	44	45	93	16	0.20	4	1,531.28	**16100**		
16	32	15.0	88	90	130	16	0.20	4			1,605.00	**16200**
20	38	19.0	53	54	104	20	0.20	4	1,875.64	**20100**		
20	38	19.0	105	110	160	20	0.20	4			1,994.34	**20200**
P												
M												
K												
N										●		●
S												
H												
O										●		●

→ v_c/f_z Page 412+413

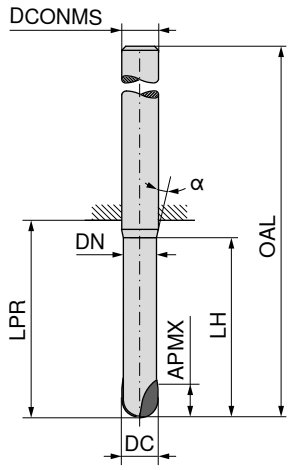
PCD radius cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

▲ Transition angle α = 15°









DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 014 ... £ V1/5B	
2	2.0	1.7	6	39	75	6	1	241.88	02100
2	2.0	1.7	10	39	75	6	1	241.88	02200
2	2.0	1.7	14	39	75	6	1	241.88	02300
2	2.0	1.7	35	39	75	6	1	241.88	02400
3	2.5	2.5	9	39	75	6	2	286.11	03100
3	2.5	2.5	15	39	75	6	2	286.11	03200
3	2.5	2.5	21	39	75	6	2	286.11	03300
3	2.5	2.5	35	39	75	6	2	286.11	03400
4	2.5	3.5	12	39	75	6	2	296.01	04100
4	2.5	3.5	20	39	75	6	2	296.01	04200
4	2.5	3.5	28	39	75	6	2	296.01	04300
4	2.5	3.5	35	39	75	6	2	296.01	04400
5	3.0	4.4	15	39	75	6	2	310.75	05100
5	3.0	4.4	25	39	75	6	2	310.75	05200
5	3.0	4.4	35	39	75	6	2	310.75	05400
6	6.0	5.4	18	64	100	6	2	374.78	06100
6	6.0	5.4	30	64	100	6	2	374.78	06200
6	6.0	5.4	40	64	100	8	2	374.78	06300
6	6.0	5.4	42	64	100	6	2	374.78	06400
8	7.0	7.2	24	64	100	8	2	478.90	08100
8	7.0	7.2	40	64	100	8	2	478.90	08300
8	7.0	7.2	40	60	100	10	2	478.90	08900
10	8.0	9.0	30	60	100	10	2	518.28	10100
10	8.0	9.0	40	55	100	12	2	518.28	10200
10	8.0	9.0	50	60	100	10	2	518.28	10300
12	9.0	11.0	36	60	105	12	2	601.90	12100
12	9.0	11.0	40	55	100	16	2	601.90	12200
12	9.0	11.0	58	60	105	12	2	601.90	12400
16	11.0	15.0	45	82	130	16	2	808.35	16200
16	11.0	15.0	50	82	130	16	2	808.35	16300
20	13.0	19.0	60	110	160	20	2	1,019.83	20400

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→ v_c/f_z Page 412+413

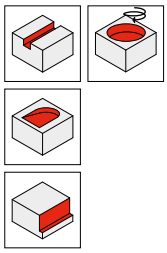
14

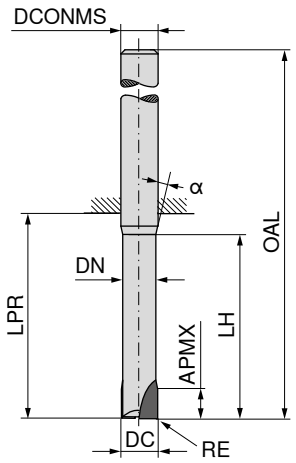
PCD torus cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

▲ Transition angle α = 15°









50 012 ...

DC h7 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
2	0.3	2.0	1.7	6	39	75	6	1	246.56	**02103**
2	0.3	2.0	1.7	10	39	75	6	1	246.56	**02203**
2	0.3	2.0	1.7	14	39	75	6	1	246.56	**02303**
2	0.3	2.0	1.7	35	39	75	6	1	246.56	**02403**
3	0.3	2.5	2.5	9	39	75	6	2	297.62	**03103**
3	0.3	2.5	2.5	15	39	75	6	2	297.62	**03203**
3	0.3	2.5	2.5	21	39	75	6	2	297.62	**03303**
3	0.3	2.5	2.5	35	39	75	6	2	297.62	**03403**
4	0.3	2.5	3.5	12	39	75	6	2	307.88	**04103**
4	0.3	2.5	3.5	20	39	75	6	2	307.88	**04203**
4	0.3	2.5	3.5	28	39	75	6	2	307.88	**04303**
4	0.3	2.5	3.5	35	39	75	6	2	307.88	**04403**
5	0.3	3.0	4.4	15	39	75	6	2	323.18	**05103**
5	0.3	3.0	4.4	25	39	75	6	2	323.18	**05203**
5	0.3	3.0	4.4	35	39	75	6	2	323.18	**05303**
6	0.3	6.0	5.4	18	64	100	6	2	379.43	**06103**
6	0.3	6.0	5.4	30	64	100	6	2	379.43	**06203**
6	0.3	6.0	5.4	42	64	100	6	2	379.43	**06403**
6	0.5	6.0	5.4	18	64	100	6	2	379.43	**06105**
6	0.5	6.0	5.4	30	64	100	6	2	379.43	**06205**
6	0.5	6.0	5.4	42	64	100	6	2	379.43	**06405**
6	1.0	6.0	5.4	18	64	100	6	2	379.43	**06110**
6	1.0	6.0	5.4	40	64	100	8	2	379.43	**06310**
6	1.0	6.0	5.4	42	64	100	6	2	379.43	**06410**
8	0.3	7.0	7.2	24	64	100	8	2	492.93	**08103**
8	0.3	7.0	7.2	40	64	100	8	2	492.93	**08203**
8	0.5	7.0	7.2	24	64	100	8	2	492.93	**08105**
8	0.5	7.0	7.2	40	64	100	8	2	492.93	**08205**
8	1.0	7.0	7.2	24	64	100	8	2	492.93	**08110**
8	1.0	7.0	7.2	40	64	100	8	2	492.93	**08210**
8	2.0	7.0	7.2	24	64	100	8	2	492.93	**08120**
8	2.0	7.0	7.2	40	60	100	10	2	492.93	**08920**
8	2.0	7.0	7.2	40	64	100	8	2	492.93	**08220**
10	0.5	8.0	9.0	30	60	100	10	2	559.46	**10105**
10	0.5	8.0	9.0	50	60	100	10	2	559.46	**10305**
10	1.0	8.0	9.0	30	60	100	10	2	559.46	**10110**
10	1.0	8.0	9.0	50	60	100	10	2	559.46	**10310**
10	1.5	8.0	9.0	30	60	100	10	2	559.46	**10115**

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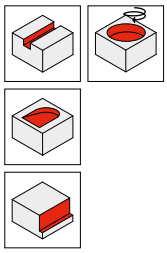
Continued on next page

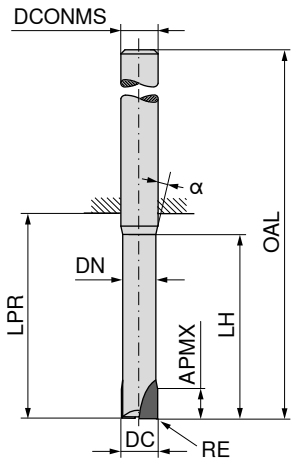
PCD torus cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

▲ Transition angle α = 15°









50 012 ...

DC h7 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
10	1.5	8.0	9.0	50	60	100	10	2	559.46	**10315**
10	2.0	8.0	9.0	30	60	100	10	2	559.46	**10120**
10	2.0	8.0	9.0	50	60	100	10	2	559.46	**10320**
10	3.0	8.0	9.0	30	60	100	10	2	559.46	**10130**
10	3.0	8.0	9.0	40	55	100	12	2	559.46	**10230**
10	3.0	8.0	9.0	50	60	100	10	2	559.46	**10330**
12	0.5	9.0	11.0	36	60	105	12	2	626.00	**12105**
12	0.5	9.0	11.0	58	60	105	12	2	626.00	**12305**
12	1.0	9.0	11.0	36	60	105	12	2	626.00	**12110**
12	1.0	9.0	11.0	58	60	105	12	2	626.00	**12310**
12	1.5	9.0	11.0	36	60	105	12	2	626.00	**12115**
12	1.5	9.0	11.0	58	60	105	12	2	626.00	**12315**
12	4.0	9.0	11.0	40	52	100	16	2	626.00	**12240**
16	3.0	11.0	15.0	45	82	130	16	2	840.72	**16130**
16	5.0	11.0	15.0	50	82	130	16	2	840.72	**16250**
20	6.0	13.0	19.0	60	140	160	20	2	861.23	**20260**

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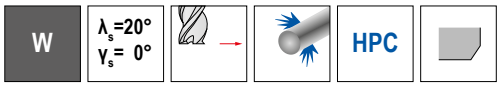
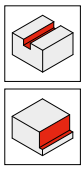
→ v_c/f_z Page 412+413

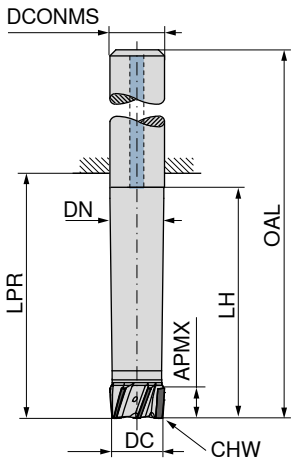
14

PCD end mill

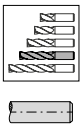
The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics











50 015 ...

DC mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS mm	CHW mm	ZEFP	KOMET no.	£ V8	
10	5	9.6	25.0	27	67	10	0.2	4	38320001001000	1,069.83	**10200**
12	5	11.6	30.0	33	78	12	0.2	4	38320001001200	1,069.83	**12200**
16	11	15.6	40.0	43	91	16	0.2	5	38320001001600	1,202.54	**16200**
20	11	19.6	50.0	54	104	20	0.2	6	38320001002000	1,341.01	**20200**
25	11	24.6	62.5	68	124	25	0.2	8	38320001002500	1,752.47	**25200**
32	11	31.6	80.0	87	147	32	0.2	10	38320001003200	2,240.71	**32200**

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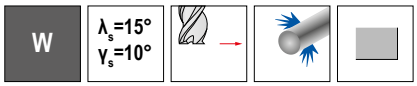
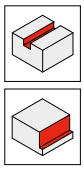
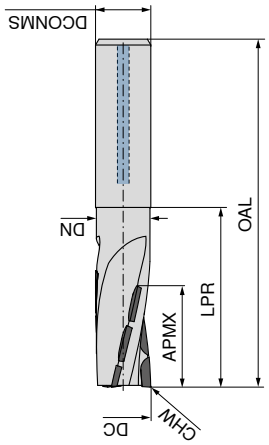
→ v_c/f_z Page 412+413

PCD face and shoulder mill

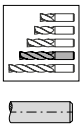
The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics











50 020 ...

DC h7 mm	APMX mm	DN mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	KOMET no.	£ V8	
16	30	15.5	45	93	16	3	38170099001600	1,552.12	**01600**
20	30	19.5	50	100	20	3	38170099002000	1,580.19	**02000**
25	30	24.5	54	110	25	3	38170099002500	1,603.75	**02500**

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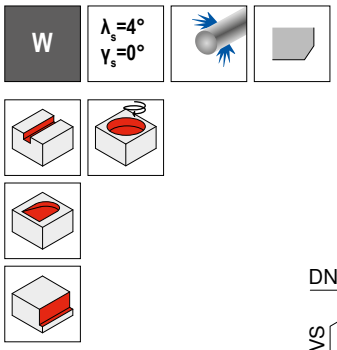
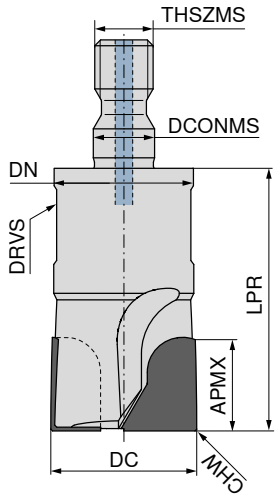
→ v_c/f_z Page 412+413

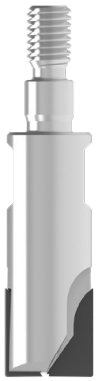
14

PCD drilling slot screw-in cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics







50 016 ...

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	£ V8	
10	10	9.6	28	5.5	0.2	8	2	M5	37340099001000	819.54	**01000**
12	12	9.6	28	5.5	0.2	8	2	M5	37340099001200	897.22	**01200**
16	16	13.8	32	8.5	0.2	13	3	M8	37340099001600	1,076.34	**01600**
20	20	18.0	45	10.5	0.2	16	3	M10	37340099002000	1,311.85	**02000**
25	20	21.0	45	12.6	0.2	18	3	M12	37340099002500	1,658.10	**02500**

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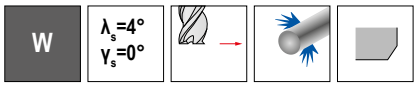
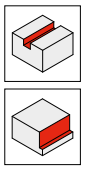
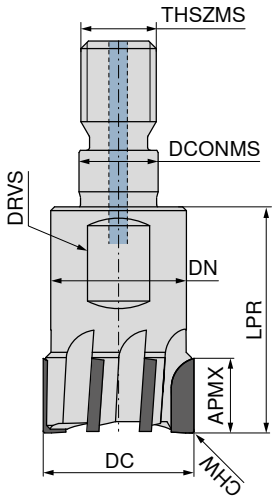
→ v_c/f_z Page 412+413

PCD face screw-in cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics









DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	50 018 ... £ V8	
10	5	9.6	22	5.5	0.2	8	2	M5	37341099001000	661.71	**01000**
12	5	9.6	28	5.5	0.2	8	2	M5	37341099001200	661.71	**01200**
16	10	13.8	28	8.5	0.2	13	3	M8	37341099001600	892.68	**01600**
20	10	18.0	30	10.5	0.2	16	4	M10	37341099002000	1,111.66	**02000**
25	10	21.0	35	12.5	0.2	18	5	M12	37341099002500	1,257.73	**02500**
32	10	29.0	35	17.0	0.2	27	6	M16	37341099003200	1,391.78	**03200**

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→ v_c/f_z Page 412+413

14

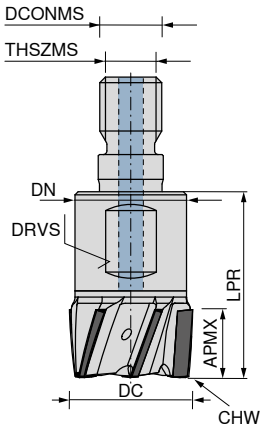
PCD screw-in cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

W | λ_s=20° γ_s= 0° | HPC









50 015 ...

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	£ V8	
10	5	9.6	22	5.5	0.2	8	4	M5	37310001001000	1,051.12	**10100**
12	5	11.5	22	6.5	0.2	10	4	M6	37310099001200	1,065.50	**12100**
16	11	13.8	28	8.5	0.2	13	5	M8	37310001001600	1,182.04	**16100**
20	11	18.0	30	10.5	0.2	16	6	M10	37310001002000	1,322.31	**20100**
25	11	21.0	35	12.5	0.2	18	8	M12	37310001002500	1,597.26	**25100**
32	11	29.0	35	17.0	0.2	27	10	M16	37310001003200	1,879.23	**32100**

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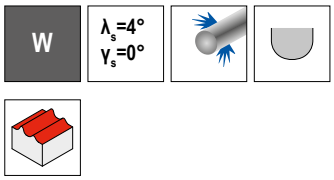
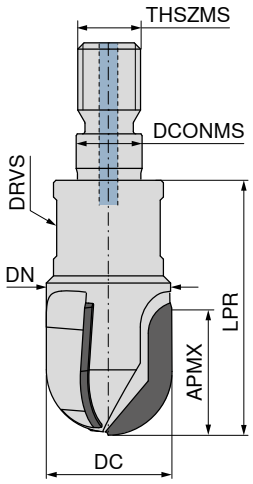
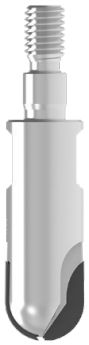
→ v_c/f_z Page 412+413

PCD radius screw-in cutter

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics







DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	DRVS mm	ZEFP	THSZMS	KOMET no.	50 017 ... £ V8	
10	10	9.6	28	5.5	8	2	M5	37340098001000	819.54	**01000**
12	12	9.6	28	5.5	8	2	M5	37340098001200	897.22	**01200**
16	16	13.8	32	8.5	13	3	M8	37340098001600	1,076.34	**01600**

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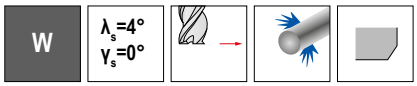
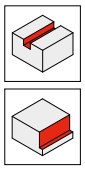
→ v_c/f_z Page 412+413

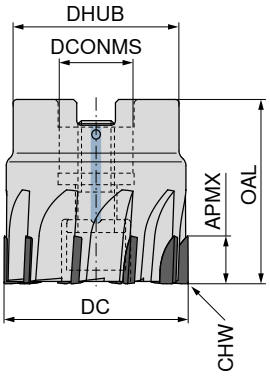
14

PCD face mill

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics









DC mm	OAL mm	DHUB mm	APMX mm	DCONMS H6 mm	CHW mm	ZNF	KOMET no.	50 019 ... £ V8	
40	40	36	10	16	0.2	10	37155099004000	3,328.88	**04000**
50	40	41	10	22	0.2	12	37155099005000	3,967.49	**05000**
63	40	48	10	22	0.2	14	37155099006300	4,599.30	**06300**
80	50	60	10	27	0.2	16	37155099008000	5,072.59	**08000**
100	50	78	10	32	0.2	18	37155099010000	5,695.33	**10000**
125	63	100	10	40	0.2	22	37155099012500	6,653.23	**12500**

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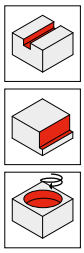
→ v_c/f_z Page 412

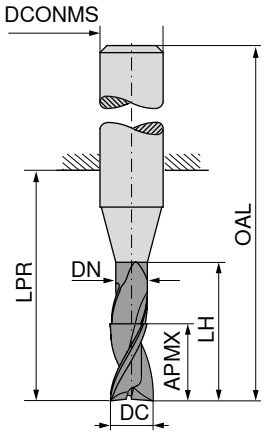
Spare parts can be found in our online shop at cuttingtools.ceratizit.com.

SilverLine – End milling cutter

The all-rounder for universal application

N | λ_s=30° γ_s=14° | HPC





DPB72S

DRAGONSKIN





≈DIN 6527



50 558 ...

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	£ V0/5A	
3.0	8	2.8	15	21	57	6	2	49.70	**03200**
3.5	11	3.3	15	21	57	6	2	49.70	**03700**
4.0	11	3.8	15	21	57	6	2	49.70	**04200**
4.5	13	4.3	21	21	57	6	2	49.70	**04700**
5.0	13	4.8	21	21	57	6	2	49.70	**05200**
5.5	13	5.3	21	21	57	6	2	49.70	**05700**
6.0	13	5.8	21	21	57	6	2	49.70	**06200**
7.0	16	6.8	27	27	63	8	2	57.95	**07200**
8.0	19	7.8	27	27	63	8	2	57.95	**08200**
9.0	19	8.8	32	32	72	10	2	80.61	**09200**
10.0	22	9.8	32	32	72	10	2	80.61	**10200**
11.0	26	10.8	38	38	83	12	2	116.83	**11200**
12.0	26	11.8	38	38	83	12	2	116.83	**12200**
14.0	26	13.8	38	38	83	14	2	145.60	**14200**
15.0	32	14.7	44	44	92	16	2	188.77	**15200**
16.0	32	15.7	44	44	92	16	2	188.77	**16200**
17.0	32	16.7	44	44	92	18	2	229.27	**17200**
18.0	32	17.7	44	44	92	18	2	229.27	**18200**
19.0	38	18.7	54	54	104	20	2	283.73	**19200**
20.0	38	19.7	54	54	104	20	2	283.73	**20200**

P	●
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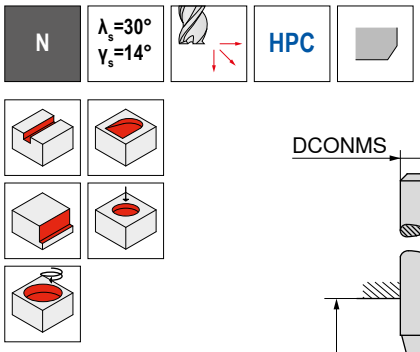
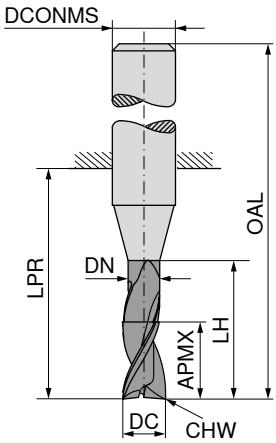
→ v_c/f_z Page 384+385

SilverLine – End milling cutter

The all-rounder for universal application





DPB72S

DRAGONSKIN





≈DIN 6527



50 958 ...

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V0/5A	
3.0	8	2.8	15	21	57	6	0.1	2	65.97	**03200**
3.5	11	3.3	15	21	57	6	0.1	2	65.97	**03700**
4.0	11	3.8	15	21	57	6	0.1	2	65.97	**04200**
4.5	13	4.3	21	21	57	6	0.1	2	65.97	**04700**
5.0	13	4.8	21	21	57	6	0.1	2	65.97	**05200**
5.5	13	5.3	21	21	57	6	0.1	2	65.97	**05700**
6.0	13	5.8	21	21	57	6	0.1	2	65.97	**06200**
7.0	16	6.8	27	27	63	8	0.1	2	76.83	**07200**
8.0	19	7.8	27	27	63	8	0.1	2	76.83	**08200**
9.0	19	8.8	32	32	72	10	0.1	2	106.90	**09200**
10.0	22	9.8	32	32	72	10	0.1	2	106.90	**10200**
11.0	26	10.8	38	38	83	12	0.1	2	154.91	**11200**
12.0	26	11.8	38	38	83	12	0.1	2	154.91	**12200**
14.0	26	13.8	38	38	83	14	0.1	2	193.09	**14200**
15.0	32	14.7	44	44	92	16	0.1	2	250.42	**15200**
16.0	32	15.7	44	44	92	16	0.1	2	250.42	**16200**
17.0	32	16.7	44	44	92	18	0.1	2	304.07	**17200**
18.0	32	17.7	44	44	92	18	0.1	2	304.07	**18200**
19.0	38	18.7	54	54	104	20	0.1	2	376.30	**19200**
20.0	38	19.7	54	54	104	20	0.1	2	376.30	**20200**

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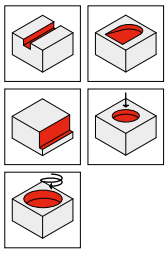
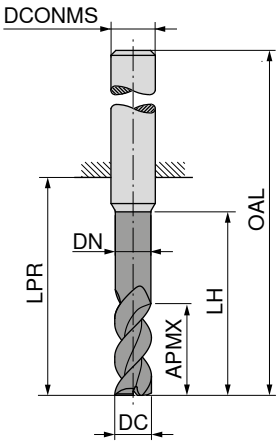
→ v_c/f_z Page 384+385

SilverLine – End milling cutter

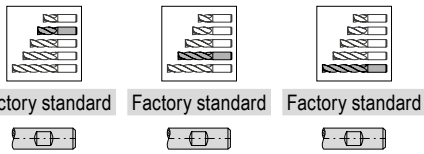
The all-rounder for universal application

N | λ_s=45° γ_s= 5° | HPC









Factory standard | Factory standard | Factory standard

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 992 ... £ V0/5A		50 992 ... £ V0/5A		50 992 ... £ V0/5A	
3.0	8	2.9	15	21	57	6	3			79.95	**03200**		
3.5	11	3.4	16	21	57	6	3			79.95	**03700**		
4.0	8	3.9	15	18	54	6	3	77.10	**04100**				
4.0	11	3.9	16	21	57	6	3			77.10	**04200**		
4.0	16			26	62	6	3					81.29	**04400**
4.5	13	4.4	19	21	57	6	3			79.95	**04700**		
5.0	9	4.9	16	18	54	6	3	77.10	**05100**				
5.0	13	4.9	19	21	57	6	3			77.10	**05200**		
5.0	17			26	62	6	3					81.29	**05400**
5.5	13	5.4	19	21	57	6	3			83.91	**05700**		
6.0	10	5.9	17	18	54	6	3	80.18	**06100**				
6.0	13	5.9	19	21	57	6	3			81.14	**06200**		
6.0	18			26	62	6	3					90.15	**06400**
6.5	19	6.3	25	27	63	8	3			97.55	**06700**		
7.0	19	6.8	25	27	63	8	3			97.55	**07200**		
7.5	19	7.3	25	27	63	8	3			97.55	**07700**		
8.0	12		20	22	58	8	3	91.10	**08100**				
8.0	19	7.8	25	27	63	8	3			94.72	**08200**		
8.0	24			32	68	8	3					101.27	**08400**
8.5	22	8.2	30	32	72	10	3			162.56	**08700**		
9.0	22	8.7	30	32	72	10	3			162.56	**09200**		
9.5	22	9.2	30	32	72	10	3			162.56	**09700**		
10.0	14	9.7	24	26	66	10	3	144.01	**10100**				
10.0	22	9.7	30	32	72	10	3			159.58	**10200**		
10.0	30			40	80	10	3					180.28	**10400**
12.0	16	11.7	26	28	73	12	3	201.92	**12100**				
12.0	26	11.7	36	38	83	12	3			216.11	**12200**		
12.0	36			48	93	12	3					244.68	**12400**
14.0	18	13.7	28	30	75	14	3	249.37	**14100**				
14.0	26	13.7	36	38	83	14	3			285.03	**14200**		
14.0	42			54	99	14	3					316.90	**14400**
16.0	22	15.5	32	34	82	16	3	301.84	**16100**				
16.0	32	15.5	42	44	92	16	3			483.65	**16200**		
16.0	48			60	108	16	3					489.03	**16400**
18.0	24	17.5	34	36	84	18	3	416.46	**18100**				
18.0	32	17.5	42	44	92	18	3			498.56	**18200**		
18.0	54			66	114	18	3					630.52	**18400**
20.0	26	19.5	40	42	92	20	3	510.34	**20100**				
20.0	38	19.5	52	54	104	20	3			581.68	**20200**		
20.0	60			76	126	20	3					728.01	**20400**

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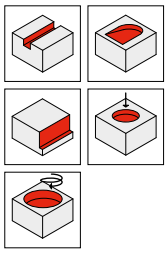
→ v_c/f_z Page 386+387

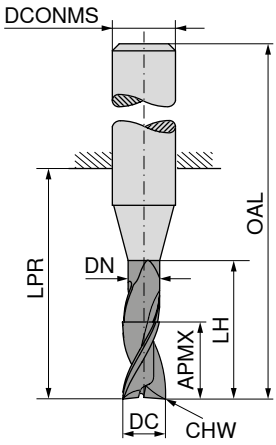
14

SilverLine – End milling cutter

The all-rounder for universal application

N | λ_s=45° γ_s= 5° | HPC











≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527





DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 966 ... £ V0/5A		50 966 ... £ V0/5A		50 966 ... £ V0/5A	
3.0	8	2.9	15	21	57	6	0.1	3			79.95	03200		
3.5	11	3.4	16	21	57	6	0.1	3			79.95	03700		
4.0	8	3.9	15	18	54	6	0.1	3	77.10	04100				
4.0	11	3.9	16	21	57	6	0.1	3			77.10	04200		
4.0	16			26	62	6	0.1	3					81.29	04400
4.5	13	4.4	19	21	57	6	0.1	3			79.95	04700		
5.0	9	4.9	16	18	54	6	0.1	3	77.10	05100				
5.0	13	4.9	19	21	57	6	0.1	3			77.10	05200		
5.0	17			26	62	6	0.1	3					81.29	05400
5.5	13	5.4	19	21	57	6	0.1	3			83.91	05700		
6.0	10	5.9	17	18	54	6	0.2	3	80.18	06100				
6.0	13	5.9	19	21	57	6	0.2	3			81.14	06200		
6.0	18			26	62	6	0.2	3					90.15	06400
6.5	19	6.3	25	27	63	8	0.2	3			97.55	06700		
7.0	19	6.8	25	27	63	8	0.2	3			97.55	07200		
7.5	19	7.3	25	27	63	8	0.2	3			97.55	07700		
8.0	12	7.8	20	22	58	8	0.2	3	91.10	08100				
8.0	19	7.8	25	27	63	8	0.2	3			94.72	08200		
8.0	24			32	68	8	0.2	3					101.27	08400
8.5	22	8.2	30	32	72	10	0.2	3			162.56	08700		
9.0	22	8.7	30	32	72	10	0.2	3			162.56	09200		
9.5	22	9.2	30	32	72	10	0.2	3			162.56	09700		
10.0	14	9.7	24	26	66	10	0.2	3	144.01	10100				
10.0	22	9.7	30	32	72	10	0.2	3			159.58	10200		
10.0	30			40	80	10	0.2	3					180.28	10400
12.0	16	11.7	26	28	73	12	0.2	3	201.92	12100				
12.0	26	11.7	36	38	83	12	0.2	3			216.11	12200		
12.0	36			48	93	12	0.2	3					244.68	12400
14.0	18	13.7	28	30	75	14	0.2	3	249.37	14100				
14.0	26	13.7	36	38	83	14	0.2	3			285.03	14200		
14.0	42			54	99	14	0.2	3					316.90	14400
16.0	22	15.5	32	34	82	16	0.2	3	301.84	16100				
16.0	32	15.5	42	44	92	16	0.2	3			483.65	16200		
16.0	48			60	108	16	0.2	3					489.03	16400
18.0	24	17.5	34	36	84	18	0.2	3	416.46	18100				
18.0	32	17.5	42	44	92	18	0.2	3			498.56	18200		
18.0	54			66	114	18	0.2	3					630.52	18400
20.0	26	19.5	40	42	92	20	0.2	3	510.34	20100				
20.0	38	19.5	52	54	104	20	0.2	3			581.68	20200		
20.0	60			76	126	20	0.2	3					728.01	20400

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M	●	●	●
K	●	●	●
N	○	○	○
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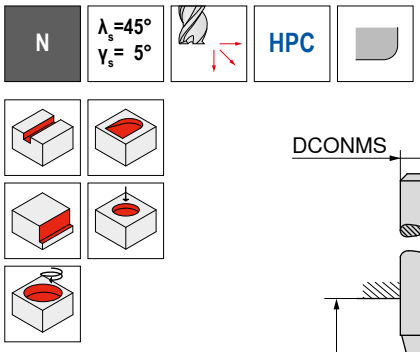
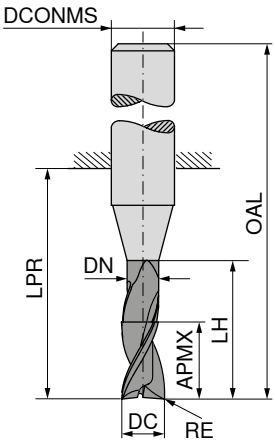
→ v_c/f_z Page 386+387

SilverLine – End milling cutter with corner radius

The all-rounder for universal application











≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527





DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 967 ... £ V0/5A		50 967 ... £ V0/5A		50 967 ... £ V0/5A	
4.0	0.5	8	3.9	15	18	54	6	3	94.03	**04105**				
4.0	0.5	11	3.9	16	21	57	6	3			96.88	**04205**		
4.0	0.5	16			26	62	6	3					102.84	**04405**
5.0	0.5	9	4.9	16	18	54	6	3	94.03	**05105**				
5.0	0.5	13	4.9	19	21	57	6	3			96.88	**05205**		
5.0	0.5	17			26	62	6	3					102.84	**05405**
6.0	0.5	10	5.9	17	18	54	6	3	96.57	**06105**				
6.0	0.5	13	5.9	19	21	57	6	3			112.76	**06205**		
6.0	0.5	18			26	62	6	3					114.09	**06405**
8.0	1.0	12	7.8	20	22	58	8	3	113.56	**08110**				
8.0	1.0	19	7.8	25	27	63	8	3			129.56	**08210**		
8.0	1.0	24			32	68	8	3					135.54	**08410**
10.0	1.0	14	9.7	24	26	66	10	3	204.69	**10110**				
10.0	1.0	22	9.7	30	32	72	10	3			221.83	**10210**		
10.0	1.0	30			40	80	10	3					228.06	**10410**
12.0	1.5	16	11.7	26	28	73	12	3	282.79	**12115**				
12.0	1.5	26	11.7	36	38	83	12	3			301.49	**12215**		
12.0	1.5	36			48	93	12	3					309.62	**12415**
16.0	2.0	22	15.5	32	34	82	16	3	573.21	**16120**				
16.0	2.0	32	15.5	42	44	92	16	3			582.72	**16220**		
16.0	2.0	48			60	108	16	3					618.73	**16420**
20.0	2.0	26	19.5	40	42	92	20	3	829.50	**20120**				
20.0	2.0	38	19.5	52	54	104	20	3			849.41	**20220**		
20.0	2.0	60			76	126	20	3					921.08	**20420**

P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	●	●	●
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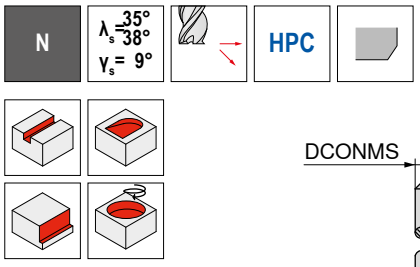
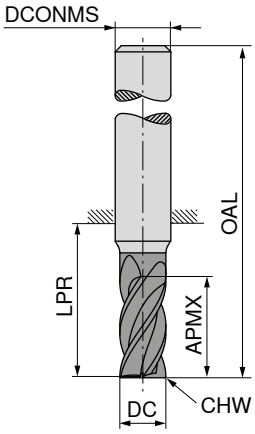
O			

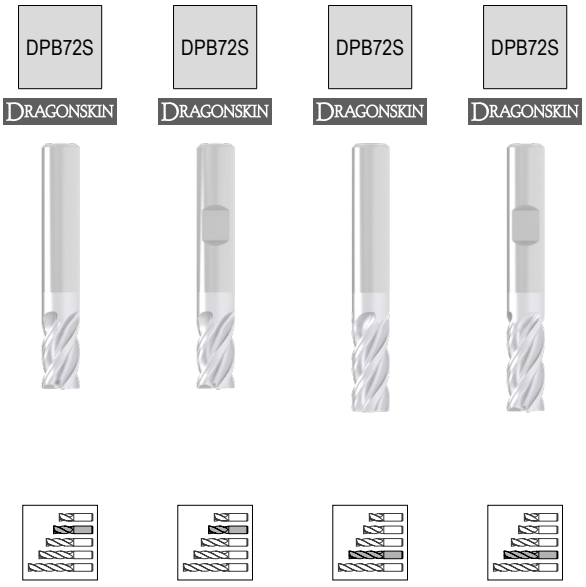
→ v_c/f_z Page 386+387

SilverLine – End milling cutter

The all-rounder for universal application







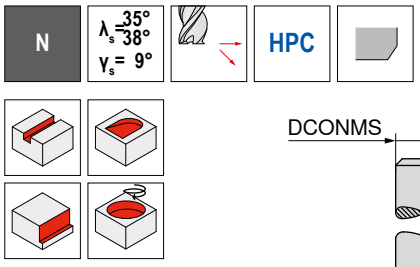
≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

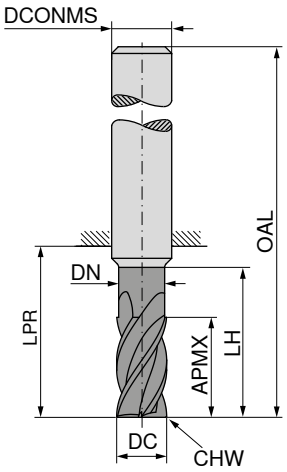
DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 972 ... £ V0/5A	50 973 ... £ V0/5A	50 972 ... £ V0/5A	50 973 ... £ V0/5A
3.0	5	14	50	6	0.1	4	66.16 03100	66.16 03100		
3.0	8	21	57	6	0.1	4			66.16 03200	66.16 03200
3.5	8	18	54	6	0.1	4	66.16 03600	66.16 03600		
3.5	11	21	57	6	0.1	4			66.16 03700	66.16 03700
4.0	8	18	54	6	0.1	4	66.16 04100	66.16 04100		
4.0	11	21	57	6	0.1	4			66.16 04200	66.16 04200
4.5	9	18	54	6	0.1	4	67.55 04600	67.55 04600		
4.5	13	21	57	6	0.1	4			67.55 04700	67.55 04700
5.0	9	18	54	6	0.1	4	67.55 05100	67.55 05100		
5.0	13	21	57	6	0.1	4			67.55 05200	67.55 05200
5.5	10	18	54	6	0.1	4	65.34 05600	65.34 05600		
5.5	13	21	57	6	0.1	4			65.34 05700	65.34 05700
6.0	10	18	54	6	0.1	4	65.34 06100	65.34 06100		
6.0	13	21	57	6	0.1	4			65.34 06200	65.34 06200
7.0	12	22	58	8	0.2	4	86.88 07100	86.88 07100		
7.0	21	27	63	8	0.2	4			86.88 07200	86.88 07200
8.0	12	22	58	8	0.2	4	86.88 08100	86.88 08100		
8.0	21	27	63	8	0.2	4			86.88 08200	86.88 08200
9.0	14	26	66	10	0.2	4	113.40 09100	113.40 09100		
9.0	22	32	72	10	0.2	4			113.40 09200	113.40 09200
10.0	14	26	66	10	0.2	4	113.40 10100	113.40 10100		
10.0	22	32	72	10	0.2	4			113.40 10200	113.40 10200
11.0	16	28	73	12	0.3	4	179.23 11100	179.23 11100		
11.0	26	38	83	12	0.3	4			179.23 11200	179.23 11200
12.0	16	28	73	12	0.3	4	179.23 12100	179.23 12100		
12.0	26	38	83	12	0.3	4			179.23 12200	179.23 12200
14.0	16	28	73	14	0.3	4	230.33 14100	230.33 14100		
14.0	26	38	83	14	0.3	4			230.33 14200	230.33 14200
15.0	22	34	82	16	0.3	4	284.52 15100	284.52 15100		
15.0	36	44	92	16	0.3	4			284.52 15200	284.52 15200
16.0	22	34	82	16	0.3	4	284.52 16100	284.52 16100		
16.0	36	44	92	16	0.3	4			284.52 16200	284.52 16200
17.0	22	34	82	18	0.3	4	386.87 17100	386.87 17100		
17.0	36	44	92	18	0.3	4			386.87 17200	386.87 17200
18.0	22	34	82	18	0.3	4	386.87 18100	386.87 18100		
18.0	36	44	92	18	0.3	4			386.87 18200	386.87 18200
19.0	26	42	92	20	0.3	4	438.99 19100	438.99 19100		
19.0	41	54	104	20	0.3	4			438.99 19200	438.99 19200
20.0	26	42	92	20	0.3	4	438.99 20100	438.99 20100		
20.0	41	54	104	20	0.3	4			438.99 20200	438.99 20200
P							●	●	●	●
M							●	●	●	●
K							●	●	●	●
N							○	○	○	○
S							●	●	●	●
H										
O										

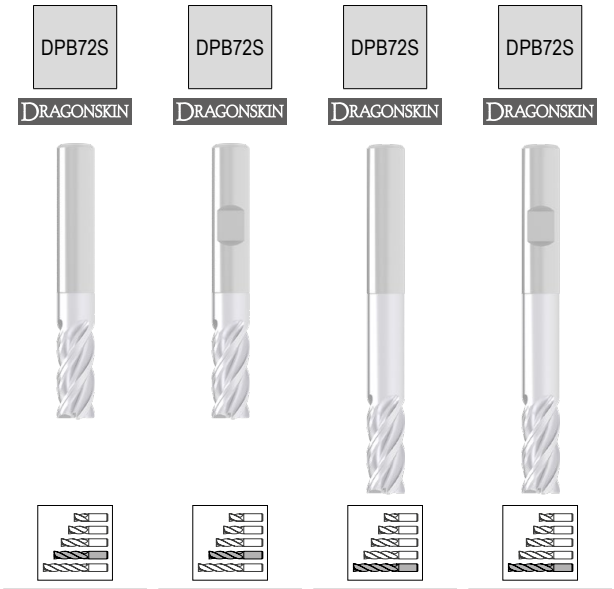
→ v_c/f_z Page 392+393

SilverLine – End milling cutter

The all-rounder for universal application







DIN 6527 | DIN 6527 | DIN 6527 | DIN 6527



DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 974 ... £ V0/5A	50 975 ... £ V0/5A	50 974 ... £ V0/5A	50 975 ... £ V0/5A
3.0	6.5	2.8	9	19	55	6	0.1	4	61.46 **03200**	61.46 **03200**		
3.0	6.5	2.8	15	22	58	6	0.1	4			64.43 **03400**	64.43 **03400**
4.0	8.5	3.8	12	19	55	6	0.1	4	61.46 **04200**	61.46 **04200**		
4.0	8.5	3.8	20	26	62	6	0.1	4			64.43 **04400**	64.43 **04400**
5.0	10.5	4.8	15	22	58	6	0.1	4	61.46 **05200**	61.46 **05200**		
5.0	10.5	4.8	25	34	70	6	0.1	4			64.43 **05400**	64.43 **05400**
6.0	13.0	5.8	18	22	58	6	0.1	4	61.46 **06200**	61.46 **06200**		
6.0	13.0	5.8	30	34	70	6	0.1	4			64.43 **06400**	64.43 **06400**
8.0	17.0	7.7	24	28	64	8	0.2	4	83.80 **08200**	83.80 **08200**		
8.0	17.0	7.7	40	44	80	8	0.2	4			92.22 **08400**	92.22 **08400**
10.0	21.0	9.7	30	34	74	10	0.2	4	122.65 **10200**	122.65 **10200**		
10.0	21.0	9.7	50	54	94	10	0.2	4			135.59 **10400**	135.59 **10400**
12.0	25.0	11.6	36	40	85	12	0.3	4	154.56 **12200**	154.56 **12200**		
12.0	25.0	11.6	60	64	109	12	0.3	4			169.53 **12400**	169.53 **12400**
14.0	29.0	13.6	42	46	91	14	0.3	4	216.64 **14200**	216.64 **14200**		
14.0	29.0	13.6	70	74	119	14	0.3	4			238.27 **14400**	238.27 **14400**
16.0	33.0	15.5	48	52	100	16	0.3	4	346.86 **16200**	346.86 **16200**		
16.0	33.0	15.5	80	84	132	16	0.3	4			381.67 **16400**	381.67 **16400**
18.0	38.0	17.5	54	58	106	18	0.3	4	438.64 **18200**	438.64 **18200**		
18.0	38.0	17.5	90	94	142	18	0.3	4			482.62 **18400**	482.62 **18400**
20.0	42.0	19.5	60	64	114	20	0.3	4	474.48 **20200**	474.48 **20200**		
20.0	42.0	19.5	100	104	154	20	0.3	4			525.40 **20400**	525.40 **20400**

P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	●	●	●	●
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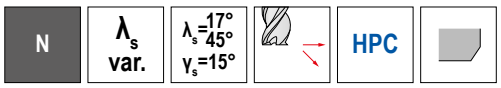
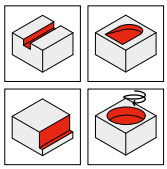
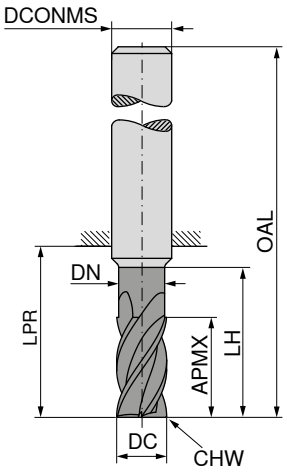
SilverLine – End milling cutter

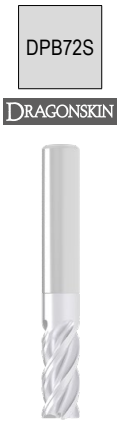
The all-rounder for universal application

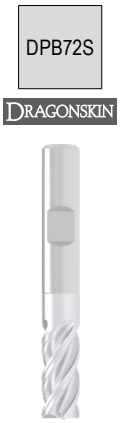
▲ Especially for high-volume milling













DIN 6527





DIN 6527

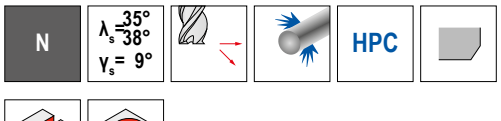


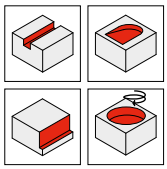
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 976 ... £ V0/5A		50 977 ... £ V0/5A	
3.0	8	2.8	13	21	57	6	0.1	4	92.41	**03200**	92.41	**03200**
4.0	11	3.8	17	21	57	6	0.1	4	92.41	**04200**	92.41	**04200**
5.0	13	4.8	19	21	57	6	0.1	4	92.41	**05200**	92.41	**05200**
6.0	13	5.8	19	21	57	6	0.1	4	97.08	**06200**	97.08	**06200**
8.0	21	7.7	25	27	63	8	0.2	4	111.30	**08200**	111.30	**08200**
10.0	22	9.7	30	32	72	10	0.2	4	191.19	**10200**	191.19	**10200**
12.0	26	11.6	36	38	83	12	0.3	4	259.06	**12200**	259.06	**12200**
14.0	26	13.6	36	38	83	14	0.3	4	381.50	**14200**	381.50	**14200**
16.0	36	15.5	42	44	92	16	0.3	4	483.84	**16200**	483.84	**16200**
18.0	36	17.5	42	44	92	18	0.3	4	667.92	**18200**	667.92	**18200**
20.0	41	19.5	52	54	104	20	0.3	4	695.29	**20200**	695.29	**20200**
P									●		●	
M									●		●	
K									●		●	
N									○		○	
S												
H												
O												

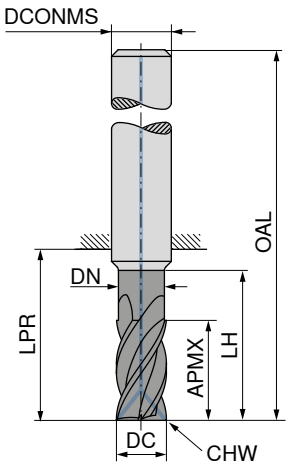
→ v_c/f_z Page 388+389

SilverLine – End milling cutter

The all-rounder for universal application







DPB72S

DRAGONSKIN





DIN 6527



50 978 ...

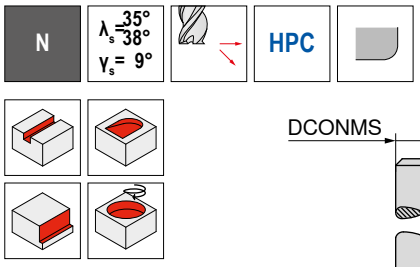
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V0/5A	
6.0	13	5.8	19	21	57	6	0.1	4	183.73	**06200**
8.0	21	7.7	25	27	63	8	0.2	4	214.22	**08200**
10.0	22	9.7	30	32	72	10	0.2	4	242.10	**10200**
12.0	26	11.6	36	38	83	12	0.3	4	338.55	**12200**
14.0	26	13.6	36	38	83	14	0.3	4	519.34	**14200**
16.0	36	15.5	42	44	92	16	0.3	4	519.34	**16200**
18.0	36	17.5	42	44	92	18	0.3	4	691.31	**18200**
20.0	41	19.5	52	54	104	20	0.3	4	691.31	**20200**

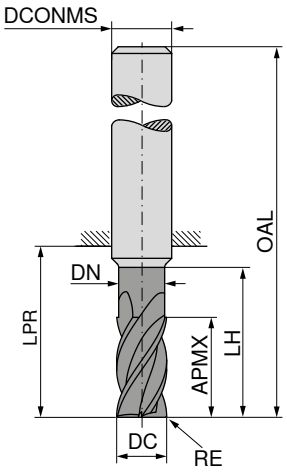
P	●
M	●
K	●
N	○
S	●
H	
O	

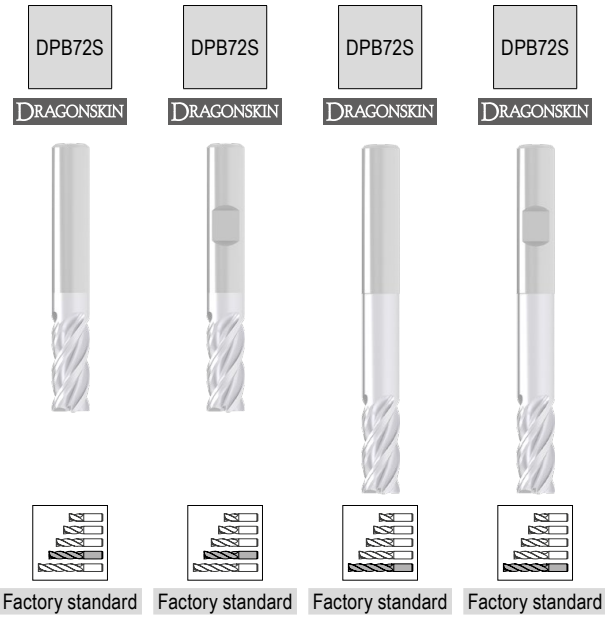
→ v_c/f_z Page 392+393

SilverLine – End milling cutter with corner radius

The all-rounder for universal application







Factory standard | Factory standard | Factory standard | Factory standard

DC f8	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	50 970 ... £ V0/5A		50 971 ... £ V0/5A		50 970 ... £ V0/5A		50 971 ... £ V0/5A	
mm	mm	mm	mm	mm	mm	mm	mm									
3.0	0.10	8.0	2.8	13	21	57	6	4	89.18	03201	89.18	03201				
3.0	0.40	8.0	2.8	13	21	57	6	4	89.18	03204	89.18	03204				
3.0	0.50	8.0	2.8	13	21	57	6	4	89.18	03205	89.18	03205				
3.0	1.00	8.0	2.8	13	21	57	6	4	89.18	03210	89.18	03210				
3.0	0.30	6.5	2.8	15	22	58	6	4					104.81	03403	104.81	03403
3.0	0.50	6.5	2.8	15	22	58	6	4					104.81	03405	104.81	03405
3.0	0.80	6.5	2.8	15	22	58	6	4					104.81	03408	104.81	03408
4.0	0.10	11.0	3.8	17	21	57	6	4	89.18	04201	89.18	04201				
4.0	0.40	11.0	3.8	17	21	57	6	4	89.18	04204	89.18	04204				
4.0	0.50	11.0	3.8	17	21	57	6	4	89.18	04205	89.18	04205				
4.0	1.00	11.0	3.8	17	21	57	6	4	89.18	04210	89.18	04210				
4.0	0.40	8.5	3.8	20	26	62	6	4					104.81	04404	104.81	04404
4.0	0.50	8.5	3.8	20	26	62	6	4					104.81	04405	104.81	04405
4.0	0.80	8.5	3.8	20	26	62	6	4					104.81	04408	104.81	04408
5.0	0.10	13.0	4.8	19	21	57	6	4	90.62	05201	90.62	05201				
5.0	0.50	13.0	4.8	19	21	57	6	4	90.62	05205	90.62	05205				
5.0	1.00	13.0	4.8	19	21	57	6	4	90.62	05210	90.62	05210				
5.0	0.50	10.5	4.8	25	34	70	6	4					106.46	05405	106.46	05405
5.0	0.80	10.5	4.8	25	34	70	6	4					106.46	05408	106.46	05408
6.0	0.10	13.0	5.8	19	21	57	6	4	88.43	06201	88.43	06201				
6.0	0.50	13.0	5.8	19	21	57	6	4	88.43	06205	88.43	06205				
6.0	1.00	13.0	5.8	19	21	57	6	4	88.43	06210	88.43	06210				
6.0	1.50	13.0	5.8	19	21	57	6	4	88.43	06215	88.43	06215				
6.0	0.60	13.0	5.8	30	34	70	6	4					106.46	06406	106.46	06406
6.0	0.80	13.0	5.8	30	34	70	6	4					106.46	06408	106.46	06408
6.0	1.00	13.0	5.8	30	34	70	6	4					106.46	06410	106.46	06410
8.0	0.15	21.0	7.7	25	27	63	8	4	110.87	08202	110.87	08202				
8.0	0.50	21.0	7.7	25	27	63	8	4	110.87	08205	110.87	08205				
8.0	1.00	21.0	7.7	25	27	63	8	4	110.87	08210	110.87	08210				
8.0	1.50	21.0	7.7	25	27	63	8	4	110.87	08215	110.87	08215				
8.0	2.00	21.0	7.7	25	27	63	8	4	110.87	08220	110.87	08220				
8.0	0.80	17.0	7.7	40	44	80	8	4					128.90	08408	128.90	08408
8.0	1.00	17.0	7.7	40	44	80	8	4					128.90	08410	128.90	08410
8.0	1.50	17.0	7.7	40	44	80	8	4					128.90	08415	128.90	08415
8.0	2.00	17.0	7.7	40	44	80	8	4					128.90	08420	128.90	08420
10.0	0.15	22.0	9.7	30	32	72	10	4	138.54	10202	138.54	10202				
10.0	0.50	22.0	9.7	30	32	72	10	4	138.54	10205	138.54	10205				
10.0	1.00	22.0	9.7	30	32	72	10	4	138.54	10210	138.54	10210				
10.0	1.50	22.0	9.7	30	32	72	10	4	138.54	10215	138.54	10215				
10.0	2.00	22.0	9.7	30	32	72	10	4	138.54	10220	138.54	10220				
10.0	0.50	21.0	9.7	50	54	94	10	4					159.44	10405	159.44	10405
10.0	1.00	21.0	9.7	50	54	94	10	4					159.44	10410	159.44	10410
10.0	1.50	21.0	9.7	50	54	94	10	4					159.44	10415	159.44	10415
10.0	2.00	21.0	9.7	50	54	94	10	4					159.44	10420	159.44	10420
12.0	0.20	26.0	11.6	36	38	83	12	4	213.87	12202	213.87	12202				
12.0	0.50	26.0	11.6	36	38	83	12	4	213.87	12205	213.87	12205				
12.0	1.00	26.0	11.6	36	38	83	12	4	213.87	12210	213.87	12210				

P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	●	●	●	●
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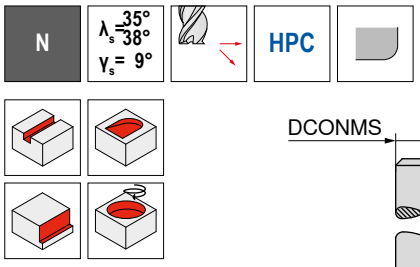
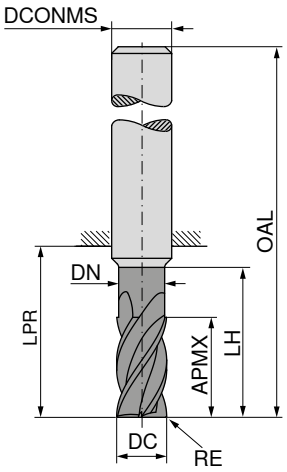
→ v_c/f_z Page 392+393

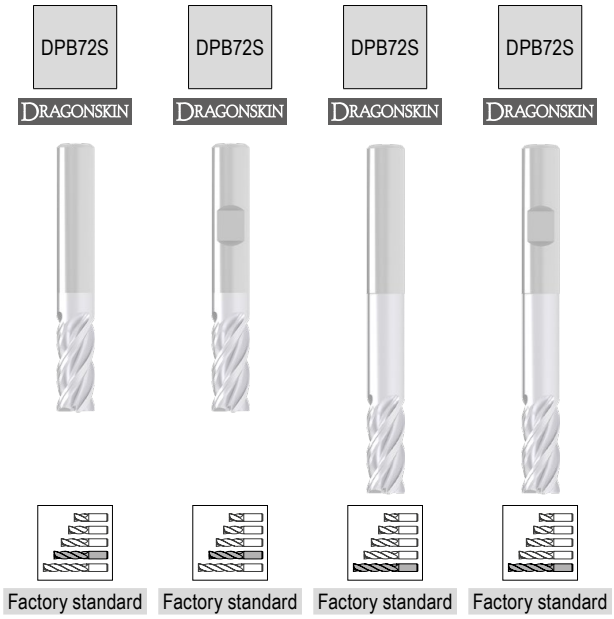
Continued on next page

SilverLine – End milling cutter with corner radius

The all-rounder for universal application







Factory standard | Factory standard | Factory standard | Factory standard

DC f8	RE ±0,05	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	50 970 ... £ V0/5A		50 971 ... £ V0/5A		50 970 ... £ V0/5A		50 971 ... £ V0/5A	
mm	mm	mm	mm	mm	mm	mm	mm									
12.0	1.50	26.0	11.6	36	38	83	12	4	213.87	12215	213.87	12215				
12.0	2.00	26.0	11.6	36	38	83	12	4	213.87	12220	213.87	12220				
12.0	3.00	26.0	11.6	36	38	83	12	4	213.87	12230	213.87	12230				
12.0	4.00	26.0	11.6	36	38	83	12	4	213.87	12240	213.87	12240				
12.0	0.50	25.0	11.6	60	64	109	12	4					242.10	12405	242.10	12405
12.0	1.00	25.0	11.6	60	64	109	12	4					242.10	12410	242.10	12410
12.0	1.50	25.0	11.6	60	64	109	12	4					242.10	12415	242.10	12415
12.0	2.00	25.0	11.6	60	64	109	12	4					242.10	12420	242.10	12420
12.0	3.00	25.0	11.6	60	64	109	12	4					242.10	12430	242.10	12430
12.0	4.00	25.0	11.6	60	64	109	12	4					242.10	12440	242.10	12440
14.0	0.30	26.0	13.6	36	38	83	14	4	323.48	14203	323.48	14203				
14.0	1.00	26.0	13.6	36	38	83	14	4	323.48	14210	323.48	14210				
14.0	2.00	26.0	13.6	36	38	83	14	4	323.48	14220	323.48	14220				
14.0	3.00	26.0	13.6	36	38	83	14	4	323.48	14230	323.48	14230				
14.0	4.00	26.0	13.6	36	38	83	14	4	323.48	14240	323.48	14240				
14.0	1.00	29.0	13.6	70	74	119	14	4					362.80	14410	362.80	14410
14.0	2.00	29.0	13.6	70	74	119	14	4					362.80	14420	362.80	14420
14.0	3.00	29.0	13.6	70	74	119	14	4					362.80	14430	362.80	14430
14.0	4.00	29.0	13.6	70	74	119	14	4					362.80	14440	362.80	14440
16.0	0.30	36.0	15.5	42	44	92	16	4	323.48	16203	323.48	16203				
16.0	1.00	36.0	15.5	42	44	92	16	4	323.48	16210	323.48	16210				
16.0	2.00	36.0	15.5	42	44	92	16	4	323.48	16220	323.48	16220				
16.0	3.00	36.0	15.5	42	44	92	16	4	323.48	16230	323.48	16230				
16.0	4.00	36.0	15.5	42	44	92	16	4	323.48	16240	323.48	16240				
16.0	1.00	33.0	15.5	80	84	132	16	4					397.95	16410	397.95	16410
16.0	2.00	33.0	15.5	80	84	132	16	4					397.95	16420	397.95	16420
16.0	3.00	33.0	15.5	80	84	132	16	4					397.95	16430	397.95	16430
16.0	4.00	33.0	15.5	80	84	132	16	4					397.95	16440	397.95	16440
18.0	1.00	36.0	17.5	42	44	92	18	4	430.32	18210	430.32	18210				
18.0	2.00	36.0	17.5	42	44	92	18	4	430.32	18220	430.32	18220				
18.0	3.00	36.0	17.5	42	44	92	18	4	430.32	18230	430.32	18230				
18.0	4.00	36.0	17.5	42	44	92	18	4	430.32	18240	430.32	18240				
18.0	1.00	38.0	17.5	90	94	142	18	4					480.03	18410	480.03	18410
18.0	2.00	38.0	17.5	90	94	142	18	4					480.03	18420	480.03	18420
18.0	3.00	38.0	17.5	90	94	142	18	4					480.03	18430	480.03	18430
18.0	4.00	38.0	17.5	90	94	142	18	4					480.03	18440	480.03	18440
20.0	0.30	41.0	19.5	52	54	104	20	4	484.54	20203	484.54	20203				
20.0	1.00	41.0	19.5	52	54	104	20	4	484.54	20210	484.54	20210				
20.0	2.00	41.0	19.5	52	54	104	20	4	484.54	20220	484.54	20220				
20.0	3.00	41.0	19.5	52	54	104	20	4	484.54	20230	484.54	20230				
20.0	4.00	41.0	19.5	52	54	104	20	4	484.54	20240	484.54	20240				
20.0	1.00	42.0	19.5	100	104	154	20	4					539.60	20410	539.60	20410
20.0	2.00	42.0	19.5	100	104	154	20	4					539.60	20420	539.60	20420
20.0	3.00	42.0	19.5	100	104	154	20	4					539.60	20430	539.60	20430
20.0	4.00	42.0	19.5	100	104	154	20	4					539.60	20440	539.60	20440

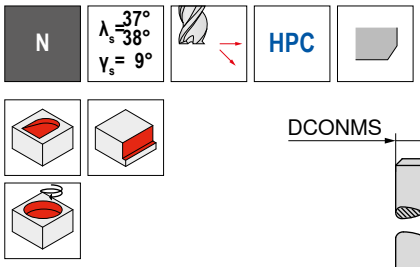
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	●	●	●	●
H				
O				

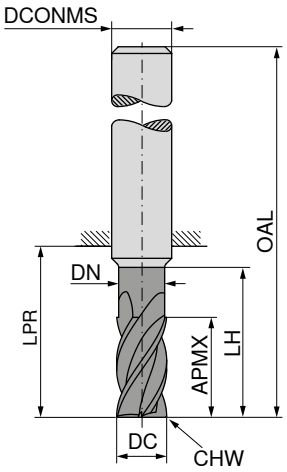
→ v_c/f_z Page 392+393

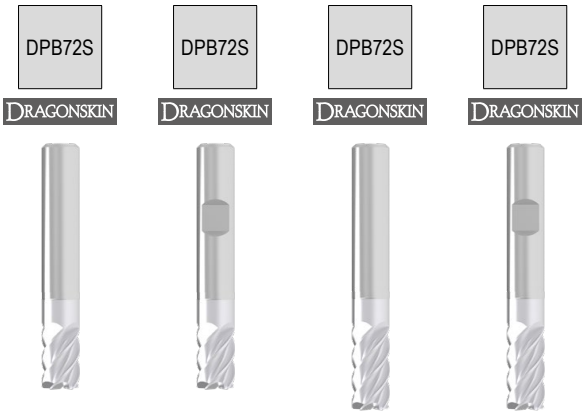
SilverLine – End milling cutter

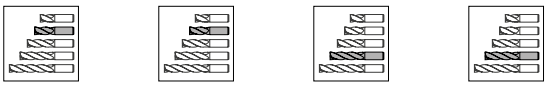
The all-rounder for universal application

N | λ_s = 37° 38° γ_s = 9° | HPC









≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	50 993 ... £ V0/5A		50 995 ... £ V0/5A		50 994 ... £ V0/5A		50 996 ... £ V0/5A	
6	10			18	54	6	0.1	5	54.22	**06100**	54.22	**06100**				
6	13	5.8	19	21	57	6	0.1	5					53.70	**06200**	53.70	**06200**
8	12			22	58	8	0.2	5	72.07	**08100**	72.07	**08100**				
8	21	7.7	25	27	63	8	0.2	5					73.26	**08200**	73.26	**08200**
10	14			26	66	10	0.2	5	94.04	**10100**	94.04	**10100**				
10	22	9.7	30	32	72	10	0.2	5					107.24	**10200**	107.24	**10200**
12	16			28	73	12	0.3	5	148.66	**12100**	148.66	**12100**				
12	26	11.6	36	38	83	12	0.3	5					130.55	**12200**	130.55	**12200**
16	22			34	82	16	0.3	5	235.92	**16100**	235.92	**16100**				
16	36	15.5	42	44	92	16	0.3	5					303.32	**16200**	303.32	**16200**
20	26			42	92	20	0.3	5	363.92	**20100**	363.92	**20100**				
20	41	19.5	52	54	104	20	0.3	5					414.95	**20200**	414.95	**20200**

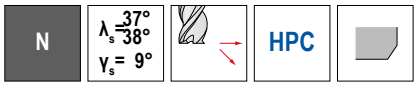
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	●	●	●	●
H				
O				

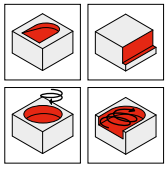
→ v_c/f_z Page 380

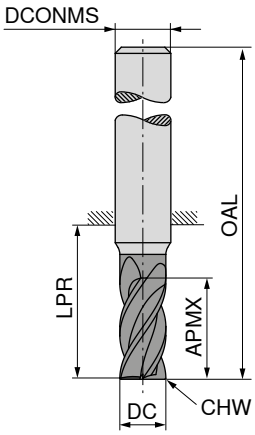
SilverLine – End milling cutter

The all-rounder for universal application

▲ Cutting depth: 3 x DC









≈DIN 6527 ≈DIN 6527

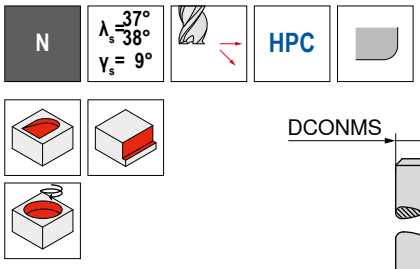
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 999 ... £ V0/5A	50 949 ... £ V0/5A
6	19	26	62	6	0.1	5	64.47 **06200**	64.47 **06200**
8	25	32	68	8	0.2	5	87.93 **08200**	87.93 **08200**
10	31	40	80	10	0.2	5	128.68 **10200**	128.68 **10200**
12	37	48	93	12	0.3	5	156.65 **12200**	156.65 **12200**
16	49	60	108	16	0.3	5	363.92 **16200**	363.92 **16200**
20	61	76	126	20	0.3	5	497.93 **20200**	497.93 **20200**

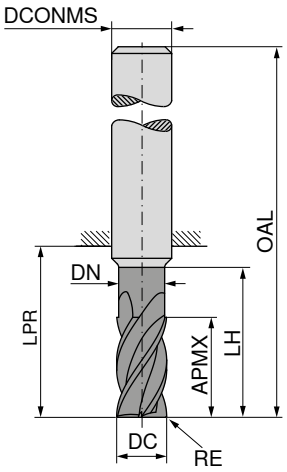
P	●	●
M	●	●
K	●	●
N	○	○
S	●	●
H		
O		

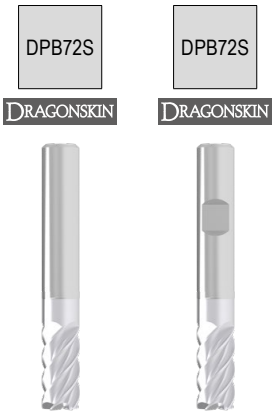
→ v_c/f_z Page 381–383

SilverLine – End milling cutter with corner radius

The all-rounder for universal application











Factory standard

Factory standard

DC h8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 997 ... £ V0/5A		50 998 ... £ V0/5A	
6	0.2	13	5.8	19	21	57	6	5	77.26	06202	77.26	06202
6	0.5	13	5.8	19	21	57	6	5	77.26	06205	77.26	06205
6	1.0	13	5.8	19	21	57	6	5	77.26	06210	77.26	06210
8	0.2	21	7.7	25	27	63	8	5	96.97	08202	96.97	08202
8	0.5	21	7.7	25	27	63	8	5	96.97	08205	96.97	08205
8	1.0	21	7.7	25	27	63	8	5	96.97	08210	96.97	08210
8	1.5	21	7.7	25	27	63	8	5	96.97	08215	96.97	08215
10	0.2	22	9.7	30	32	72	10	5	121.09	10202	121.09	10202
10	0.5	22	9.7	30	32	72	10	5	121.09	10205	121.09	10205
10	1.0	22	9.7	30	32	72	10	5	121.09	10210	121.09	10210
10	1.5	22	9.7	30	32	72	10	5	121.09	10215	121.09	10215
10	1.6	22	9.7	30	32	72	10	5	121.09	10216	121.09	10216
10	2.0	22	9.7	30	32	72	10	5	121.09	10220	121.09	10220
12	0.3	26	11.6	36	38	83	12	5	187.02	12203	187.02	12203
12	0.5	26	11.6	36	38	83	12	5	187.02	12205	187.02	12205
12	1.0	26	11.6	36	38	83	12	5	187.02	12210	187.02	12210
12	1.5	26	11.6	36	38	83	12	5	187.02	12215	187.02	12215
12	1.6	26	11.6	36	38	83	12	5	187.02	12216	187.02	12216
12	2.0	26	11.6	36	38	83	12	5	187.02	12220	187.02	12220
12	2.5	26	11.6	36	38	83	12	5	187.02	12225	187.02	12225
16	0.3	36	15.5	42	44	92	16	5	282.93	16203	282.93	16203
16	0.5	36	15.5	42	44	92	16	5	282.93	16205	282.93	16205
16	1.0	36	15.5	42	44	92	16	5	282.93	16210	282.93	16210
16	1.5	36	15.5	42	44	92	16	5	282.93	16215	282.93	16215
16	1.6	36	15.5	42	44	92	16	5	282.93	16216	282.93	16216
16	2.0	36	15.5	42	44	92	16	5	282.93	16220	282.93	16220
16	2.5	36	15.5	42	44	92	16	5	282.93	16225	282.93	16225
16	3.0	36	15.5	42	44	92	16	5	282.93	16230	282.93	16230
20	0.3	41	19.5	52	54	104	20	5	423.73	20203	423.73	20203
20	0.5	41	19.5	52	54	104	20	5	423.73	20205	423.73	20205
20	1.0	41	19.5	52	54	104	20	5	423.73	20210	423.73	20210
20	1.5	41	19.5	52	54	104	20	5	423.73	20215	423.73	20215
20	1.6	41	19.5	52	54	104	20	5	423.73	20216	423.73	20216
20	2.0	41	19.5	52	54	104	20	5	423.73	20220	423.73	20220
20	2.5	41	19.5	52	54	104	20	5	423.73	20225	423.73	20225
20	3.0	41	19.5	52	54	104	20	5	423.73	20230	423.73	20230
20	4.0	41	19.5	52	54	104	20	5	423.73	20240	423.73	20240

P	●	●
M	●	●
K	●	●
N	○	○
S	●	●
H		
O		

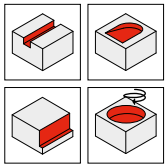
→ v_c/f_z Page 380

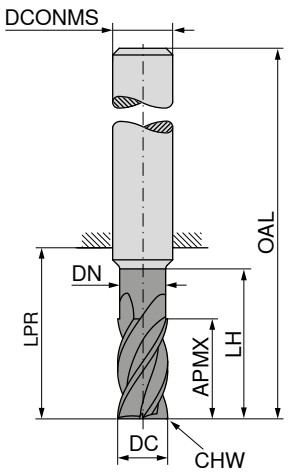
SilverLine – Roughing-Finishing Cutter

The all-rounder for universal application

▲ With rough-finishing profile

NF | λ_s=35° γ_s= 9° | HPC





DPB72S

DRAGONSKIN





DIN 6527



50 969 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V0/5A	
3.0	8	2.8	13	21	57	6	0.1	4	190.50	**03200**
3.5	11	3.3	17	21	57	6	0.1	4	190.50	**03700**
4.0	11	3.8	17	21	57	6	0.1	4	190.50	**04200**
4.5	13	4.3	19	21	57	6	0.1	4	190.50	**04700**
5.0	13	4.8	19	21	57	6	0.1	4	190.50	**05200**
5.5	13	5.3	19	21	57	6	0.1	4	190.50	**05700**
6.0	13	5.8	19	21	57	6	0.1	4	190.50	**06200**
7.0	21	6.7	25	27	63	8	0.2	4	205.21	**07200**
8.0	21	7.7	25	27	63	8	0.2	4	205.21	**08200**
9.0	22	8.7	30	32	72	10	0.2	4	215.59	**09200**
10.0	22	9.7	30	32	72	10	0.2	4	215.59	**10200**
11.0	26	10.6	36	38	83	12	0.3	4	300.98	**11200**
12.0	26	11.6	36	38	83	12	0.3	4	300.98	**12200**
14.0	26	13.6	36	38	83	14	0.3	4	430.85	**14200**
15.0	36	14.5	42	44	92	16	0.3	4	430.85	**15200**
16.0	36	15.5	42	44	92	16	0.3	4	430.85	**16200**
17.0	36	16.5	42	44	92	18	0.3	4	504.28	**17200**
18.0	36	17.5	42	44	92	18	0.3	4	504.28	**18200**
19.0	41	18.5	52	54	104	20	0.3	4	678.65	**19200**
20.0	41	19.5	52	54	104	20	0.3	4	678.65	**20200**

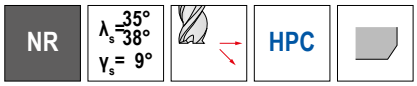
P	●
M	●
K	●
N	○
S	●
H	
O	

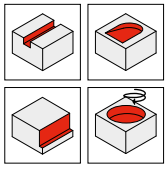
→ v_c/f_z Page 392+393

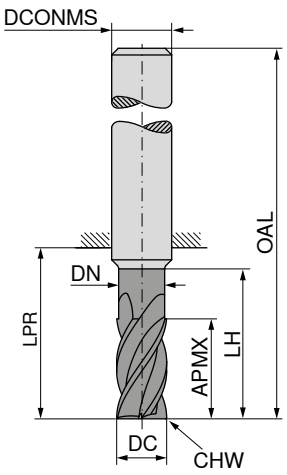
SilverLine – Rough milling cutter

The all-rounder for universal application

▲ With roughing profile







DPB72S

DRAGONSKIN





DIN 6527



50 979 ...

DC d11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V0/5A	
3.0	8	2.8	13	21	57	6	0.1	4	190.50	**03200**
3.5	11	3.3	17	21	57	6	0.1	4	190.50	**03700**
4.0	11	3.8	17	21	57	6	0.1	4	190.50	**04200**
4.5	13	4.3	19	21	57	6	0.1	4	190.50	**04700**
5.0	13	4.8	19	21	57	6	0.1	4	190.50	**05200**
5.5	13	5.3	19	21	57	6	0.1	4	190.50	**05700**
6.0	13	5.8	19	21	57	6	0.1	4	190.50	**06200**
7.0	21	6.7	25	27	63	8	0.2	4	205.21	**07200**
8.0	21	7.7	25	27	63	8	0.2	4	205.21	**08200**
9.0	22	8.7	30	32	72	10	0.2	4	215.59	**09200**
10.0	22	9.7	30	32	72	10	0.2	4	215.59	**10200**
11.0	26	10.6	36	38	83	12	0.3	4	300.98	**11200**
12.0	26	11.6	36	38	83	12	0.3	4	300.98	**12200**
14.0	26	13.6	36	38	83	14	0.3	4	430.85	**14200**
15.0	36	14.5	42	44	92	16	0.3	4	430.85	**15200**
16.0	36	15.5	42	44	92	16	0.3	4	430.85	**16200**
17.0	36	16.5	42	44	92	18	0.3	4	504.28	**17200**
18.0	36	17.5	42	44	92	18	0.3	4	504.28	**18200**
19.0	41	18.5	52	54	104	20	0.3	4	678.65	**19200**
20.0	41	19.5	52	54	104	20	0.3	4	678.65	**20200**

P	●
M	●
K	●
N	○
S	●
H	
O	

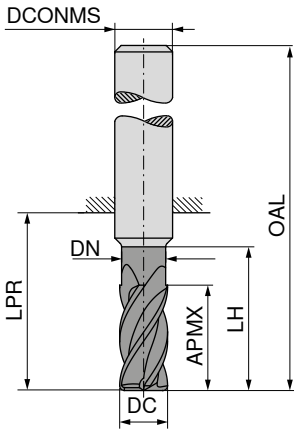
→ v_c/f_z Page 392+393

SilverLine – High Accuracy Finish Milling Cutter

The all-rounder for universal application

▲ max. taper of 0.008 mm for high precision and parallelism of vertical walls
▲ Tool with cutting edge correction

N | λ_s=48° γ_s=13°





≈DIN 6527 | Factory standard

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 991 ... £ V0/5A		50 991 ... £ V0/5A	
6.0	10	5.8	18	22	58	6	6	98.46	**06200**		
6.0	13	5.6	19	21	57	6	6	98.40	**06700**		
6.0	13	5.8	27	31	67	6	6			133.50	**06400**
6.0	13	5.8	36	40	76	6	6			166.76	**06900**
6.0	15	5.6	42	44	80	6	6			133.44	**90000**
8.0	13	7.7	24	28	64	8	6	112.62	**08200**		
8.0	17	7.7	36	40	76	8	6			165.14	**08400**
8.0	17	7.7	48	53	89	8	6			206.42	**08900**
8.0	19	7.6	25	27	63	8	6	113.02	**08700**		
8.0	20	7.6	62	64	100	8	6			164.92	**90100**
10.0	16	9.7	30	34	74	10	6	194.13	**10200**		
10.0	21	9.7	45	49	89	10	6			247.47	**10400**
10.0	21	9.7	60	64	104	10	6			309.28	**90200**
10.0	22	9.6	30	32	72	10	6	193.60	**10700**		
10.0	25	9.6	58	60	100	10	6			246.78	**10900**
12.0	19	11.6	36	40	85	12	6	263.05	**12200**		
12.0	25	11.6	54	58	103	12	6			383.05	**12400**
12.0	25	11.6	72	76	121	12	6			478.64	**90300**
12.0	26	11.5	36	38	83	12	6	262.35	**12700**		
12.0	30	11.5	73	75	120	12	6			382.54	**12900**
16.0	25	15.5	48	52	100	16	6	489.39	**16200**		
16.0	32	15.0	42	44	92	16	6	489.20	**16700**		
16.0	33	15.5	72	76	124	16	6			674.15	**16400**
16.0	33	15.5	96	100	148	16	6			842.65	**16900**
16.0	40	15.0	100	102	150	16	6			673.46	**90400**
20.0	32	19.5	60	64	114	20	6	705.16	**20200**		
20.0	38	19.0	52	54	104	20	6	704.81	**20700**		
20.0	42	19.5	90	94	144	20	6			928.38	**20400**
20.0	42	19.5	120	124	174	20	6			1,160.41	**90500**
20.0	50	19.0	98	100	150	20	6			928.03	**20900**
25.0	40	24.5	75	80	136	25	6	883.17	**25200**		
25.0	52	24.5	113	118	174	25	6			1,161.63	**25400**
25.0	52	24.5	150	154	210	25	6			1,452.05	**25900**

P	●	●
M	●	●
K	○	○
N	○	○
S	●	●
H		
O		

→ v_c/f_z Page 394

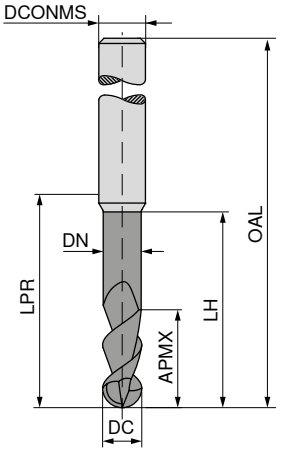
14

SilverLine – Ball Nosed Cutter

The all-rounder for universal application

N | λ_s=30° γ_s= 6°

















Factory standard | Factory standard





DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 963 ... £ V0/5A		50 963 ... £ V0/5A	
3.0	4	2.8	10.0	14	50	6	2	84.02	03115		
3.0	7	3.0	8.8	24	60	6	2			112.72	03415
4.0	8	3.8	12.0	18	54	6	2	84.02	04120		
4.0	10	4.0	12.5	39	75	6	2			112.72	04420
5.0	9	4.8	16.0	18	54	6	2	84.02	05125		
5.0	12	5.0	15.0	39	75	6	2			117.23	05425
6.0	10	5.7	16.0	18	54	6	2	84.02	06130		
6.0	12	6.0	15.0	64	100	6	2			135.76	06430
7.0	11	6.6	20.0	22	58	8	2	102.28	07135		
8.0	12	7.6	20.0	22	58	8	2	102.28	08140		
8.0	14	8.0	17.5	64	100	8	2			158.69	08440
10.0	14	9.6	24.0	26	66	10	2	127.89	10150		
10.0	18	10.0	22.5	60	100	10	2			215.77	10450
12.0	16	11.5	26.0	28	73	12	2	185.81	12160		
12.0	22	12.0	27.5	55	100	12	2			278.30	12460
14.0	18	13.3	28.0	30	75	14	2	215.77	14170		
14.0	26	14.0	32.5	75	120	14	2			443.83	14470
16.0	22	15.2	32.0	34	82	16	2	273.78	16180		
16.0	30	16.0	37.5	102	150	16	2			597.96	16480
18.0	24	17.1	34.0	36	84	18	2	451.10	18190		
20.0	26	19.0	40.0	42	92	20	2	451.10	20110		
20.0	38	20.0	47.5	100	150	20	2			792.43	20410

P	●	●
M		
K	●	●
N	○	○
S		
H	○	○
O		

→ v_c/f_z Page 398+399

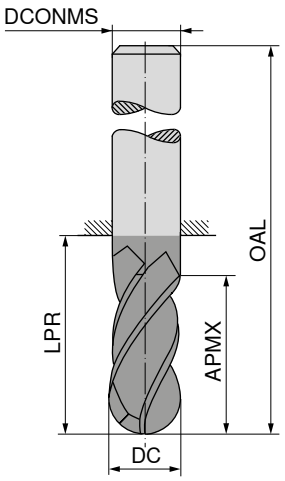
SilverLine – Ball Nosed Cutter

The all-rounder for universal application

N

λ_s = 35° 38°
γ_s = 7°





DPB72S

DRAGONSKIN





Factory standard



50 990 ...

DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0/5A	
4.0	11	21	57	6	4	81.80	**04220**
5.0	13	21	57	6	4	81.80	**05225**
6.0	13	21	57	6	4	95.70	**06230**
8.0	19	36	72	8	4	118.58	**08280**
10.0	22	32	72	10	4	149.71	**10250**
12.0	26	38	83	12	4	236.91	**12260**
16.0	32	44	92	16	4	349.63	**16280**
20.0	38	54	104	20	4	506.70	**20210**

P	●
M	○
K	●
N	○
S	
H	
O	

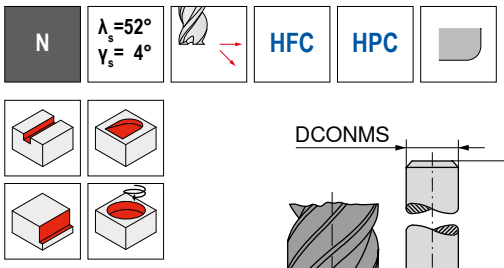
→ v_c/f_z Page 395–397

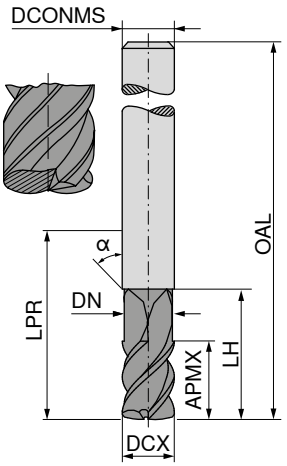
SilverLine – Torus Face Milling Cutter

The all-rounder for universal application

▲ APMX does not correspond to the maximum cutting depth

▲ r_{3D} = corner radius to be programmed







Factory standard

Factory standard

DCX f8 mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	50 989 ... £ V0/5A		50 989 ... £ V0/5A	
6.00	1.12	6	5.5	21	21	57	45	6	4	118.33	**06110**		
6.00	1.12	6	5.5	64	64	100	45	6	4			156.36	**06410**
8.00	1.23	8	7.4	27	27	63	45	8	4	134.07	**08110**		
8.00	1.23	8	7.4	64	64	100	45	8	4			204.00	**08410**
10.00	1.17	10	9.2	32	32	72	45	10	4	229.29	**10115**		
10.00	1.17	10	9.2	60	60	100	45	10	4			335.43	**10415**
12.00	1.86	12	11.0	32	38	83	45	12	4	300.44	**12115**		
12.00	1.86	12	11.0	65	65	110	45	12	4			370.08	**12415**
16.00	2.47	16	15.0	38	44	92	45	16	4	564.53	**16120**		
16.00	2.47	16	15.0	65	102	150	45	16	4			825.33	**16420**
20.00	2.61	20	18.5	40	42	92	45	20	4	812.18	**20120**		
20.00	2.61	20	18.5	65	100	150	45	20	4			1,221.03	**20420**
P										●		●	
M										○		○	
K										●		●	
N										○		○	
S													
H										○		○	
O													

→ v_c/f_z Page 400+401

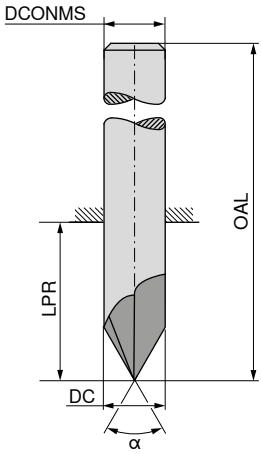
SilverLine – NC deburring cutter

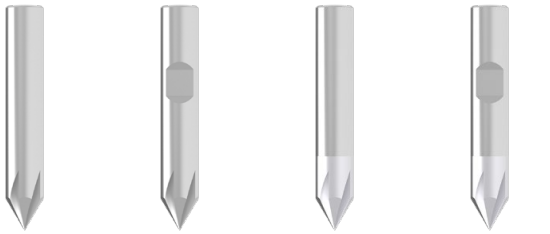
The all-rounder for universal application

▲ Point angle α = 60°

N

λ_s=0°
γ_s=5°





DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	α = 60° Factory standard 50 566 ... £ V1	α = 60° Factory standard 50 567 ... £ V1	α = 60° Factory standard 50 562 ... £ V1	α = 60° Factory standard 50 563 ... £ V1
4	50	22	4	5	38.52 **04000**		47.50 **04000**	
6	55	19	6	5	43.20 **06000**	43.20 **06000**	52.21 **06000**	52.21 **06000**
8	58	22	8	5	57.73 **08000**	57.73 **08000**	68.02 **08000**	68.02 **08000**
10	60	20	10	5	68.51 **10000**	68.51 **10000**	80.87 **10000**	80.87 **10000**
12	70	25	12	5	89.27 **12000**	89.27 **12000**	103.32 **12000**	103.32 **12000**
16	80	32	16	5	141.99 **16000**	141.99 **16000**	160.85 **16000**	160.85 **16000**
P					●	●	●	●
M					●	●	●	●
K					●	●	●	●
N								
S					●	●	●	●
H								
O								

→ v_c/f_z Page 379

14

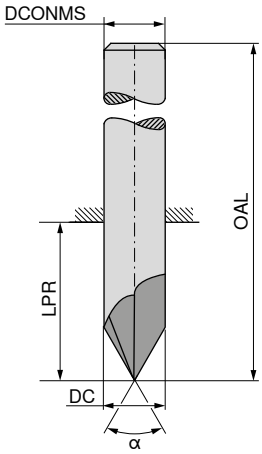
SilverLine – NC deburring cutter

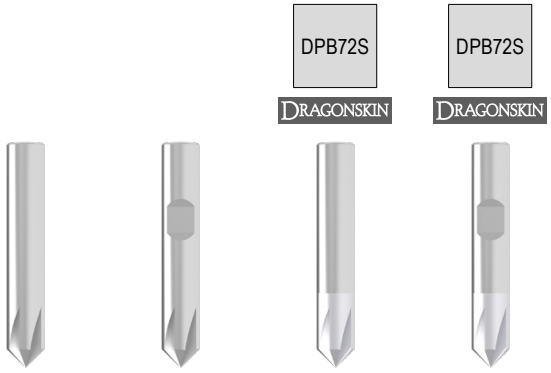
The all-rounder for universal application

▲ High performance 5 flute chamfering tool

N

λ_s=0°
γ_s=5°





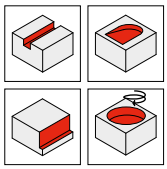
DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	α = 90° Factory standard 50 564 ... £ V1	α = 90° Factory standard 50 565 ... £ V1	α = 90° Factory standard 50 560 ... £ V1	α = 90° Factory standard 50 561 ... £ V1
4	50	22	4	5	38.52 **04000**		47.50 **04000**	
6	55	19	6	5	43.20 **06000**	43.20 **06000**	52.21 **06000**	52.21 **06000**
8	58	22	8	5	57.73 **08000**	57.73 **08000**	68.02 **08000**	68.02 **08000**
10	60	20	10	5	68.51 **10000**	68.51 **10000**	80.87 **10000**	80.87 **10000**
12	70	25	12	5	89.27 **12000**	89.27 **12000**	103.32 **12000**	103.32 **12000**
16	80	32	16	5	141.99 **16000**	141.99 **16000**	160.85 **16000**	160.85 **16000**
P					●	●	●	●
M					●	●	●	●
K					●	●	●	●
N								
S					●	●	●	●
H								
O								

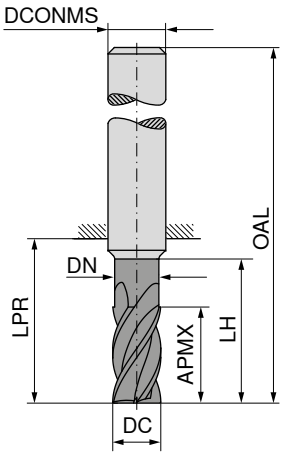
→ v_c/f_z Page 379

S-Cut – End milling cutter

The all-rounder with soft cut and low power consumption

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | HPC





APX72S





≈DIN 6527



52 225 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/1#	
3	8	2.8	15.0	21	57	6	4	82.28	**030**
4	11	3.8	16.5	21	57	6	4	82.28	**040**
5	13	4.8	18.5	21	57	6	4	82.28	**050**
6	13	5.5	21.0	21	57	6	4	82.28	**060**
8	19	7.5	27.0	27	63	8	4	110.46	**080**
10	22	9.5	32.0	32	72	10	4	156.84	**100**
12	26	11.5	38.0	38	83	12	4	218.24	**120**
14	26	13.5	38.0	38	83	14	4	281.77	**140**
16	36	15.5	44.0	44	92	16	4	353.32	**160**
18	36	17.5	52.0	52	100	18	4	474.05	**180**
20	38	19.5	54.0	54	104	20	4	543.41	**200**
25	42	24.0	65.0	65	121	25	4	863.18	**250**

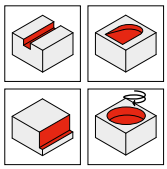
P	●
M	●
K	●
N	○
S	○
H	○
O	

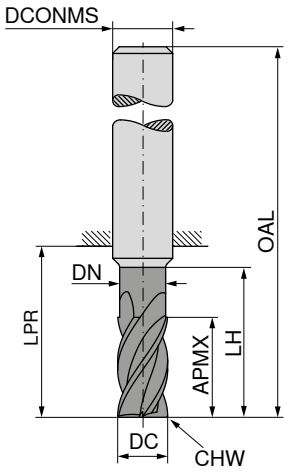
→ v_c/f_z Page 402+403

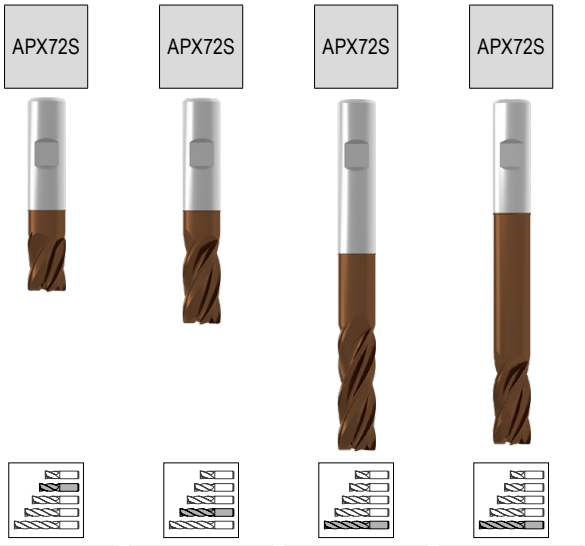
S-Cut – End milling cutter

The all-rounder with soft cut and low power consumption

SC UNI | λ_s var. | λ_s=28°–36° γ_s=10° | HPC







≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 223 ... £ V1/1#		52 224 ... £ V1/1#		52 226 ... £ V1/1#		52 227 ... £ V1/1#	
3	6	2.8	12.0	18	54	6	0.10	4	67.99	030						
3	8	2.8	15.0	21	57	6	0.10	4			82.28	030				
4	8	3.8	13.5	18	54	6	0.13	4	67.99	040						
4	11	3.8	16.5	21	57	6	0.13	4			82.28	040				
5	9	4.8	15.5	18	54	6	0.18	4	67.99	050						
5	13	4.8	18.5	21	57	6	0.18	4			82.28	050				
5	22	4.8	24.5	27	63	6	0.18	4					100.18	050		
6	10	5.5	18.0	18	54	6	0.20	4	67.99	060						
6	13	5.5	21.0	21	57	6	0.20	4			82.28	060				
6	13	5.5	42.0	44	80	6	0.20	4							125.98	060
6	22	5.5	27.0	27	63	6	0.20	4					100.18	060		
7	12	6.5	22.0	22	58	8	0.20	4	95.25	070						
7	19	6.5	27.0	27	63	8	0.20	4			113.90	070				
8	12	7.5	22.0	22	58	8	0.20	4	92.43	080						
8	19	7.5	27.0	27	63	8	0.20	4			110.46	080				
8	21	7.5	62.0	64	100	8	0.20	4							148.93	080
8	28	7.5	36.0	44	80	8	0.20	4					123.29	080		
9	14	8.5	26.0	26	66	10	0.30	4	129.99	090						
9	22	8.5	32.0	32	72	10	0.20	4			161.76	090				
10	14	9.5	26.0	26	66	10	0.30	4	125.98	100						
10	22	9.5	32.0	32	72	10	0.30	4			156.84	100				
10	22	9.5	58.0	60	100	10	0.30	4							184.99	100
10	33	9.5	54.0	60	100	10	0.30	4					159.24	100		
11	16	10.5	28.0	28	73	12	0.30	4	193.20	110						
11	26	10.5	38.0	38	83	12	0.30	4			225.85	110				
12	16	11.5	28.0	28	73	12	0.30	4	187.38	120						
12	26	11.5	38.0	38	83	12	0.30	4			218.24	120				
12	26	11.5	73.0	75	120	12	0.30	4							230.34	120
12	42	11.5	54.0	55	100	12	0.30	4					205.58	120		
13	18	12.5	30.0	30	75	14	0.30	4	245.98	130						
13	26	12.5	38.0	38	83	14	0.30	4			290.70	130				
14	18	13.5	30.0	30	75	14	0.30	4	239.27	140						
14	26	13.5	38.0	38	83	14	0.30	4			281.77	140				
14	48	13.5	54.0	55	100	14	0.30	4					230.34	140		
16	22	15.5	34.0	34	82	16	0.40	4	299.66	160						
16	36	15.5	44.0	44	92	16	0.40	4			353.32	160				
16	36	15.5	100.0	102	150	16	0.40	4							402.50	160
16	53	15.5	84.0	102	150	16	0.40	4					377.91	160		
18	24	17.5	34.0	36	84	18	0.40	4	402.50	180						
18	36	17.5	52.0	52	100	18	0.40	4			474.05	180				
20	26	19.5	42.0	42	92	20	0.50	4	467.34	200						
20	38	19.5	54.0	54	104	20	0.50	4			543.41	200				
20	38	19.5	100.0	100	150	20	0.50	4							570.24	200
20	68	19.5	84.0	100	150	20	0.50	4					543.41	200		
25	32	24.0	46.0	49	105	25	0.50	4	737.95	250						
25	42	24.0	65.0	65	121	25	0.50	4			863.18	250				
25	68	24.0	84.0	94	150	25	0.50	4					999.59	250		

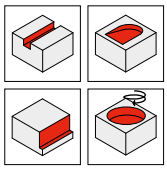
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O				

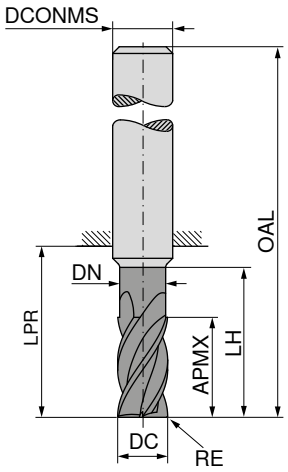
→ v_c/f_z Page 402–405

S-Cut – End milling cutter with corner radius

The all-rounder with soft cut and low power consumption

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | HPC





APX72S





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52 228 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/1#	
3	0.25	8	2.8	15.0	21	57	6	4	82.28	03003
3	0.50	8	2.8	15.0	21	57	6	4	82.28	03005
3	1.00	8	2.8	15.0	21	57	6	4	82.28	03010
4	0.25	11	3.8	16.5	21	57	6	4	82.28	04003
4	0.50	11	3.8	16.5	21	57	6	4	82.28	04005
4	1.00	11	3.8	16.5	21	57	6	4	82.28	04010
5	0.50	13	4.8	18.5	21	57	6	4	82.28	05005
5	1.00	13	4.8	18.5	21	57	6	4	82.28	05010
5	1.50	13	4.8	18.5	21	57	6	4	82.28	05015
6	0.50	13	5.5	21.0	21	57	6	4	82.28	06005
6	0.80	13	5.5	21.0	21	57	6	4	82.28	06008
6	1.00	13	5.5	21.0	21	57	6	4	82.28	06010
6	1.50	13	5.5	21.0	21	57	6	4	82.28	06015
6	2.00	13	5.5	21.0	21	57	6	4	82.28	06020
8	0.50	19	7.5	27.0	27	63	8	4	110.46	08005
8	0.80	19	7.5	27.0	27	63	8	4	110.46	08008
8	1.00	19	7.5	27.0	27	63	8	4	110.46	08010
8	1.50	19	7.5	27.0	27	63	8	4	110.46	08015
8	2.00	19	7.5	27.0	27	63	8	4	110.46	08020
10	0.50	22	9.5	32.0	32	72	10	4	156.84	10005
10	1.00	22	9.5	32.0	32	72	10	4	156.84	10010
10	1.50	22	9.5	32.0	32	72	10	4	156.84	10015
10	1.60	22	9.5	32.0	32	72	10	4	156.84	10016
10	2.00	22	9.5	32.0	32	72	10	4	156.84	10020
12	0.50	26	11.5	38.0	38	83	12	4	218.24	12005
12	1.00	26	11.5	38.0	38	83	12	4	218.24	12010
12	1.50	26	11.5	38.0	38	83	12	4	218.24	12015
12	1.60	26	11.5	38.0	38	83	12	4	218.24	12016
12	2.00	26	11.5	38.0	38	83	12	4	218.24	12020
12	3.00	26	11.5	38.0	38	83	12	4	218.24	12030
16	1.00	36	15.5	44.0	44	92	16	4	353.32	16010
16	1.50	36	15.5	44.0	44	92	16	4	353.32	16015
16	1.60	36	15.5	44.0	44	92	16	4	353.32	16016
16	2.00	36	15.5	44.0	44	92	16	4	353.32	16020
16	2.50	36	15.5	44.0	44	92	16	4	353.32	16025
16	3.00	36	15.5	44.0	44	92	16	4	353.32	16030
20	1.00	38	19.5	54.0	54	104	20	4	543.41	20010
20	1.50	38	19.5	54.0	54	104	20	4	543.41	20015
20	2.00	38	19.5	54.0	54	104	20	4	543.41	20020
20	2.50	38	19.5	54.0	54	104	20	4	543.41	20025
20	3.00	38	19.5	54.0	54	104	20	4	543.41	20030
20	4.00	38	19.5	54.0	54	104	20	4	543.41	20040

P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c/f_z Page 402+403

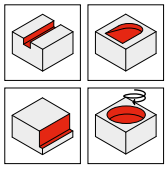
14

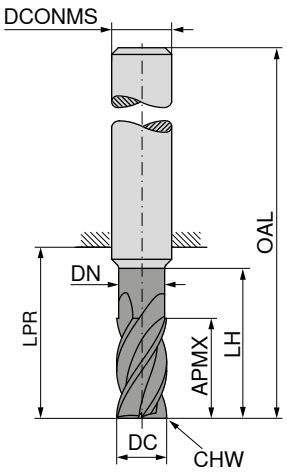
S-Cut – End milling cutter

The all-rounder with soft cut and low power consumption

▲ Suitable for trochoidal milling
▲ With chip breaker

SC UNI | λ_s var. | λ_s=28°-36° γ_s=10° | HPC





APX72S





≈DIN 6527



52 230 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1/1#	
6	18	5.5	25	26	62	6	0.12	5	122.09	**060**
8	24	7.5	30	32	68	8	0.16	5	161.76	**080**
10	30	9.5	35	40	80	10	0.20	5	205.58	**100**
12	36	11.5	45	48	93	12	0.24	5	270.58	**120**
16	48	15.5	55	60	108	16	0.32	5	462.87	**160**
20	60	19.5	70	76	126	20	0.40	5	728.99	**200**

P	●
M	●
K	●
N	
S	○
H	
O	

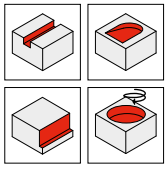
→ v_c/f_z Page 406+407

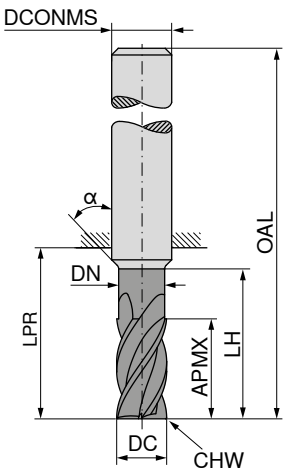
S-Cut – Rough milling cutter

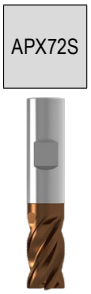
The all-rounder with soft cut and low power consumption

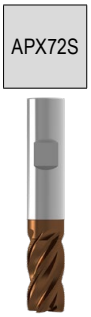
▲ With roughing profile

SC NR | λ_s var. | λ_s=28° 36° γ_s=10° | HPC

















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DC $_{h11}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	α°	ZEFP	52 205 ... £ V1/1#		52 205 ... £ V1/1#		52 205 ... £ V1/1#	
3	6	2.8	12.0	18	54	6	0.18	15	4	83.00	**03100**				
3	8	2.8	14.0	21	57	6	0.18	15	4			98.28	**03200**		
3	8	2.8	19.0	26	62	6	0.18	15	4					112.36	**03400**
4	8	3.8	13.5	18	54	6	0.20	15	4	83.00	**04100**				
4	11	3.8	18.0	21	57	6	0.20	15	4			98.28	**04200**		
4	11	3.8	23.0	26	62	6	0.20	15	4					112.36	**04400**
5	9	4.8	15.5	18	54	6	0.25	15	4	83.00	**05100**				
5	13	4.8	19.0	21	57	6	0.25	15	4			98.28	**05200**		
5	13	4.8	24.0	26	62	6	0.25	15	4					112.36	**05400**
6	10	5.5	18.0	18	54	6	0.25		4	83.00	**06100**				
6	13	5.5	20.0	21	57	6	0.25		4			98.28	**06200**		
6	13	5.5	25.0	26	62	6	0.25		4					112.36	**06400**
8	12	7.5	22.0	22	58	8	0.30		4	105.57	**08100**				
8	19	7.5	25.0	27	63	8	0.30		4			125.02	**08200**		
8	19	7.5	30.0	32	68	8	0.30		4					143.01	**08400**
10	14	9.5	26.0	26	66	10	0.30		4	128.95	**10100**				
10	22	9.5	30.0	32	72	10	0.30		4			152.74	**10200**		
10	22	9.5	35.0	40	80	10	0.30		4					174.64	**10400**
12	16	11.5	28.0	28	73	12	0.45		4	146.29	**12100**				
12	26	11.5	35.0	38	83	12	0.45		4			173.25	**12200**		
12	26	11.5	45.0	48	93	12	0.45		4					198.05	**12400**
14	18	13.5	30.0	30	75	14	0.50		4	197.31	**14100**				
14	26	13.5	35.0	38	83	14	0.50		4			233.61	**14200**		
14	26	13.5	50.0	54	99	14	0.50		4					267.15	**14400**
16	22	15.5	34.0	34	82	16	0.60		4	266.65	**16100**				
16	32	15.5	40.0	44	92	16	0.60		4			315.73	**16200**		
16	32	15.5	55.0	60	108	16	0.60		4					361.04	**16400**
20	26	19.5	42.0	42	92	20	0.60		4	384.95	**20100**				
20	38	19.5	50.0	54	104	20	0.60		4			455.95	**20200**		
20	38	19.5	70.0	76	126	20	0.60		4					521.26	**20400**

P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	○	○	○
H	○	○	○
O			

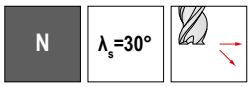
→ v_c/f_z Page 402–405

14

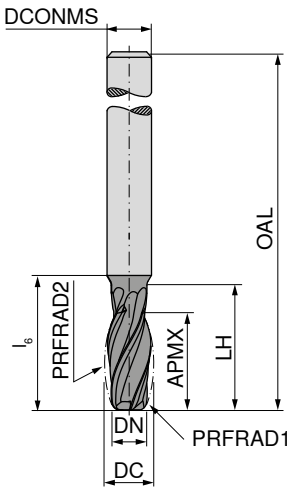
3D Finish – Barrel shape

The specialist for 3D finish machining

▲ Geometrical tolerance ± 0.01 mm







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DIN 6527



52 739 ...

DC mm	DCONMS h6 mm	DN mm	PRFRAD1 mm	PRFRAD2 mm	LH mm	APMX mm	l_6 mm	OAL mm	ZEFP	£ V1	
10	10	8	2	50	28	21	30	80	4	238.40	**100**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 408

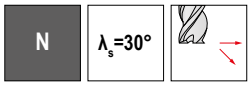
Information on applications and selecting the right product can be found in the Technical Information on → **pages 491+492**.

3D Finish – Oval shape

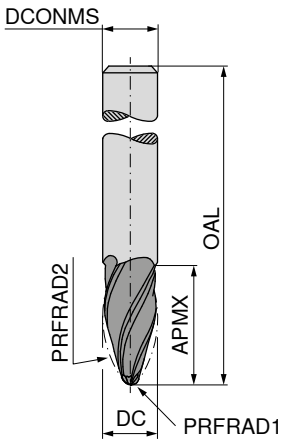
The specialist for 3D finish machining

▲ Geometrical tolerance ± 0.01 mm

N | λ_s=30°







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DIN 6527



52 745 ...

DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	APMX mm	OAL mm	ZEFP	£ V1	
6	6	1	95	22	62	3	160.04	**060**
8	8	1	90	25	68	3	211.16	**080**
10	10	2	85	26	72	4	238.40	**100**
12	12	2	80	28	83	4	357.65	**120**
16	16	3	75	31	92	4	432.54	**160**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

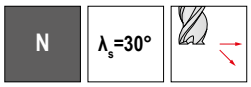
→ v_c/f_z Page 409

Information on applications and selecting the right product can be found in the Technical Information on → **pages 491+492**.

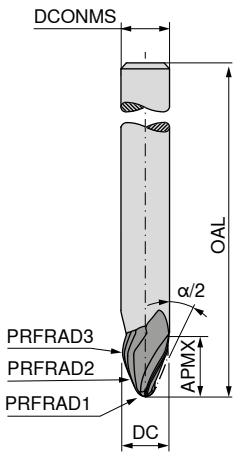
3D Finish – Taper shape

The specialist for 3D finish machining

▲ Geometrical tolerance ± 0.01 mm







APB72S





DIN 6527



52 753 ...

DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	PRFRAD3 mm	α°/2	APMX mm	OAL mm	ZEFP	£ V1	
6	6	1.0	250	3	17,5	9.5	62	3	163.49	**060**
8	8	1.5	250	4	20	10.5	68	3	228.31	**080**
10	10	2.0	250	5	20	12.5	80	3	265.75	**100**
12	12	1.0	200	1	42,5	8.0	93	3	340.67	**120**
12	12	3.0	250	6	20	13.5	93	3	340.67	**121**
16	16	2.0	1000	5	12,5	31.0	108	3	442.62	**160**
16	16	4.0	500	8	20	18.5	108	3	442.62	**161**
16	16	4.0	1000	5	12,5	24.0	108	3	442.62	**162**
16	16	4.0	1500	8	20	18.5	108	3	442.62	**163**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

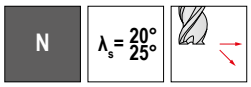
→ v_c/f_z Page 410

Information on applications and selecting the right product can be found in the Technical Information on → **pages 491+492**.

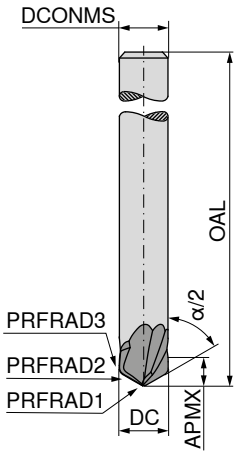
3D Finish – Taper shape

The specialist for 3D finish machining

▲ Geometrical tolerance ± 0.01 mm







APB72S





DIN 6527



52 755 ...

DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	PRFRAD3 mm	α°/2	APMX mm	OAL mm	ZEFP	£ V1	
10	10	1	200	1.5	60	6	80	2	221.39	**100**
10	10	1	200	2.0	70	6	80	2	221.39	**101**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 410

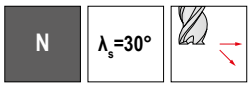
Information on applications and selecting the right product can be found in the Technical Information on → **pages 491+492**.

14

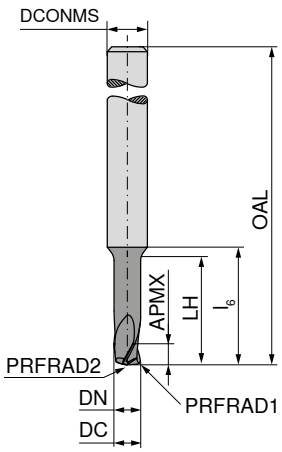
3D Finish – Lens shape

The specialist for 3D finish machining

▲ Geometrical tolerance ± 0.01 mm







APB72S





DIN 6527



52 756 ...

DC mm	DCONMS h6 mm	DN mm	PRFRAD1 mm	PRFRAD2 mm	LH mm	APMX mm	l6 mm	OAL mm	ZEFP	£ V1	
4	6	4	0.25	6	18	4	20	62	3	170.25	**040**
6	6		0.50	10		6		62	3	166.96	**060**
8	8		0.75	15		8		68	3	187.25	**080**
10	10		1.00	20		10		80	3	221.39	**100**
12	12		1.25	25		12		93	3	255.39	**120**

P	●
M	●
K	●
N	●
S	●
H	
O	

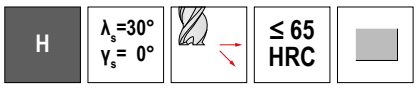
→ v_c/f_z Page 411

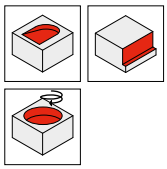
Information on applications and selecting the right product can be found in the Technical Information on → **pages 491+492**.

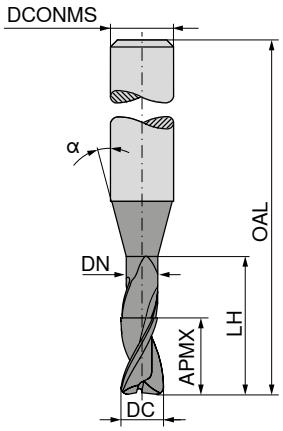
BlueLine – Micro-end milling cutter

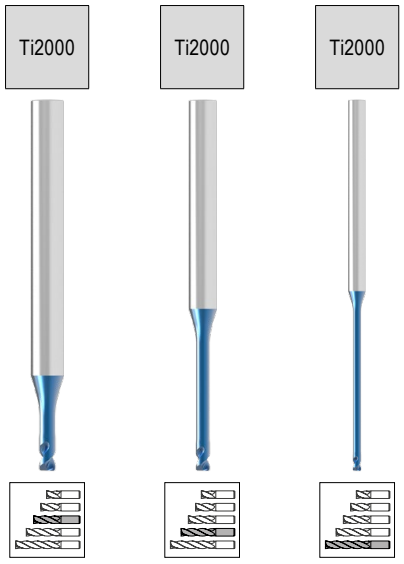
The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_X	ZEFP	52 345 ... £ V1		52 346 ... £ V1		52 347 ... £ V1	
0.2	0.3	0.18	0.5	45	16	4	2,5 x DC	2	95.11	**302**				
0.2	0.3	0.18	1.0	45	16	4	5 x DC	2	95.11	**402**				
0.2	0.3	0.18	1.5	45	16	4	7,5 x DC	2	95.11	**502**				
0.3	0.4	0.28	1.0	45	16	4	3,3 x DC	2	91.18	**303**				
0.3	0.4	0.28	2.0	45	16	4	6,6 x DC	2	91.18	**403**				
0.3	0.4	0.28	3.0	45	16	4	10 x DC	2			91.18	**303**		
0.3	0.4	0.28	6.0	45	16	4	20 x DC	2			91.18	**403**		
0.3	0.4	0.28	9.0	45	16	4	30 x DC	2					91.18	**303**
0.4	0.6	0.38	2.0	45	16	4	5 x DC	2	89.85	**304**				
0.4	0.6	0.38	3.0	45	16	4	7,5 x DC	2	89.85	**404**				
0.4	0.6	0.38	4.0	45	16	4	10 x DC	2			89.85	**304**		
0.4	0.6	0.38	5.0	45	16	4	12,5 x DC	2			89.85	**404**		
0.4	0.6	0.38	8.0	45	16	4	20 x DC	2					89.85	**304**
0.4	0.6	0.38	12.0	45	16	4	30 x DC	2					92.66	**404**
0.5	0.7	0.48	2.0	45	16	4	4 x DC	2	73.14	**305**				
0.5	0.7	0.48	4.0	45	16	4	8 x DC	2	73.14	**405**				
0.5	0.7	0.48	6.0	45	16	4	12 x DC	2			73.14	**305**		
0.5	0.7	0.48	8.0	45	16	4	16 x DC	2			75.29	**405**		
0.5	0.7	0.48	10.0	50	16	4	20 x DC	2					76.91	**305**
0.5	0.7	0.48	15.0	50	16	4	30 x DC	2					80.67	**405**
0.6	0.9	0.58	2.0	45	16	4	3,3 x DC	2	73.14	**306**				
0.6	0.9	0.58	4.0	45	16	4	6,6 x DC	2	73.14	**406**				
0.6	0.9	0.58	6.0	45	16	4	10 x DC	2			73.14	**306**		
0.6	0.9	0.58	8.0	45	16	4	13,3 x DC	2			75.29	**406**		
0.6	0.9	0.58	10.0	45	16	4	16,6 x DC	2			75.29	**506**		
0.6	0.9	0.58	12.0	50	16	4	20 x DC	2					75.77	**306**
0.6	0.9	0.58	18.0	50	16	4	30 x DC	2					81.18	**406**
0.7	1.0	0.68	2.0	45	16	4	2,8 x DC	2	77.08	**307**				
0.7	1.0	0.68	4.0	45	16	4	5,7 x DC	2	77.08	**407**				
0.7	1.0	0.68	6.0	45	16	4	8,5 x DC	2	77.08	**507**				
0.7	1.0	0.68	8.0	45	16	4	11,4 x DC	2			79.20	**307**		
0.7	1.0	0.68	10.0	50	16	4	14,2 x DC	2			79.20	**407**		
0.8	1.2	0.78	4.0	45	16	4	5 x DC	2	83.96	**308**				
0.8	1.2	0.78	6.0	45	16	4	7,5 x DC	2	83.96	**408**				
0.8	1.2	0.78	8.0	45	16	4	10 x DC	2			83.96	**308**		
0.8	1.2	0.78	10.0	50	16	4	12,5 x DC	2			88.06	**408**		
0.8	1.2	0.78	12.0	50	16	4	15 x DC	2			88.06	**508**		
0.8	1.2	0.78	16.0	50	16	4	20 x DC	2					92.49	**308**
0.8	1.2	0.78	24.0	60	16	4	30 x DC	2					96.41	**408**
0.9	1.3	0.88	4.0	45	16	4	4,4 x DC	2	70.02	**309**				
0.9	1.3	0.88	6.0	45	16	4	6,6 x DC	2	70.02	**409**				
0.9	1.3	0.88	8.0	45	16	4	8,8 x DC	2	71.99	**509**				
0.9	1.3	0.88	10.0	45	16	4	11 x DC	2			71.99	**309**		
0.9	1.3	0.88	15.0	50	16	4	16,6 x DC	2			80.03	**409**		
1.0	1.5	0.95	4.0	45	16	4	4 x DC	2	71.99	**310**				
P									●		●		●	
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S														
H									●		●		●	
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→ v_c/f_z Page 420+421

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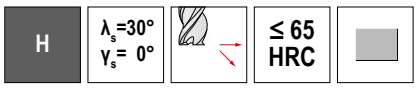
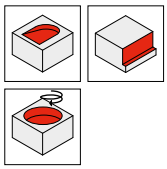
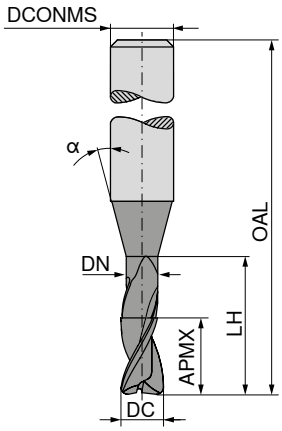
BlueLine – Micro-end milling cutter

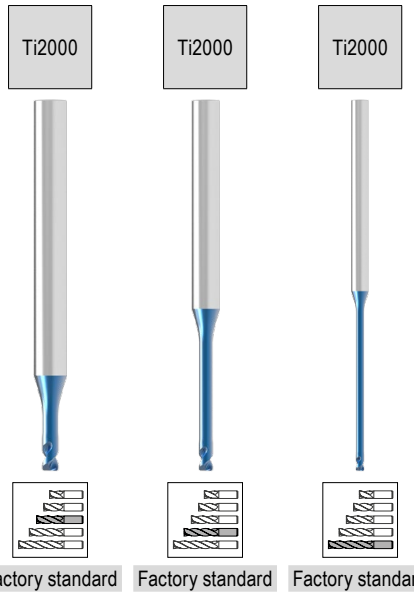
The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth









DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_X	ZEFP	52 345 ... £ V1		52 346 ... £ V1		52 347 ... £ V1	
1.0	1.5	0.95	6.0	45	16	4	6 x DC	2	71.99	**410**				
1.0	1.5	0.95	8.0	45	16	4	8 x DC	2	71.99	**510**				
1.0	1.5	0.95	10.0	45	16	4	10 x DC	2			71.99	**310**		
1.0	1.5	0.95	12.0	45	16	4	12 x DC	2			73.47	**410**		
1.0	1.5	0.95	14.0	45	16	4	14 x DC	2			73.47	**510**		
1.0	1.5	0.95	16.0	50	16	4	16 x DC	2			76.91	**610**		
1.0	1.5	0.95	20.0	54	16	4	20 x DC	2					85.28	**310**
1.0	1.5	0.95	25.0	70	16	4	25 x DC	2					92.49	**410**
1.0	1.5	0.95	30.0	70	16	4	30 x DC	2					93.79	**510**
1.2	1.8	1.14	6.0	45	16	4	5 x DC	2	77.89	**312**				
1.2	1.8	1.14	8.0	45	16	4	6,6 x DC	2	77.89	**412**				
1.2	1.8	1.14	10.0	45	16	4	8,3 x DC	2	80.03	**512**				
1.2	1.8	1.14	12.0	45	16	4	10 x DC	2			80.03	**312**		
1.2	1.8	1.14	16.0	50	16	4	13,3 x DC	2			88.06	**412**		
1.2	1.8	1.14	20.0	60	16	4	16,6 x DC	2			90.53	**512**		
1.4	2.1	1.34	6.0	45	16	4	4,2 x DC	2	77.89	**314**				
1.4	2.1	1.34	8.0	45	16	4	5,7 x DC	2	77.89	**414**				
1.4	2.1	1.34	10.0	45	16	4	7,1 x DC	2	80.03	**514**				
1.4	2.1	1.34	12.0	45	16	4	8,5 x DC	2	80.03	**614**				
1.4	2.1	1.34	14.0	45	16	4	10 x DC	2			80.03	**314**		
1.4	2.1	1.34	16.0	50	16	4	11,4 x DC	2			88.06	**414**		
1.4	2.1	1.34	22.0	54	16	4	15,7 x DC	2			90.53	**514**		
1.5	2.3	1.44	6.0	45	16	4	4 x DC	2	75.10	**315**				
1.5	2.3	1.44	8.0	45	16	4	5,3 x DC	2	75.10	**415**				
1.5	2.3	1.44	10.0	45	16	4	6,6 x DC	2	76.09	**515**				
1.5	2.3	1.44	12.0	45	16	4	8 x DC	2	76.09	**615**				
1.5	2.3	1.44	14.0	50	16	4	9,3 x DC	2	85.09	**715**				
1.5	2.3	1.44	16.0	50	16	4	10,6 x DC	2			85.09	**315**		
1.5	2.3	1.44	18.0	54	16	4	12 x DC	2			85.09	**415**		
1.5	2.3	1.44	20.0	54	16	4	13,3 x DC	2			85.09	**515**		
1.5	2.3	1.44	25.0	70	16	4	16,6 x DC	2			93.63	**615**		
1.5	2.3	1.44	30.0	70	16	4	20 x DC	2			93.63	**715**		
1.5	2.3	1.44	35.0	70	16	4	23,3 x DC	2					94.80	**315**
1.5	2.3	1.44	40.0	80	16	4	26,6 x DC	2					99.20	**415**
1.5	2.3	1.44	45.0	80	16	4	30 x DC	2					101.33	**515**
1.6	2.4	1.51	6.0	45	16	4	3,7 x DC	2	75.10	**316**				
1.6	2.4	1.51	8.0	45	16	4	5 x DC	2	75.10	**416**				
1.6	2.4	1.51	10.0	45	16	4	6,2 x DC	2	76.09	**516**				
1.6	2.4	1.51	12.0	45	16	4	7,5 x DC	2	76.09	**616**				
1.6	2.4	1.51	14.0	50	16	4	8,75 x DC	2	80.36	**716**				
1.6	2.4	1.51	16.0	50	16	4	10 x DC	2			80.36	**316**		
1.6	2.4	1.51	18.0	54	16	4	11,25 x DC	2			80.36	**416**		
1.6	2.4	1.51	20.0	54	16	4	12,5 x DC	2			80.36	**516**		
1.6	2.4	1.51	26.0	60	16	4	16,2 x DC	2			93.63	**616**		
1.8	2.7	1.71	6.0	45	16	4	3,3 x DC	2	75.10	**318**				
P									●		●		●	
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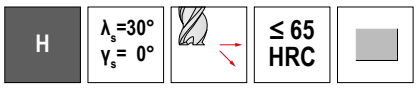
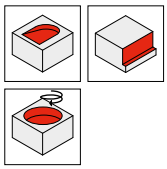
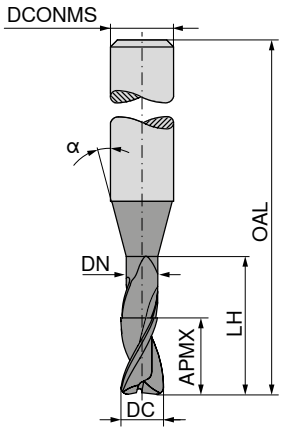
BlueLine – Micro-end milling cutter

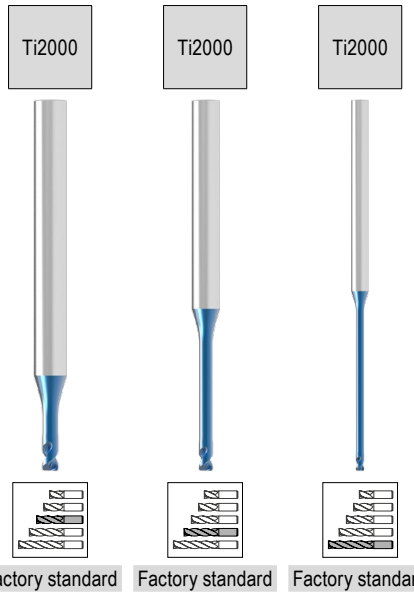
The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_X	ZEFP	52 345 ... £ V1		52 346 ... £ V1		52 347 ... £ V1	
1.8	2.7	1.71	8.0	45	16	4	4,4 x DC	2	75.10	**418**				
1.8	2.7	1.71	10.0	45	16	4	5,5 x DC	2	75.77	**518**				
1.8	2.7	1.71	12.0	45	16	4	6,6 x DC	2	76.09	**618**				
1.8	2.7	1.71	14.0	50	16	4	7,7 x DC	2	80.36	**718**				
1.8	2.7	1.71	16.0	50	16	4	8,8 x DC	2	80.36	**818**				
1.8	2.7	1.71	18.0	54	16	4	10 x DC	2			85.09	**318**		
1.8	2.7	1.71	20.0	54	16	4	11 x DC	2			85.09	**418**		
1.8	2.7	1.71	25.0	60	16	4	13,8 x DC	2			93.63	**518**		
2.0	3.0	1.91	6.0	45	16	4	3 x DC	2	75.10	**320**				
2.0	3.0	1.91	8.0	45	16	4	4 x DC	2	75.10	**420**				
2.0	3.0	1.91	10.0	45	16	4	5 x DC	2	76.09	**520**				
2.0	3.0	1.91	12.0	45	16	4	6 x DC	2	76.09	**620**				
2.0	3.0	1.91	14.0	50	16	4	7 x DC	2	80.36	**720**				
2.0	3.0	1.91	16.0	50	16	4	8 x DC	2	80.36	**820**				
2.0	3.0	1.91	18.0	54	16	4	9 x DC	2	80.36	**920**				
2.0	3.0	1.91	20.0	54	16	4	10 x DC	2			85.09	**320**		
2.0	3.0	1.91	25.0	60	16	4	12,5 x DC	2			93.63	**420**		
2.0	3.0	1.91	30.0	70	16	4	15 x DC	2			96.60	**520**		
2.0	3.0	1.91	35.0	80	16	4	17,5 x DC	2			99.88	**620**		
2.0	3.0	1.91	40.0	90	16	4	20 x DC	2					107.74	**320**
2.0	3.0	1.91	50.0	100	16	4	25 x DC	2					115.43	**420**
2.0	3.0	1.91	60.0	110	16	4	30 x DC	2					131.18	**520**
2.5	3.7	2.41	8.0	45	16	4	3,2 x DC	2	75.10	**325**				
2.5	3.7	2.41	10.0	45	16	4	4 x DC	2	76.09	**425**				
2.5	3.7	2.41	12.0	45	16	4	4,8 x DC	2	76.09	**525**				
2.5	3.7	2.41	14.0	50	16	4	5,6 x DC	2	80.36	**625**				
2.5	3.7	2.41	16.0	50	16	4	6,4 x DC	2	80.36	**725**				
2.5	3.7	2.41	18.0	54	16	4	7,2 x DC	2	85.09	**825**				
2.5	3.7	2.41	20.0	54	16	4	8 x DC	2	85.09	**925**				
2.5	3.7	2.41	25.0	60	16	4	10 x DC	2			92.97	**325**		
2.5	3.7	2.41	30.0	70	16	4	12 x DC	2			101.50	**425**		
2.5	3.7	2.41	40.0	90	16	4	16 x DC	2			131.51	**525**		
2.5	3.7	2.41	50.0	100	16	4	20 x DC	2					146.93	**325**
3.0	4.5	2.92	8.0	45	16	4	2,6 x DC	2	76.09	**330**				
3.0	4.5	2.92	12.0	45	16	4	4 x DC	2	76.09	**430**				
3.0	4.5	2.92	16.0	50	16	4	5,3 x DC	2	80.36	**530**				
3.0	4.5	2.92	20.0	54	16	4	6,6 x DC	2	85.09	**630**				
P										●		●		●
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→ v_c/f_z Page 420+421

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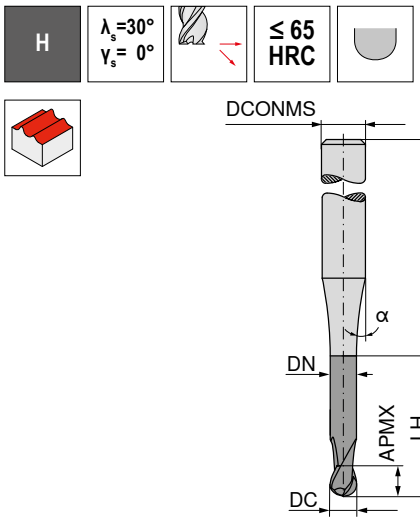
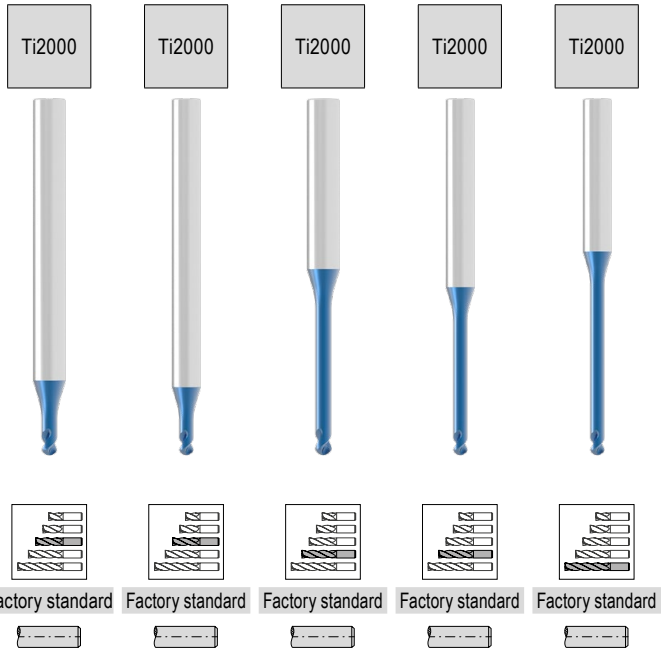
BlueLine – Micro-ball nosed cutter

The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth





Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_X	ZEFP	52 356 ... £ V1		52 358 ... £ V1		52 357 ... £ V1		52 359 ... £ V1		52 360 ... £ V1	
0.2	0.16	0.17	0.30	45	16	4	1,5 x DC	2	99.54	**302**								
0.2	0.16	0.17	0.50	45	16	4	2,5 x DC	2	99.54	**402**								
0.2	0.16	0.17	0.75	45	16	4	3,75 x DC	2	99.54	**502**								
0.2	0.16	0.17	1.00	45	16	4	5 x DC	2	99.54	**602**								
0.2	0.16	0.17	1.25	45	16	4	6,2 x DC	2	99.54	**702**								
0.2	0.16	0.17	1.50	45	16	4	7,5 x DC	2	99.54	**802**								
0.2	0.16	0.17	1.75	45	16	4	8,7 x DC	2	99.54	**902**								
0.2	0.16	0.17	2.00	45	16	4	10 x DC	2					99.54	**302**				
0.2	0.16	0.17	2.50	45	16	4	12,5 x DC	2					99.54	**402**				
0.2	0.16	0.17	3.00	45	16	4	15 x DC	2					99.54	**502**				
0.3	0.24	0.27	0.50	45	16	4	1,6 x DC	2	96.60	**303**								
0.3	0.24	0.27	0.75	45	16	4	2,5 x DC	2	96.60	**403**								
0.3	0.24	0.27	1.00	45	16	4	3,3 x DC	2	96.60	**503**								
0.3	0.24	0.27	1.25	45	16	4	4,1 x DC	2	96.60	**603**								
0.3	0.24	0.27	1.50	45	16	4	5 x DC	2	96.60	**703**								
0.3	0.24	0.27	1.75	50	16	4	5,8 x DC	2			96.60	**303**						
0.3	0.24	0.27	2.00	50	16	4	6,6 x DC	2			96.60	**403**						
0.3	0.24	0.27	2.25	50	16	4	7,5 x DC	2			96.60	**503**						
0.3	0.24	0.27	2.50	50	16	4	8,3 x DC	2			96.60	**603**						
0.3	0.24	0.27	2.75	50	16	4	9,1 x DC	2			96.60	**703**						
0.3	0.24	0.27	3.00	50	16	4	10 x DC	2							96.60	**303**		
0.3	0.24	0.27	3.50	50	16	4	11,6 x DC	2							96.60	**403**		
0.3	0.24	0.27	4.00	50	16	4	13,3 x DC	2							96.60	**503**		
0.3	0.24	0.27	4.50	50	16	4	15 x DC	2							96.60	**603**		
0.4	0.32	0.34	0.50	45	16	4	1,2 x DC	2	95.28	**304**								
0.4	0.32	0.34	1.00	45	16	4	2,5 x DC	2	95.28	**404**								
0.4	0.32	0.34	1.50	45	16	4	3,75 x DC	2	95.28	**504**								
0.4	0.32	0.34	2.00	45	16	4	5 x DC	2	95.28	**604**								
0.4	0.32	0.34	2.50	45	16	4	6,2 x DC	2	95.28	**704**								
0.4	0.32	0.34	3.00	45	16	4	7,5 x DC	2	95.28	**804**								
0.4	0.32	0.34	3.50	45	16	4	8,7 x DC	2	94.62	**904**								
0.4	0.32	0.34	4.00	45	16	4	10 x DC	2					94.62	**304**				
0.4	0.32	0.34	4.50	45	16	4	11,2 x DC	2					94.62	**404**				
0.4	0.32	0.34	5.00	45	16	4	12,5 x DC	2					94.62	**504**				
0.4	0.32	0.34	5.50	45	16	4	13,7 x DC	2					94.62	**604**				
0.4	0.32	0.34	6.00	45	16	4	15 x DC	2					94.62	**704**				
0.5	0.40	0.47	1.50	45	16	4	3 x DC	2	77.42	**305**								
0.5	0.40	0.47	2.00	45	16	4	4 x DC	2	77.42	**405**								
0.5	0.40	0.47	2.50	45	16	4	5 x DC	2	77.42	**505**								
0.5	0.40	0.47	3.00	45	16	4	6 x DC	2	77.42	**605**								
0.5	0.40	0.47	3.50	45	16	4	7 x DC	2	77.42	**705**								

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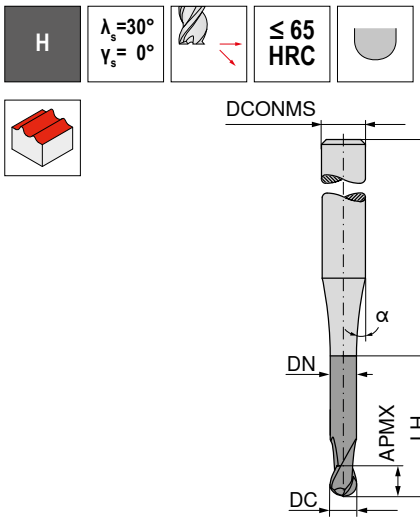
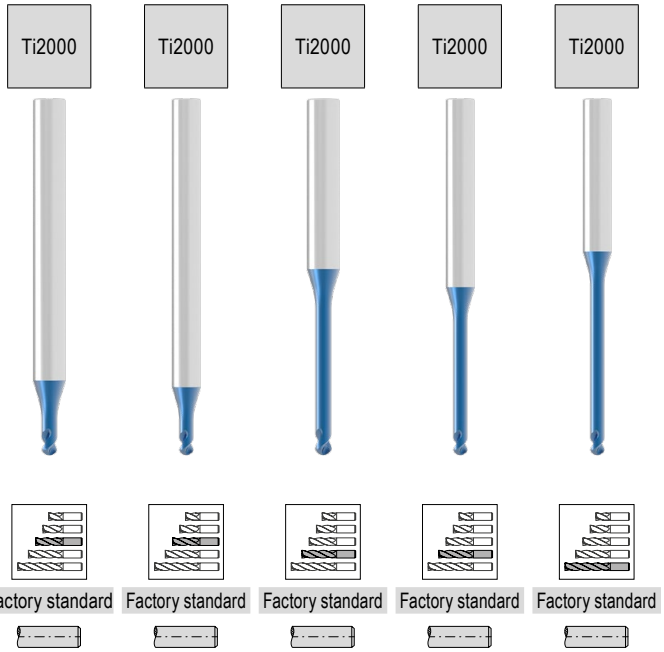
BlueLine – Micro-ball nosed cutter

The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth





DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 356 ... £ V1		52 358 ... £ V1		52 357 ... £ V1		52 359 ... £ V1		52 360 ... £ V1	
0.5	0.40	0.47	4.00	45	16	4	8 x DC	2	77.42	**805**								
0.5	0.40	0.47	4.50	45	16	4	9 x DC	2	77.42	**905**								
0.5	0.40	0.47	5.00	45	16	4	10 x DC	2					77.42	**305**				
0.5	0.40	0.47	5.50	45	16	4	11 x DC	2					77.42	**405**				
0.5	0.40	0.47	6.00	45	16	4	12 x DC	2					77.42	**505**				
0.5	0.40	0.47	7.00	45	16	4	14 x DC	2					77.42	**605**				
0.5	0.40	0.47	8.00	45	16	4	16 x DC	2					78.38	**705**				
0.5	0.40	0.47	9.00	45	16	4	18 x DC	2					78.38	**805**				
0.5	0.40	0.47	10.00	50	16	4	20 x DC	2									78.38	**305**
0.6	0.40	0.57	12.00	50	16	4	20 x DC	2									82.30	**306**
0.6	0.48	0.57	1.00	45	16	4	1,6 x DC	2	77.42	**306**								
0.6	0.48	0.57	2.00	45	16	4	3,3 x DC	2	77.42	**406**								
0.6	0.48	0.57	3.00	45	16	4	5 x DC	2	77.42	**506**								
0.6	0.48	0.57	4.00	45	16	4	6,6 x DC	2	77.42	**606**								
0.6	0.48	0.57	5.00	45	16	4	8,3 x DC	2	77.42	**706**								
0.6	0.48	0.57	6.00	45	16	4	10 x DC	2					77.42	**306**				
0.6	0.48	0.57	8.00	45	16	4	13,3 x DC	2					77.42	**406**				
0.6	0.48	0.57	10.00	50	16	4	16,6 x DC	2							80.52	**306**		
0.8	0.64	0.77	2.00	45	16	4	2,5 x DC	2	87.26	**308**								
0.8	0.64	0.77	3.00	45	16	4	3,75 x DC	2	87.26	**408**								
0.8	0.64	0.77	4.00	45	16	4	5 x DC	2	87.26	**508**								
0.8	0.64	0.77	5.00	45	16	4	6,2 x DC	2	87.26	**608**								
0.8	0.64	0.77	6.00	45	16	4	7,5 x DC	2	87.26	**708**								
0.8	0.64	0.77	7.00	45	16	4	8,7 x DC	2	87.26	**808**								
0.8	0.64	0.77	8.00	45	16	4	10 x DC	2					88.06	**308**				
0.8	0.64	0.77	9.00	45	16	4	11,2 x DC	2					88.06	**408**				
0.8	0.64	0.77	10.00	50	16	4	12,5 x DC	2							88.06	**308**		
1.0	0.80	0.96	3.00	45	16	4	3 x DC	2	74.12	**310**								
1.0	0.80	0.96	4.00	45	16	4	4 x DC	2	74.12	**410**								
1.0	0.80	0.96	5.00	45	16	4	5 x DC	2	74.12	**510**								
1.0	0.80	0.96	6.00	45	16	4	6 x DC	2	74.12	**610**								
1.0	0.80	0.96	7.00	45	16	4	7 x DC	2	80.03	**710**								
1.0	0.80	0.96	8.00	45	16	4	8 x DC	2	80.03	**810**								
1.0	0.80	0.96	9.00	45	16	4	9 x DC	2	80.03	**910**								
1.0	0.80	0.96	10.00	45	16	4	10 x DC	2					80.03	**310**				
1.0	0.80	0.96	12.00	45	16	4	12 x DC	2					80.03	**410**				
1.0	0.80	0.96	14.00	50	16	4	14 x DC	2							82.30	**310**		
1.0	0.80	0.96	16.00	50	16	4	16 x DC	2							85.59	**410**		
1.2	0.96	1.16	6.00	45	16	4	5 x DC	2	82.64	**312**								
1.2	0.96	1.16	8.00	45	16	4	6,6 x DC	2	82.64	**412**								
1.2	0.96	1.16	10.00	45	16	4	8,3 x DC	2	85.45	**512**								

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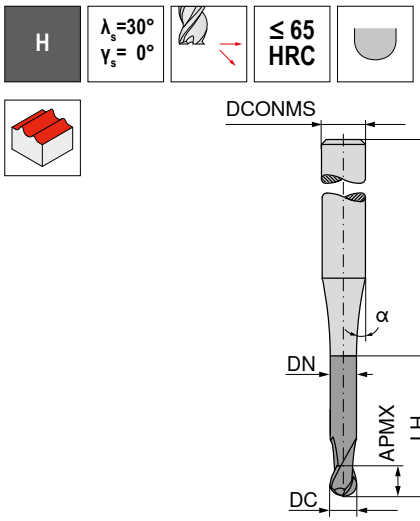
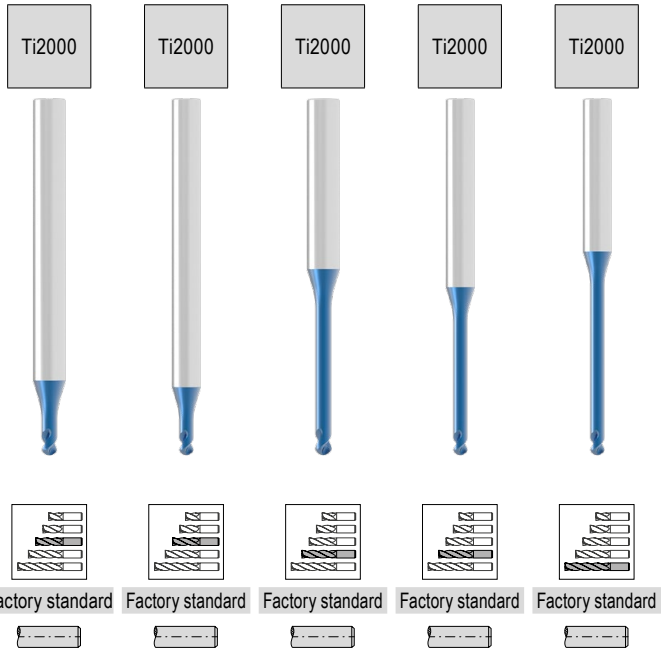
BlueLine – Micro-ball nosed cutter

The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth





DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_X	ZEFP	52 356 ... £ V1		52 358 ... £ V1		52 357 ... £ V1		52 359 ... £ V1		52 360 ... £ V1	
1.2	0.96	1.16	12.00	45	16	4	10 x DC	2					85.45	**312**				
1.2	0.96	1.16	14.00	50	16	4	11,6 x DC	2							86.42	**312**		
1.2	0.96	1.16	16.00	50	16	4	13,3 x DC	2							86.42	**412**		
1.4	1.12	1.34	8.00	45	16	4	5,7 x DC	2	79.56	**314**								
1.4	1.12	1.34	12.00	45	16	4	8,5 x DC	2	82.64	**414**								
1.4	1.12	1.34	16.00	50	16	4	11,4 x DC	2							85.77	**314**		
1.5	1.20	1.44	3.00	45	16	4	2 x DC	2	77.72	**315**								
1.5	1.20	1.44	4.00	45	16	4	2,6 x DC	2	77.72	**415**								
1.5	1.20	1.44	6.00	45	16	4	4 x DC	2	77.72	**515**								
1.5	1.20	1.44	8.00	45	16	4	5,3 x DC	2	77.72	**615**								
1.5	1.20	1.44	10.00	45	16	4	6,6 x DC	2	77.72	**715**								
1.5	1.20	1.44	12.00	45	16	4	8 x DC	2	82.30	**815**								
1.5	1.20	1.44	14.00	50	16	4	9,3 x DC	2			82.30	**315**						
1.5	1.20	1.44	16.00	50	16	4	10,6 x DC	2							82.30	**315**		
1.6	1.28	1.54	8.00	45	16	4	5 x DC	2	82.30	**316**								
1.6	1.28	1.54	12.00	45	16	4	7,5 x DC	2	82.30	**416**								
1.6	1.28	1.54	16.00	50	16	4	10 x DC	2							85.45	**316**		
1.8	1.44	1.74	8.00	45	16	4	4,4 x DC	2	82.30	**318**								
1.8	1.44	1.74	12.00	45	16	4	6,6 x DC	2	82.30	**418**								
1.8	1.44	1.74	16.00	50	16	4	8,8 x DC	2			85.45	**318**						
2.0	1.60	1.94	3.00	45	16	4	1,5 x DC	2	77.23	**320**								
2.0	1.60	1.94	4.00	45	16	4	2 x DC	2	77.23	**420**								
2.0	1.60	1.94	6.00	45	16	4	3 x DC	2	77.23	**520**								
2.0	1.60	1.94	8.00	45	16	4	4 x DC	2	82.30	**620**								
2.0	1.60	1.94	10.00	45	16	4	5 x DC	2	82.30	**720**								
2.0	1.60	1.94	12.00	45	16	4	6 x DC	2	82.30	**820**								
2.0	1.60	1.94	14.00	50	16	4	7 x DC	2			82.30	**320**						
2.0	1.60	1.94	16.00	50	16	4	8 x DC	2			82.30	**420**						
2.5	2.00	2.41	10.00	45	16	4	4 x DC	2	85.77	**325**								
2.5	2.00	2.41	15.00	50	16	4	6 x DC	2			88.23	**325**						
3.0	3.50	2.92	8.00	45	16	4	2,6 x DC	2	82.64	**330**								
3.0	3.50	2.92	10.00	45	16	4	3,3 x DC	2	82.64	**430**								
3.0	3.50	2.92	12.00	45	16	4	4 x DC	2	82.64	**530**								
3.0	3.50	2.92	16.00	45	16	4	5,3 x DC	2	86.76	**630**								
3.0	3.50	2.92	16.00	50	16	4	5,3 x DC	2			87.26	**330**						
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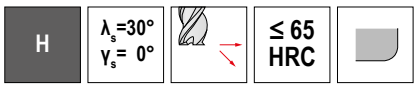
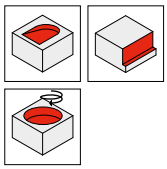
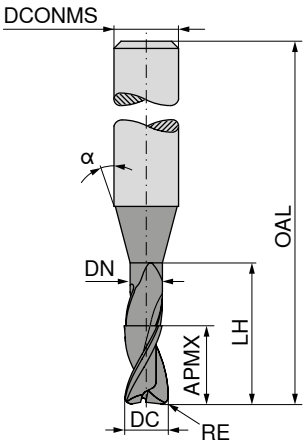
BlueLine – Micro-torus cutter

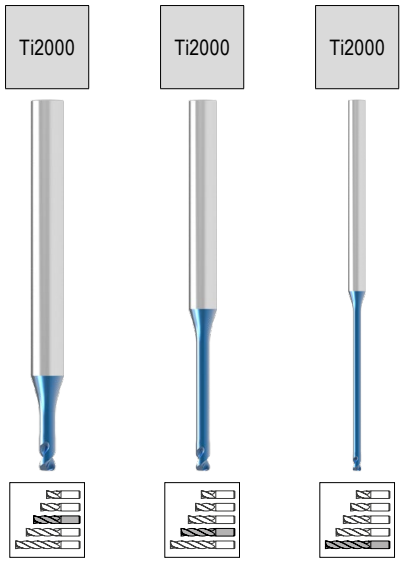
The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard



DC -0,012	RE ±0,005	APMX	DN	LH	OAL	α°	DCONMS h5	T_x	ZEFP	52 349 ... £ V1		52 350 ... £ V1		52 351 ... £ V1	
mm	mm	mm	mm	mm	mm		mm								
0.4	0.1	0.4	0.38	1.0	50	16	4	2,5 x DC	2	95.28	**30401**				
0.4	0.1	0.4	0.38	1.5	50	16	4	3,75 x DC	2	95.28	**40401**				
0.4	0.1	0.4	0.38	2.0	50	16	4	5 x DC	2	95.28	**50401**				
0.4	0.1	0.4	0.38	3.0	50	16	4	7,5 x DC	2	95.28	**60401**				
0.4	0.1	0.4	0.38	4.0	50	16	4	10 x DC	2			95.28	**30401**		
0.5	0.1	0.5	0.48	1.0	50	16	4	2 x DC	2	77.42	**30501**				
0.5	0.1	0.5	0.48	2.0	50	16	4	4 x DC	2	77.42	**40501**				
0.5	0.1	0.5	0.48	3.0	50	16	4	6 x DC	2	77.42	**50501**				
0.5	0.1	0.5	0.48	4.0	50	16	4	8 x DC	2	77.42	**60501**				
0.5	0.1	0.5	0.48	5.0	50	16	4	10 x DC	2			77.42	**30501**		
0.5	0.1	0.5	0.48	6.0	50	16	4	12 x DC	2			77.42	**40501**		
0.6	0.1	0.6	0.58	2.0	50	16	4	3,3 x DC	2	77.42	**30601**				
0.6	0.1	0.6	0.58	3.0	50	16	4	5 x DC	2	77.42	**40601**				
0.6	0.1	0.6	0.58	4.0	50	16	4	6,6 x DC	2	77.42	**50601**				
0.6	0.1	0.6	0.58	6.0	50	16	4	10 x DC	2			77.42	**30601**		
0.6	0.1	0.6	0.58	8.0	50	16	4	13,3 x DC	2			77.42	**40601**		
0.7	0.1	0.7	0.68	4.0	50	16	4	5,7 x DC	2	81.68	**30701**				
0.7	0.1	0.7	0.68	6.0	50	16	4	8,5 x DC	2	81.68	**40701**				
0.8	0.1	0.8	0.78	4.0	50	16	4	5 x DC	2	87.07	**30801**				
0.8	0.1	0.8	0.78	6.0	50	16	4	7,5 x DC	2	87.07	**40801**				
0.8	0.2	0.8	0.78	4.0	50	16	4	5 x DC	2	87.26	**30802**				
0.8	0.2	0.8	0.78	6.0	50	16	4	7,5 x DC	2	87.26	**40802**				
1.0	0.1	1.0	0.95	2.0	50	16	4	2 x DC	2	73.47	**31001**				
1.0	0.1	1.0	0.95	4.0	50	16	4	4 x DC	2	73.47	**41001**				
1.0	0.1	1.0	0.95	6.0	50	16	4	6 x DC	2	80.03	**51001**				
1.0	0.1	1.0	0.95	8.0	50	16	4	8 x DC	2	80.03	**61001**				
1.0	0.1	1.0	0.95	10.0	50	16	4	10 x DC	2			80.03	**31001**		
1.0	0.1	1.0	0.95	12.0	54	16	4	12 x DC	2			80.03	**41001**		
1.0	0.1	1.0	0.95	16.0	60	16	4	16 x DC	2			105.11	**51001**		
1.0	0.1	1.0	0.95	20.0	60	16	4	20 x DC	2					117.57	**31001**
1.0	0.2	1.0	0.95	2.0	50	16	4	2 x DC	2	74.12	**31002**				
1.0	0.2	1.0	0.95	4.0	50	16	4	4 x DC	2	74.12	**41002**				
1.0	0.2	1.0	0.95	6.0	50	16	4	6 x DC	2	80.03	**51002**				
1.0	0.2	1.0	0.95	8.0	50	16	4	8 x DC	2	80.03	**61002**				
1.0	0.2	1.0	0.95	10.0	50	16	4	10 x DC	2			80.03	**31002**		
1.0	0.2	1.0	0.95	12.0	54	16	4	12 x DC	2			80.03	**41002**		
1.0	0.2	1.0	0.95	16.0	60	16	4	16 x DC	2			105.11	**51002**		
1.0	0.2	1.0	0.95	20.0	60	16	4	20 x DC	2					117.57	**31002**
1.0	0.3	1.0	0.95	2.0	50	16	4	2 x DC	2	74.12	**31003**				
1.0	0.3	1.0	0.95	4.0	50	16	4	4 x DC	2	74.12	**41003**				
1.0	0.3	1.0	0.95	6.0	50	16	4	6 x DC	2	79.85	**51003**				
1.0	0.3	1.0	0.95	8.0	50	16	4	8 x DC	2	79.85	**61003**				
1.0	0.3	1.0	0.95	10.0	50	16	4	10 x DC	2			79.85	**31003**		
1.0	0.3	1.0	0.95	12.0	54	16	4	12 x DC	2			79.85	**41003**		
1.0	0.3	1.0	0.95	16.0	60	16	4	16 x DC	2			105.11	**51003**		

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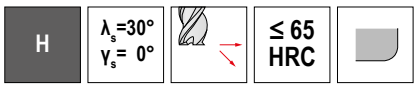
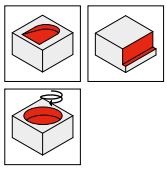
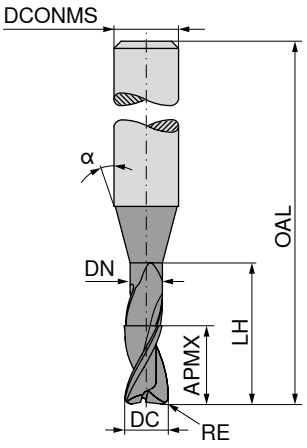
BlueLine – Micro-torus cutter

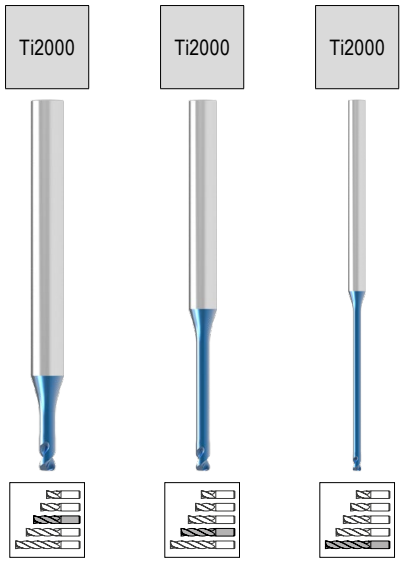
The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

DC -0,012 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 349 ... £ V1		52 350 ... £ V1		52 351 ... £ V1	
1.0	0.3	1.0	0.95	20.0	60	16	4	20 x DC	2					117.57	**31003**
1.2	0.2	1.2	1.14	6.0	50	16	4	5 x DC	2	82.64	**31202**				
1.2	0.2	1.2	1.14	12.0	54	16	4	10 x DC	2			82.64	**31202**		
1.2	0.2	1.2	1.14	20.0	60	16	4	16,6 x DC	2			123.82	**41202**		
1.2	0.3	1.2	1.14	6.0	50	16	4	5 x DC	2	82.64	**31203**				
1.2	0.3	1.2	1.14	12.0	54	16	4	10 x DC	2			82.64	**31203**		
1.2	0.3	1.2	1.14	20.0	60	16	4	16,6 x DC	2			123.82	**41203**		
1.5	0.2	1.5	1.44	4.0	50	16	4	2,6 x DC	2	77.72	**31502**				
1.5	0.2	1.5	1.44	6.0	50	16	4	4 x DC	2	77.72	**41502**				
1.5	0.2	1.5	1.44	8.0	50	16	4	5,3 x DC	2	82.30	**51502**				
1.5	0.2	1.5	1.44	10.0	50	16	4	6,6 x DC	2	82.30	**61502**				
1.5	0.2	1.5	1.44	12.0	54	16	4	8 x DC	2	82.30	**71502**				
1.5	0.2	1.5	1.44	16.0	54	16	4	10,6 x DC	2			82.30	**31502**		
1.5	0.2	1.5	1.44	20.0	60	16	4	13,3 x DC	2			82.30	**41502**		
1.5	0.3	1.5	1.44	4.0	50	16	4	2,6 x DC	2	77.72	**31503**				
1.5	0.3	1.5	1.44	6.0	50	16	4	4 x DC	2	77.72	**41503**				
1.5	0.3	1.5	1.44	8.0	50	16	4	5,3 x DC	2	82.30	**51503**				
1.5	0.3	1.5	1.44	10.0	50	16	4	6,6 x DC	2	82.30	**61503**				
1.5	0.3	1.5	1.44	12.0	54	16	4	8 x DC	2	82.30	**71503**				
1.5	0.3	1.5	1.44	16.0	54	16	4	10,6 x DC	2			82.30	**31503**		
1.5	0.3	1.5	1.44	20.0	60	16	4	13,3 x DC	2			82.30	**41503**		
1.5	0.5	1.5	1.44	4.0	50	16	4	2,6 x DC	2	77.72	**31505**				
1.5	0.5	1.5	1.44	6.0	50	16	4	4 x DC	2	77.72	**41505**				
1.5	0.5	1.5	1.44	8.0	50	16	4	5,3 x DC	2	77.72	**51505**				
1.5	0.5	1.5	1.44	10.0	50	16	4	6,6 x DC	2	77.72	**61505**				
1.5	0.5	1.5	1.44	12.0	54	16	4	8 x DC	2	77.72	**71505**				
1.5	0.5	1.5	1.44	16.0	54	16	4	10,6 x DC	2			77.72	**31505**		
1.5	0.5	1.5	1.44	20.0	60	16	4	13,3 x DC	2			77.72	**41505**		
2.0	0.1	2.0	1.91	4.0	50	16	4	2 x DC	2	77.23	**32001**				
2.0	0.1	2.0	1.91	6.0	50	16	4	3 x DC	2	77.23	**42001**				
2.0	0.1	2.0	1.91	8.0	50	16	4	4 x DC	2	82.30	**52001**				
2.0	0.1	2.0	1.91	10.0	50	16	4	5 x DC	2	82.30	**62001**				
2.0	0.1	2.0	1.91	12.0	54	16	4	6 x DC	2	82.30	**72001**				
2.0	0.1	2.0	1.91	16.0	54	16	4	8 x DC	2	82.30	**82001**				
2.0	0.1	2.0	1.91	20.0	60	16	4	10 x DC	2			82.30	**32001**		
2.0	0.1	2.0	1.91	26.0	70	16	4	13 x DC	2			82.30	**42001**		
2.0	0.2	2.0	1.91	4.0	50	16	4	2 x DC	2	77.23	**32002**				
2.0	0.2	2.0	1.91	6.0	50	16	4	3 x DC	2	77.23	**42002**				
2.0	0.2	2.0	1.91	8.0	50	16	4	4 x DC	2	82.30	**52002**				
2.0	0.2	2.0	1.91	10.0	50	16	4	5 x DC	2	82.30	**62002**				
2.0	0.2	2.0	1.91	12.0	54	16	4	6 x DC	2	82.30	**72002**				
2.0	0.2	2.0	1.91	16.0	54	16	4	8 x DC	2	82.30	**82002**				
2.0	0.2	2.0	1.91	20.0	60	16	4	10 x DC	2			82.30	**32002**		
2.0	0.2	2.0	1.91	26.0	70	16	4	13 x DC	2			82.30	**42002**		
2.0	0.3	2.0	1.91	4.0	50	16	4	2 x DC	2	77.23	**32003**				

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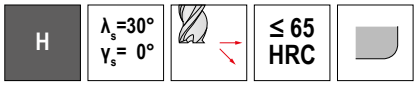
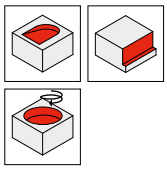
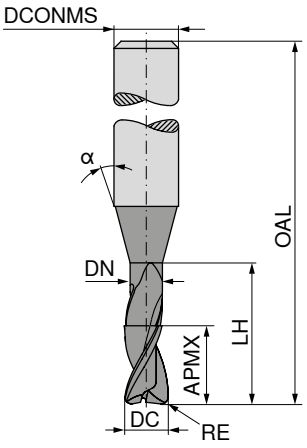
BlueLine – Micro-torus cutter

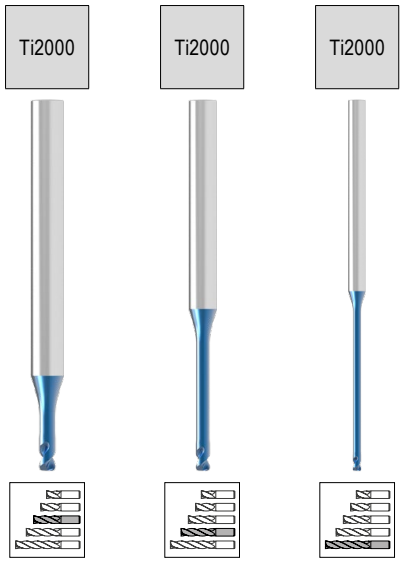
The all-rounder for machining tempered steel

▲ T_x = maximum engagement depth

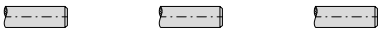








Factory standard | Factory standard | Factory standard



DC -0,012	RE ±0,005	APMX	DN	LH	OAL	α°	DCONMS h5	T_x	ZEFP	52 349 ... £ V1		52 350 ... £ V1		52 351 ... £ V1
mm	mm	mm	mm	mm	mm		mm							
2.0	0.3	2.0	1.91	6.0	50	16	4	3 x DC	2	77.23	**42003**			
2.0	0.3	2.0	1.91	8.0	50	16	4	4 x DC	2	77.23	**52003**			
2.0	0.3	2.0	1.91	10.0	50	16	4	5 x DC	2	82.30	**62003**			
2.0	0.3	2.0	1.91	12.0	54	16	4	6 x DC	2	82.30	**72003**			
2.0	0.3	2.0	1.91	16.0	54	16	4	8 x DC	2	82.30	**82003**			
2.0	0.3	2.0	1.91	20.0	60	16	4	10 x DC	2			82.30	**32003**	
2.0	0.3	2.0	1.91	26.0	70	16	4	13 x DC	2			82.30	**42003**	
2.0	0.5	2.0	1.91	4.0	50	16	4	2 x DC	2	77.23	**32005**			
2.0	0.5	2.0	1.91	6.0	50	16	4	3 x DC	2	77.23	**42005**			
2.0	0.5	2.0	1.91	8.0	50	16	4	4 x DC	2	82.30	**52005**			
2.0	0.5	2.0	1.91	10.0	50	16	4	5 x DC	2	82.30	**62005**			
2.0	0.5	2.0	1.91	12.0	54	16	4	6 x DC	2	82.30	**72005**			
2.0	0.5	2.0	1.91	16.0	54	16	4	8 x DC	2	82.30	**82005**			
2.0	0.5	2.0	1.91	20.0	60	16	4	10 x DC	2			82.30	**32005**	
2.0	0.5	2.0	1.91	26.0	70	16	4	13 x DC	2			82.30	**42005**	
2.5	0.3	2.5	2.41	10.0	50	16	4	4 x DC	2	85.77	**32503**			
2.5	0.3	2.5	2.41	12.0	60	16	4	4,8 x DC	2	88.23	**42503**			
2.5	0.3	2.5	2.41	30.0	70	16	4	12 x DC	2			91.02	**32503**	
2.5	0.5	2.5	2.41	10.0	50	16	4	4 x DC	2	85.77	**32505**			
2.5	0.5	2.5	2.41	12.0	60	16	4	4,8 x DC	2	85.77	**42505**			
2.5	0.5	2.5	2.41	30.0	70	16	4	12 x DC	2			91.02	**32505**	
3.0	0.3	3.0	2.92	10.0	50	16	4	3,3 x DC	2	81.34	**33003**			
3.0	0.3	3.0	2.92	12.0	50	16	4	4 x DC	2	82.50	**43003**			
3.0	0.3	3.0	2.92	30.0	70	16	4	10 x DC	2			110.52	**33003**	
3.0	0.5	3.0	2.92	10.0	50	16	4	3,3 x DC	2	81.34	**33005**			
3.0	0.5	3.0	2.92	12.0	50	16	4	4 x DC	2	82.30	**43005**			
3.0	0.5	3.0	2.92	30.0	70	16	4	10 x DC	2			110.52	**33005**	

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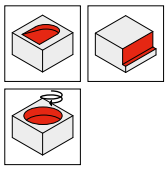
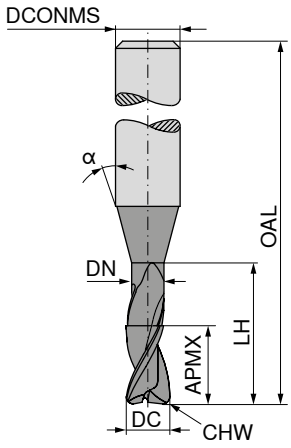
→ v_c/f_z Page 420+421

BlueLine – End milling cutter

The all-rounder for machining tempered steel

H | λ_s=30° γ_s= 0° | ≤ 65 HRC





Ti2000



Factory standard

52 344 ...

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	CHW mm	ZEFP	£ V1	
0.5	1.5			58	12	6	0.02	2	60.99	**905**
1.0	3.0			58	12	6	0.02	2	60.99	**010**
1.5	4.0			58	12	6	0.03	2	60.99	**015**
2.0	5.0	1.8	12	58	20	6	0.03	2	60.99	**020**
2.5	6.0	2.3	13	58	20	6	0.04	2	60.99	**025**
3.0	8.0	2.8	15	58	20	6	0.04	2	60.99	**030**
3.5	8.0	3.3	15	58	20	6	0.05	2	60.99	**035**
4.0	11.0	3.8	15	58	20	6	0.05	2	60.99	**040**
5.0	13.0	4.8	21	58	20	6	0.06	2	60.99	**050**
6.0	16.0	5.8	24	58		6	0.07	2	60.99	**060**
8.0	19.0	7.8	27	64		8	0.08	2	80.03	**080**
10.0	22.0	9.8	32	73		10	0.10	2	122.00	**100**
12.0	26.0	11.8	38	84		12	0.13	2	159.87	**120**
16.0	32.0	15.7	44	93		16	0.18	2	273.85	**160**
20.0	38.0	19.7	54	104		20	0.20	2	419.82	**200**

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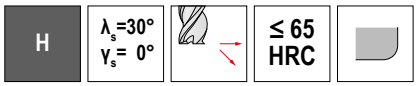
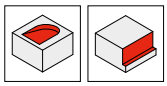
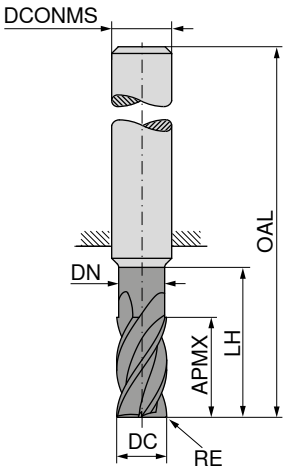
BlueLine – End milling cutter with corner radius

The all-rounder for machining tempered steel









Factory standard | Factory standard





DC e8 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	52 353 ... £ V1		52 354 ... £ V1	
1	0.10	1.5	0.85	10	50	3	4	73.30	31001		
1	0.10	1.5	0.85	20	75	3	4			105.28	31001
1	0.20	1.5	0.85	10	50	3	4	73.80	31002		
1	0.20	1.5	0.85	20	75	3	4			105.28	31002
2	0.20	2.5	1.80	12	50	3	4	72.65	32002		
2	0.20	2.5	1.80	25	75	3	4			103.63	32002
2	0.30	2.5	1.80	12	50	3	4	72.65	32003		
2	0.30	2.5	1.80	25	75	3	4			103.63	32003
2	0.50	2.5	1.80	12	50	3	4	72.65	32005		
2	0.50	2.5	1.80	25	75	3	4			103.63	32005
3	0.25	4.0	2.70	14	50	3	4	69.03	33002		
3	0.25	4.0	2.70	32	75	3	4			98.24	33002
3	0.30	4.0	2.70	14	50	3	4	69.03	33003		
3	0.30	4.0	2.70	32	75	3	4			98.24	33003
3	0.50	4.0	2.70	14	50	3	4	69.03	33005		
3	0.50	4.0	2.70	32	75	3	4			98.24	33005
3	1.00	4.0	2.70	14	50	3	4	69.03	33010		
3	1.00	4.0	2.70	32	75	3	4			98.24	33010
4	0.20	5.0	3.70	16	50	4	4	74.12	44002		
4	0.20	5.0	3.70	36	75	4	4			106.45	44002
4	0.25	5.0	3.70	16	50	4	4	74.12	44003		
4	0.25	5.0	3.70	36	75	4	4			106.45	44003
4	0.40	5.0	3.70	16	50	4	4	74.12	44004		
4	0.40	5.0	3.70	36	75	4	4			106.45	44004
4	0.50	5.0	3.70	16	50	4	4	74.12	44005		
4	0.50	5.0	3.70	36	75	4	4			106.45	44005
4	1.00	5.0	3.70	16	50	4	4	74.12	44010		
4	1.00	5.0	3.70	36	75	4	4			106.45	44010
5	0.25	6.0	4.60	18	54	5	4	80.36	55002		
5	0.25	6.0	4.60	40	75	5	4			118.74	55002
5	0.50	6.0	4.60	18	54	5	4	80.36	55005		
5	0.50	6.0	4.60	40	75	5	4			118.74	55005
5	1.00	6.0	4.60	18	54	5	4	80.36	55010		
5	1.00	6.0	4.60	40	75	5	4			118.74	55010
6	0.25	7.0	5.50	21	58	6	4	91.02	06002		
6	0.25	7.0	5.50	44	80	6	4			128.58	06002
6	0.50	7.0	5.50	21	58	6	4	91.02	06005		
6	0.50	7.0	5.50	44	80	6	4			128.58	06005
6	0.80	7.0	5.50	21	58	6	4	91.02	06008		
6	1.00	7.0	5.50	21	58	6	4	91.02	06010		
6	1.00	7.0	5.50	44	80	6	4			128.58	06010
6	1.50	7.0	5.50	21	58	6	4	91.02	06015		
6	1.50	7.0	5.50	44	80	6	4			128.58	06015
6	2.00	7.0	5.50	21	58	6	4	91.02	06020		
8	0.25	9.0	7.40	27	64	8	4	119.87	08002		

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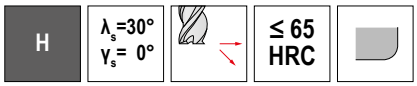
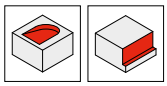
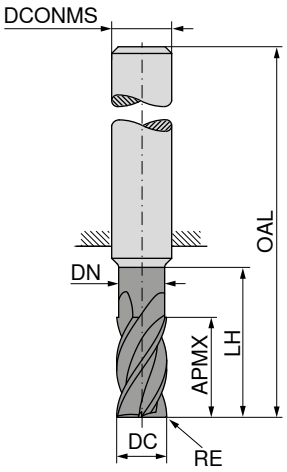
BlueLine – End milling cutter with corner radius

The all-rounder for machining tempered steel









DC e8	RE ±0,005	APMX	DN	LH	OAL	DCONMS h5	ZEFP	52 353 ... £ V1		52 354 ... £ V1	
mm	mm	mm	mm	mm	mm	mm					
8	0.25	9.0	7.40	54	100	8	4			175.48	08002
8	0.50	9.0	7.40	27	64	8	4	119.87	08005		
8	0.50	9.0	7.40	54	100	8	4			175.48	08005
8	0.80	9.0	7.40	27	64	8	4	119.87	08008		
8	0.80	9.0	7.40	54	100	8	4			175.48	08008
8	1.00	9.0	7.40	27	64	8	4	119.87	08010		
8	1.00	9.0	7.40	54	100	8	4			175.48	08010
8	1.50	9.0	7.40	27	64	8	4	119.87	08015		
8	1.50	9.0	7.40	54	100	8	4			175.48	08015
8	2.00	9.0	7.40	27	64	8	4	119.87	08020		
8	2.00	9.0	7.40	54	100	8	4			175.48	08020
8	2.50	9.0	7.40	27	64	8	4	119.87	08025		
8	3.00	9.0	7.40	27	64	8	4	119.87	08030		
8	3.00	9.0	7.40	54	100	8	4			175.48	08030
10	0.25	11.0	9.20	32	73	10	4	156.44	10002		
10	0.25	11.0	9.20	60	100	10	4			239.43	10002
10	0.50	11.0	9.20	32	73	10	4	156.44	10005		
10	0.50	11.0	9.20	60	100	10	4			239.43	10005
10	0.80	11.0	9.20	32	73	10	4	156.44	10008		
10	0.80	11.0	9.20	60	100	10	4			239.43	10008
10	1.00	11.0	9.20	32	73	10	4	156.44	10010		
10	1.00	11.0	9.20	60	100	10	4			239.43	10010
10	1.50	11.0	9.20	32	73	10	4	156.44	10015		
10	1.50	11.0	9.20	60	100	10	4			239.43	10015
10	2.00	11.0	9.20	32	73	10	4	156.44	10020		
10	2.00	11.0	9.20	60	100	10	4			239.43	10020
10	3.00	11.0	9.20	32	73	10	4	156.44	10030		
10	3.00	11.0	9.20	60	100	10	4			239.43	10030
10	3.50	11.0	9.20	32	73	10	4	156.44	10035		
12	0.50	12.0	11.00	38	84	12	4	211.55	12005		
12	0.50	12.0	11.00	75	120	12	4			316.49	12005
12	1.00	12.0	11.00	38	84	12	4	211.55	12010		
12	1.00	12.0	11.00	75	120	12	4			316.49	12010
12	1.50	12.0	11.00	38	84	12	4	211.55	12015		
12	1.50	12.0	11.00	75	120	12	4			316.49	12015
12	2.00	12.0	11.00	38	84	12	4	211.55	12020		
12	2.00	12.0	11.00	75	120	12	4			316.49	12020
12	3.00	12.0	11.00	38	84	12	4	211.55	12030		
12	3.00	12.0	11.00	75	120	12	4			316.49	12030
16	2.00	16.0	15.00	44	93	16	4	357.50	16020		
16	2.00	16.0	15.00	92	150	16	4			536.25	16020
16	3.00	16.0	15.00	44	93	16	4	357.50	16030		
16	3.00	16.0	15.00	92	150	16	4			536.25	16030

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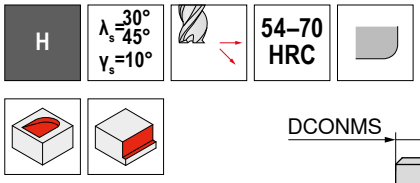
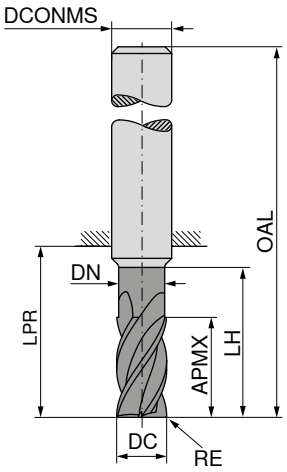
→ v_c/f_z Page 426+427

BlueLine – End milling cutter with corner radius

The all-rounder for machining tempered steel

▲ With decreasing helix angle for reduced machining noise & vibration













Factory standard

Factory standard





DC e8 mm	RE ±0.01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 140 ... £ V1		52 141 ... £ V1	
3	0.3	4	2.7	14	22	50	3	4	86.94	031		
3	0.5	4	2.7	14	22	50	3	4	86.94	033		
3	1.0	4	2.7	14	22	50	3	4	86.94	034		
4	0.4	5	3.7	16	22	50	4	4	92.18	042		
4	0.5	5	3.7	16	22	50	4	4	92.18	043		
4	1.0	5	3.7	16	22	50	4	4	92.18	044		
5	0.5	6	4.6	18	26	54	5	4	98.89	053		
5	1.0	6	4.6	18	26	54	5	4	98.89	054		
6	0.5	7	5.5	21	21	57	6	6	122.82	063	122.82	063
6	1.0	7	5.5	21	21	57	6	6	122.82	064	122.82	064
6	1.5	7	5.5	21	21	57	6	6	122.82	065	122.82	065
8	0.5	9	7.4	27	27	63	8	6	162.11	083	162.11	083
8	1.0	9	7.4	27	27	63	8	6	162.11	084	162.11	084
8	1.5	9	7.4	27	27	63	8	6	162.11	085	162.11	085
8	2.0	9	7.4	27	27	63	8	6	162.11	086	162.11	086
10	0.5	11	9.2	32	32	72	10	6	208.27	103	208.27	103
10	1.0	11	9.2	32	32	72	10	6	208.27	104	208.27	104
10	1.5	11	9.2	32	32	72	10	6	208.27	105	208.27	105
10	2.0	11	9.2	32	32	72	10	6	208.27	106	208.27	106
12	0.5	12	11.0	38	38	83	12	6	281.32	123	281.32	123
12	1.0	12	11.0	38	38	83	12	6	281.32	124	281.32	124
12	1.5	12	11.0	38	38	83	12	6	281.32	125	281.32	125
12	2.0	12	11.0	38	38	83	12	6	281.32	126	281.32	126
16	1.0	16	15.0	44	45	93	16	6	474.76	161	474.76	161
16	2.0	16	15.0	44	45	93	16	6	474.76	163	474.76	163
20	1.0	20	18.5	50	54	104	20	6	673.48	201	673.48	201
20	2.5	20	18.5	50	54	104	20	6	673.48	204	673.48	204
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→ v_c/f_z Page 424+425

BlueLine – Finish milling cutter

The all-rounder for machining tempered steel

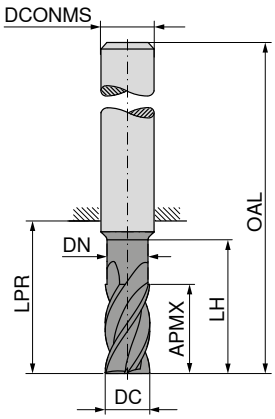
▲ With decreasing helix angle for reduced machining noise & vibration







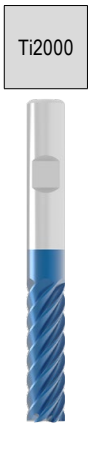




















Factory standard | Factory standard | Factory standard | Factory standard | Factory standard







DC e8 mm	APMX mm	LPR mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	52 133 ... £ V1		52 134 ... £ V1		52 135 ... £ V1		52 136 ... £ V1		52 348 ... £ V1	
2	8	22			58	6	4			70.26	**020**						
2	8	22	2.0	10	58	6	4	70.26	**020**								
3	12	22			58	6	4			70.26	**030**						
3	12	22	3.0	14	58	6	4	70.26	**030**								
4	13	22			58	6	4			80.98	**040**						
4	13	22	4.0	15	58	6	4	80.98	**040**								
5	15	22			58	6	6			84.18	**050**						
5	15	22	5.0	17	58	6	6	84.18	**050**								
6	16	22			58	6	6	121.13	**060**	121.13	**060**						
6	16	44	5.8	40	80	6	6									93.47	**060**
6	21	29			65	6	6					161.45	**060**	161.45	**060**		
8	19	64	7.7	50	100	8	6									116.43	**080**
8	22	34			70	8	6	145.94	**080**	145.94	**080**						
8	28	39			75	8	6					188.37	**080**	188.37	**080**		
10	25	33			73	10	6	230.85	**100**	230.85	**100**						
10	25	60	9.7	60	100	10	6									172.18	**100**
10	35	45			85	10	6					311.67	**100**	311.67	**100**		
12	28	39			84	12	6	333.72	**120**	333.72	**120**						
12	30	75	11.6	60	120	12	6									226.29	**120**
12	45	55			100	12	6					436.94	**120**	436.94	**120**		
14	30	39			84	14	6	349.62	**140**	349.62	**140**						
14	45	55			100	14	6					495.14	**140**	495.14	**140**		
16	35	45			93	16	8	551.02	**160**	551.02	**160**						
16	40	102	15.6	100	150	16	8									467.34	**160**
16	50	62			110	16	8					712.30	**160**	712.30	**160**		
16	65	77			125	16	8					600.19	**161**	750.05	**161**		
18	35	45			93	18	10	577.97	**180**	577.97	**180**						
18	54	66			114	18	10					770.28	**180**	770.28	**180**		
20	40	54			104	20	10	797.25	**200**	797.25	**200**						
20	50	100	19.6	100	150	20	10									626.44	**200**
20	55	76			126	20	10					1,003.33	**200**	994.12	**200**		
20	70	85			135	20	10					1,200.38	**201**	1,200.38	**201**		

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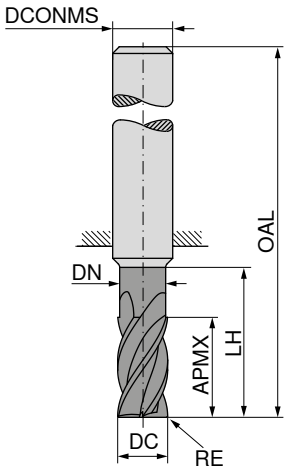
→ v_c/f_z Page 424–426

BlueLine – Finish milling cutter with corner radius

The all-rounder for machining tempered steel

H | λ_s=30°/45° γ_s= 0° | 54–70 HRC











Factory standard



Factory standard





DC e8 mm	RE +/-0,005 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	52 324 ... £ V1		52 325 ... £ V1	
5	0.5	15	4.8	19	58	6	6	121.99	052		
5	1.0	15	4.8	19	58	6	6	121.99	053		
6	0.5	16	5.8	20	58	6	6	124.10	062		
6	0.5	21	5.8	29	65	6	6			146.76	062
6	1.0	16	5.8	20	58	6	6	124.10	063		
6	1.0	21	5.8	29	65	6	6			146.76	063
8	0.5	22	7.8	26	70	8	6	145.69	082		
8	0.5	28	7.8	39	75	8	6			167.27	082
8	1.0	22	7.8	26	70	8	6	145.69	083		
8	1.0	28	7.8	39	75	8	6			167.27	083
10	0.5	25	9.8	31	73	10	6	233.79	102		
10	0.5	35	9.8	45	85	10	6			257.50	102
10	1.0	25	9.8	31	73	10	6	233.79	103		
10	1.0	35	9.8	45	85	10	6			263.99	103
10	1.5	25	9.8	31	73	10	6	233.79	104		
10	1.5	35	9.8	45	85	10	6			257.50	104
12	0.5	28	11.8	37	84	12	6	314.70	122		
12	0.5	45	11.8	55	100	12	6			377.89	122
12	1.0	28	11.8	37	84	12	6	314.70	123		
12	1.0	45	11.8	55	100	12	6			377.89	123
12	1.5	28	11.8	37	84	12	6	314.70	124		
12	1.5	45	11.8	55	100	12	6			377.89	124
14	1.0	30	13.8	37	84	14	6	340.69	143		
14	1.0	45	13.8	55	100	14	6			423.69	143
16	1.0	35	15.8	43	93	16	8	488.96	163		
16	1.0	50	15.8	62	110	16	8			618.52	163
16	2.0	35	15.8	43	93	16	8	488.96	165		
16	2.0	50	15.8	62	110	16	8			618.52	165
18	1.0	35	17.8	43	93	18	10	525.51	183		
18	1.0	54	17.8	66	114	18	10			682.75	183
20	1.0	40	19.8	52	104	20	10	695.76	203		
20	1.0	55	19.8	76	126	20	10			910.72	203
20	2.0	40	19.8	52	104	20	10	695.76	205		
20	2.0	55	19.8	76	126	20	10			910.72	205

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→ v_c/f_z Page 424+425

14

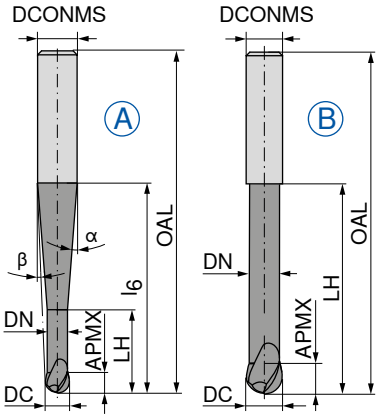
BlueLine – Ball Nosed Cutter

The all-rounder for machining tempered steel

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | 54–70 HRC | Ti2000









Factory standard



52 302 ...

DC mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	£ V1	
1.0	1.00	0.95	10	16.5	57	15	9	6	2	A	235.89	**010**
1.5	1.25	1.40	12	18.0	57	15	7,5	6	2	A	216.05	**015**
2.0	1.50	1.90	16	20.0	57	15	6	6	2	A	173.04	**020**
3.0	2.00	2.90	20	34.5	80	15	2,5	6	2	A	208.34	**030**
4.0	2.50	3.90	22	35.0	80	15	2	6	2	A	195.89	**040**
5.0	3.00	4.90	25	35.0	80	15	1	6	2	A	191.53	**050**
6.0	3.50	5.90	29		80			6	2	B	183.77	**060**

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→ v_c/f_z Page 428+429

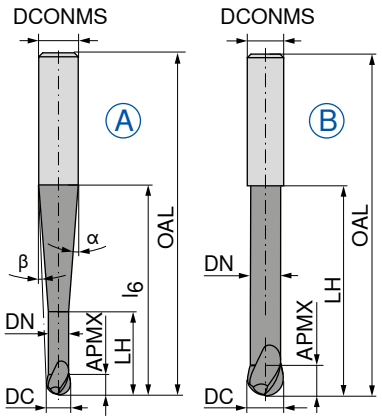
BlueLine – Ball Nosed Cutter

The all-rounder for machining tempered steel

▲ Radius accuracy: ± 0.005 mm for Ø ≤ 6.0 mm / ± 0.01 mm for Ø > 6,0 mm
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

H | λ_s=30° γ_s= 0° | 54–70 HRC

Ti2000





Factory standard

52 303 ...

DC mm	DC Tol.	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	£ V1	
0.5	±0,01	1.0	0.45	2.0	20	57	10	8,5	6	2	A	288.02	**005**
1.0	±0,01	2.0	0.95	4.0	20	57	10	8	6	2	A	283.42	**010**
1.5	±0,01	2.5	1.40	7.5	20	57	12,5	7	6	2	A	279.41	**015**
2.0	±0,01	3.0	1.80	8.0	20	57	12	6,5	6	2	A	210.43	**020**
3.0	±0,01	3.5	2.80	10.0	20	57	11,5	5	6	2	A	206.23	**030**
4.0	±0,01	4.0	3.80	12.0	20	57	11	3,5	6	2	A	199.58	**040**
5.0	±0,01	5.0	4.70	14.0	20	57	10	2	6	2	A	207.29	**050**
6.0	±0,01	6.0	5.60	20.0		57			6	2	B	201.14	**060**
8.0	±0,02	7.0	7.60	25.0		63			8	2	B	262.05	**080**
10.0	±0,02	8.0	9.60	30.0		72			10	2	B	365.42	**100**
12.0	±0,02	10.0	11.50	35.0		83			12	2	B	455.81	**120**
12.0	±0,02	10.0	11.50	35.0	40	92	35	3,5	16	2	A	671.69	**121**
16.0	±0,02	12.0	15.50	40.0		92			16	2	B	656.93	**160**

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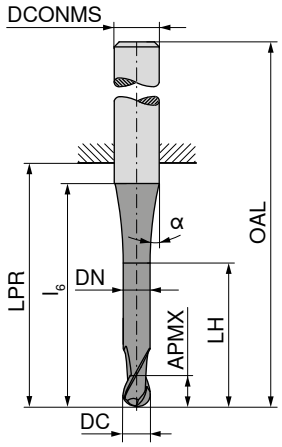
→ v_c/f_z Page 428+429

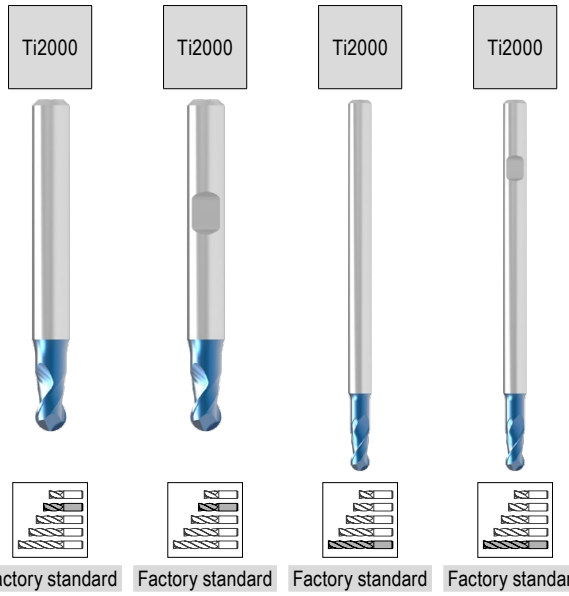
BlueLine – Ball Nosed Cutter

The all-rounder for machining tempered steel

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | 54–70 HRC





Factory standard | Factory standard | Factory standard | Factory standard

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	α° ±0,5	ZEFP	52 256 ... £ V1		52 257 ... £ V1		52 258 ... £ V1		52 259 ... £ V1	
0.10	0.2			11	10	38	3	8	2	153.41	**910**						
0.15	0.3			12	10	38	3	7,5	2	141.04	**915**						
0.20	0.4			12	10	38	3	7	2	132.48	**920**						
0.25	0.5	0.20	0.8	12	10	38	3	7	2	147.88	**925**						
0.30	1.0	0.25	1.3	12	10	38	3	7	2	139.22	**930**						
0.35	1.0	0.30	1.3	12	10	38	3	7	2	123.29	**935**						
0.40	1.0	0.35	1.3	12	10	38	3	7	2	92.05	**940**						
0.50	1.5	0.40	2.0	12	10	38	3	7,5	2	76.47	**950**						
0.50	1.5	0.40	2.0	17	18	54	6	10,5	2	76.72	**005**	76.72	**005**				
0.50	1.5	0.40	2.0	13	47	75	3	7	2					110.68	**950**		
0.50	1.5	0.40	2.0	17	44	80	6	10,5	2					127.18	**005**	132.36	**005**
0.60	1.5	0.50	2.0	12	10	38	3	7	2	83.01	**960**						
0.70	2.0	0.60	2.5	12	10	38	3	7,5	2	76.47	**970**						
0.80	2.0	0.70	2.5	13	10	38	3	7,5	2	76.47	**980**						
0.90	2.5	0.80	3.5	13	10	38	3	7	2	76.47	**990**						
1.00	2.0	0.90	3.0	13	22	50	3	6	2	80.31	**011**						
1.00	2.0	0.90	3.0	18	18	54	6	9,5	2	89.84	**106**	89.84	**010**				
1.00	3.0	0.90	4.0	14	47	75	3	6	2					110.68	**011**		
1.00	3.0	0.90	4.0	19	44	80	6	9,5	2					120.11	**010**	132.36	**010**
1.10	3.0	1.00	4.0	13	22	50	3	7	2	76.47	**911**						
1.20	3.0	1.10	4.0	13	22	50	3	7	2	76.47	**012**						
1.40	3.0	1.30	4.0	14	22	50	3	5	2	76.47	**014**						
1.50	3.0	1.40	4.0	13	22	50	3	5,5	2	80.31	**016**						
1.50	3.0	1.40	4.0	18	18	54	6	9	2	89.84	**156**	89.84	**015**				
1.50	4.0	1.40	6.0	13	47	75	3	7	2					108.39	**016**		
1.50	4.0	1.40	6.0	19	44	80	6	10	2					120.36	**015**	132.36	**015**
1.60	4.0	1.50	5.0	13	22	50	3	5	2	76.47	**916**						
1.80	4.0	1.70	5.0	13	22	50	3	5	2	76.47	**018**						
2.00	4.0	1.90	5.5	12	22	50	3	5	2	85.04	**021**						
2.00	4.0	1.90	5.5	18	18	54	6	9	2	89.84	**206**	89.84	**020**				
2.00	6.0	1.90	8.0	12	47	75	3	8	2					101.47	**021**		
2.00	6.0	1.90	8.0	20	44	80	6	11	2					113.16	**020**	130.19	**020**
2.50	5.0	2.30	6.5	10	22	50	3	7	2	76.47	**025**						
2.50	5.0	2.30	6.5	17	18	54	6	10	2	80.31	**026**	80.31	**026**				
2.50	8.0	2.30	10.0	14	47	75	3	5,5	2					101.39	**026**		
2.50	8.0	2.30	10.0	20	44	80	6	10	2					110.68	**025**	130.19	**025**
3.00	6.0	2.80	8.0		22	50	3		2	85.04	**031**						
3.00	6.0	2.80	8.0	18	18	54	6	9	2	89.84	**306**	89.84	**030**				

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→ v_c/f_z Page 428+429

Continued on next page

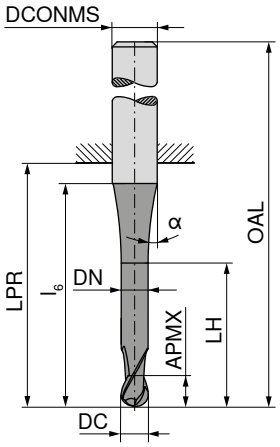
BlueLine – Ball Nosed Cutter

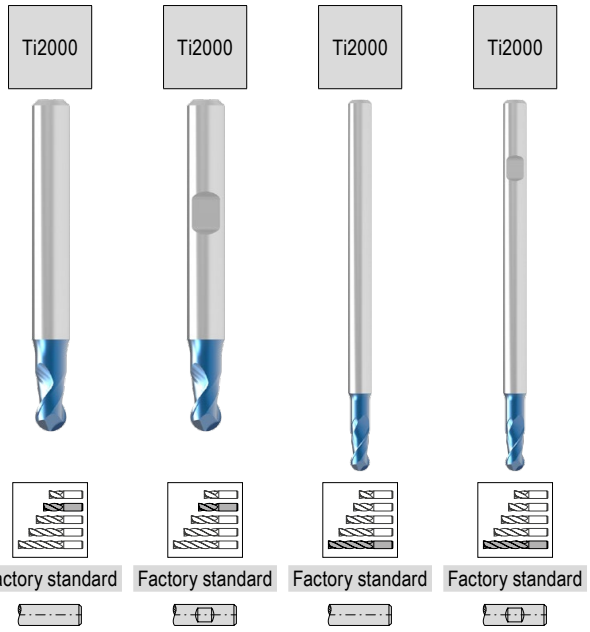
The all-rounder for machining tempered steel

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | 54–70 HRC







DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	α° ±0,5	ZEFP	52 256 ... £ V1		52 257 ... £ V1		52 258 ... £ V1		52 259 ... £ V1	
3.00	10.0	2.80	13.0		47	75	3		2					97.19	**031**		
3.00	10.0	2.80	15.0	23	44	80	6	11	2					110.68	**030**	110.68	**030**
4.00	7.0	3.80	10.0	18	18	54	6	11	2	89.84	**406**	89.84	**040**				
4.00	7.0	3.80	10.0		26	54	4		2	87.70	**041**						
4.00	13.0	3.80	20.0		47	75	4		2					94.80	**041**		
4.00	13.0	3.80	18.0	23	44	80	6	12,5	2					104.10	**040**	104.10	**040**
5.00	8.0	4.80	11.0	15	18	54	6	8	2	89.84	**506**	89.84	**050**				
5.00	8.0	4.80	11.0		26	54	5		2	89.84	**051**						
5.00	14.0	4.80	19.0		47	75	5		2					108.39	**051**		
5.00	14.0	4.80	19.0	21	64	100	6	13	2					120.36	**050**	120.36	**050**
6.00	10.0	5.80	15.0		18	54	6		2	89.84	**061**	89.84	**060**				
6.00	16.0	5.80	25.0		64	100	6		2					134.70	**060**	134.70	**060**
8.00	12.0	7.80	17.0		23	59	8		2	109.91	**081**	109.91	**080**				
8.00	22.0	7.80	35.0		64	100	8		2					161.45	**080**	161.45	**080**
10.00	13.0	9.80	18.0		27	67	10		2	143.53	**101**	143.53	**100**				
10.00	25.0	9.80	40.0		60	100	10		2					210.61	**100**	210.61	**100**
12.00	16.0	11.90	21.0		28	73	12		2	203.92	**121**	203.92	**120**				
12.00	26.0	11.80	40.0		55	100	12		2					278.05	**120**	278.05	**120**
14.00	16.0	13.80	21.0		30	75	14		2	257.78	**141**	257.78	**140**				
14.00	26.0	13.80	40.0		55	100	14		2					376.56	**140**	376.56	**140**
16.00	20.0	15.80	25.0		35	83	16		2	295.60	**161**	295.60	**160**				
16.00	30.0	15.80	50.0		102	150	16		2					611.23	**160**	611.23	**160**
20.00	25.0	19.80	30.0		43	93	20		2	483.79	**201**	483.79	**200**				
20.00	40.0	19.80	60.0		100	150	20		2					745.92	**200**	745.92	**200**

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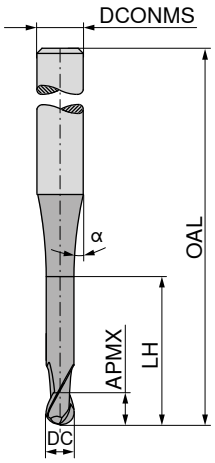
→ v_c/f_z Page 428+429

BlueLine – Ball Nosed Cutter

The all-rounder for machining tempered steel

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ≤ 65 HRC | Ti2000





Factory standard

52 355 ...

DC f8 mm	APMX mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	£ V1	
3	8	11	65	12	6	3	91.18	**030**
4	8	11	75	12	6	3	93.79	**040**
5	10	13	75	12	6	3	93.79	**050**
6	12		100		6	3	96.93	**060**
8	14		100		8	3	132.01	**080**
10	18		100		10	3	167.26	**100**
12	22		120		12	3	218.12	**120**

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→ v_c/f_z Page 428

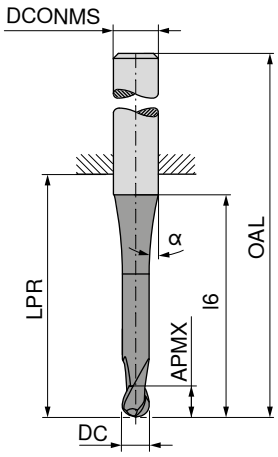
BlueLine – Ball Nosed Cutter

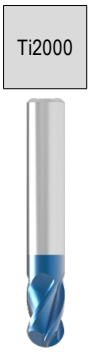
The all-rounder for machining tempered steel

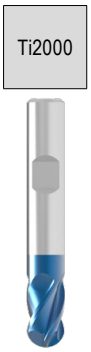
▲ Radius accuracy: ± 0,005 mm

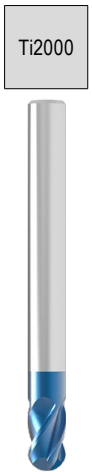
H | λ_s=30° γ_s= 0° | 54–70 HRC













Factory standard



Factory standard



Factory standard







DC f8 mm	APMX mm	l_6 mm	LPR mm	OAL mm	α° ±1	DCONMS h6 mm	ZEFP	52 404 ... £ V1		52 405 ... £ V1		52 404 ... £ V1	
2.0	4	10.0	22	50	8	3	4	73.00	**020**				
2.0	4	16.0	18	54	12	6	4	88.07	**021**	88.07	**021**		
2.0	4	10.0	47	75	8	3	4					95.92	**022**
2.0	4	16.0	44	80	12	6	4					125.73	**023**
2.5	5	16.0	18	54	12	6	4	88.07	**025**	88.07	**025**		
2.5	5	16.0	44	80	12	6	4					118.25	**026**
3.0	5		22	50		3	4	79.17	**030**				
3.0	5	14.0	18	54	12	6	4	84.74	**031**	84.74	**031**		
3.0	5		47	75		3	4					99.47	**032**
3.0	5	14.0	44	80	12	6	4					124.56	**033**
4.0	8	15.0	18	54	12	6	4	84.74	**041**	84.74	**041**		
4.0	8		26	54		4	4	80.47	**040**				
4.0	8		47	75		4	4					111.55	**042**
4.0	8	15.0	44	80	12	6	4					123.38	**043**
5.0	9	13.5	18	54	12	6	4	83.62	**051**	83.62	**051**		
5.0	9		26	54		5	4	81.64	**050**				
5.0	9		47	75		5	4					112.68	**052**
5.0	9	13.5	64	100	12	6	4					121.09	**053**
6.0	10		18	54		6	4	85.04	**060**	85.04	**060**		
6.0	10		64	100		6	4					118.83	**062**
7.0	12	15.0	23	59	12	8	4	115.41	**070**	115.41	**070**		
8.0	12		23	59		8	4	105.96	**080**	105.96	**080**		
8.0	12		64	100		8	4					151.66	**082**
9.0	14	17.0	27	67	12	10	4	154.16	**090**	154.16	**090**		
10.0	14	16.0	27	67		10	4	143.51	**100**	143.51	**100**		
10.0	14		60	100		10	4					195.71	**102**
12.0	16		29	74		12	4	193.04	**120**	193.04	**120**		
12.0	16		55	100		12	4					251.32	**122**
14.0	18		30	75		14	4	241.48	**140**	241.48	**140**		
14.0	18	20.0	55	100		14	4					316.99	**142**
16.0	22	24.0	35	83		16	4	301.25	**160**	301.25	**160**		
16.0	22	24.0	102	150		16	4					489.74	**162**
20.0	26	28.0	43	93		20	4	463.91	**200**	463.91	**200**		
20.0	26	28.0	100	150		20	4					676.35	**202**

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→ v_c/f_z Page 428+429

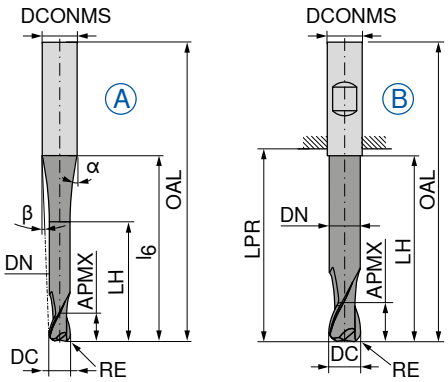
BlueLine – Torus Cutter

The all-rounder for machining tempered steel

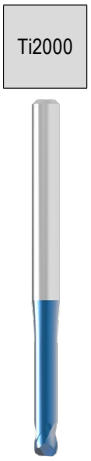
▲ Radius accuracy: ± 0,005 mm for Ø ≤ 6,0 mm / ± 0,01 mm for Ø > 6,0 mm
▲ or Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

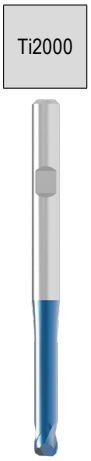
H | λ_s=30° γ_s= 0° | 54–70 HRC





LPR with Shank DIN 6535 HB









Factory standard | Factory standard





DC ±0,01 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	l_6 mm	OAL mm	α° ±0,5	β°	DCONMS h5 mm	ZEFP	Fig.	£ V1		£ V1	
1.0	0.2	1.00	0.95	10	21	16.5	57	23	9	6	2	A	262.05	**010**		
1.5	0.3	1.25	1.40	12	21	18.0	57	21	7,5	6	2	A	235.34	**015**		
2.0	0.4	1.50	1.90	16	21	20.0	57	25	6	6	2	A	192.68	**020**		
3.0	0.5	2.00	2.90	20	44	34.5	80	6	2,5	6	2	A	228.87	**030**		
4.0	0.6	2.50	3.90	22	44	35.0	80	4,5	2	6	2	A	216.75	**040**		
5.0	0.8	3.00	4.90	25	44	35.0	80	3,5	1	6	2	A	213.44	**050**		
6.0	1.0	3.50	5.90	29	44		80			6	2	B			200.28	**060**
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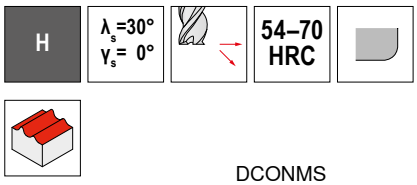
52 305 ... | **52 305 ...**

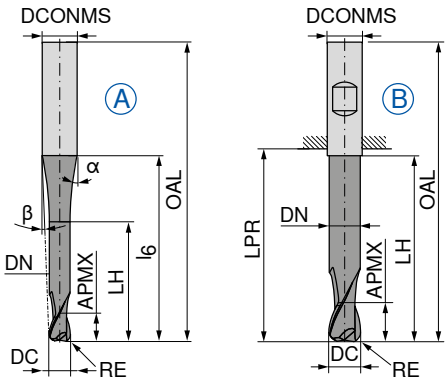
→ v_c/f_z Page 430+431

BlueLine – Torus Cutter

The all-rounder for machining tempered steel

▲ Radius accuracy: ± 0,005 mm for Ø ≤ 6,0 mm / ± 0,01 mm for Ø > 6,0 mm
▲ or Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °





LPR with Shank DIN 6535 HB













Factory standard

Factory standard





DC mm	DC Tol.	RE mm	APMX mm	DN mm	LH mm	LPR mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	52 304 ... £ V1		52 304 ... £ V1	
0.5	±0,01	0.10	1.0	0.45	2.0	21	20	57	10	8,5	6	2	A	270.99	**005**		
1.0	±0,01	0.25	2.0	0.95	4.0	21	20	57	10	8	6	2	A	265.39	**010**		
1.5	±0,01	0.30	2.5	1.40	7.5	21	20	57	12,5	7	6	2	A	244.33	**015**		
2.0	±0,01	0.50	3.0	1.80	8.0	21	20	57	12	6,5	6	2	A	196.93	**020**		
3.0	±0,01	0.50	3.5	2.80	10.0	21	20	57	11,5	5	6	2	A	193.06	**030**		
4.0	±0,01	1.00	4.0	3.80	12.0	21	20	57	11	3,5	6	2	A	187.65	**040**		
5.0	±0,01	1.50	5.0	4.70	14.0	21	20	57	10	2	6	2	A	195.36	**050**		
6.0	±0,01	2.00	6.0	5.60	20.0	21		57			6	2	B			194.63	**060**
8.0	±0,02	2.00	7.0	7.60	25.0	27		63			8	2	B			250.66	**080**
10.0	±0,02	3.00	8.0	9.60	30.0	32		72			10	2	B			335.23	**100**
12.0	±0,02	4.00	10.0	11.50	35.0	38		83			12	2	B			446.51	**120**
12.0	±0,02	4.00	10.0	11.50	35.0	44	40	92	37	3,5	16	2	A	647.48	**121**		
16.0	±0,02	5.00	12.0	15.50	40.0	44		92			16	2	B			632.90	**160**
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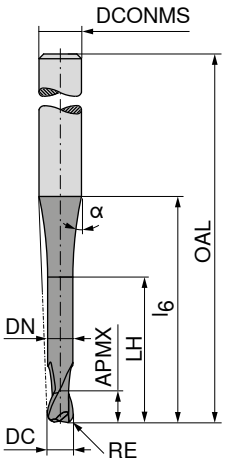
→ v_c/f_z Page 430+431

BlueLine – Torus Cutter

The all-rounder for machining tempered steel

H | λ_s=30° γ_s= 0° | ≤ 65 HRC | Ti2000





Factory standard

52 361 ...

DC e8 mm	RE ±0.01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	DCONMS h5 mm	ZEFP	£ V1	
0.8	0.08	1.0	0.75	1.6	27	75	1,5	3	2	97.91	**90801**
1.0	0.10	1.2	0.95	2.0	27	75	1,5	3	2	100.02	**31001**
1.0	0.25	2.0	0.85	4.0	40	80	1,5	6	2	157.59	**01002**
1.2	0.12	1.4	1.15	2.4	27	75	1,5	3	2	98.88	**31201**
1.5	0.15	1.8	1.45	3.0	27	75	1,5	3	2	96.11	**31501**
2.0	0.20	2.4	1.95	4.0	27	75	1,5	3	2	95.28	**32002**
2.0	0.50	2.0	1.80	8.0	40	80	1,5	6	2	152.50	**02005**
3.0	0.30	3.6	2.95	6.0	27	75	1,5	4	2	101.83	**43003**
3.0	0.50	2.0	2.80	12.0	40	80	1,5	6	2	152.50	**03005**
3.0	1.00	2.0	2.80	12.0	40	80	1,5	6	2	152.50	**03010**
4.0	1.00	3.0	3.80	16.0	40	80	1,5	6	2	152.50	**04010**
6.0	1.00	4.0	5.80	25.0	50	100	1,5	8	2	206.62	**06010**
6.0	2.00	4.0	5.80	25.0	50	100	1,5	8	2	206.62	**06020**
8.0	1.00	4.0	7.80	32.0	60	120	1,5	10	2	280.42	**08010**
8.0	2.00	4.0	7.80	32.0	60	120	1,5	10	2	280.42	**08020**
10.0	1.50	6.0	9.80	40.0	80	160	1,5	12	2	437.84	**10015**
12.0	1.50	8.0	11.80	50.0	100	200	1,5	16	2	755.99	**12015**

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→ v_c/f_z Page 430+431

BlueLine – NC deburring cutter

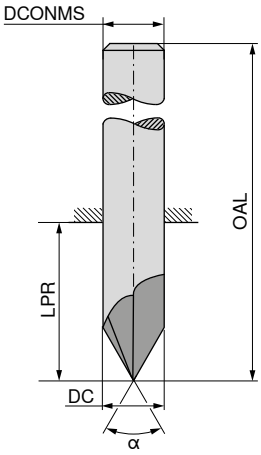
The all-rounder for machining tempered steel

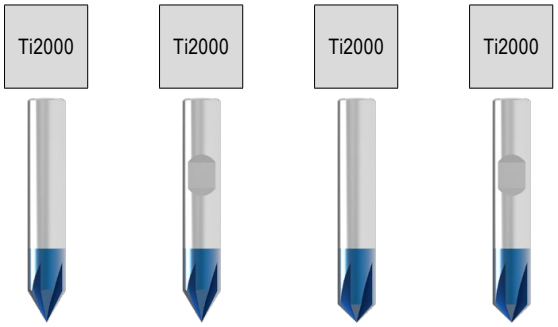
▲ 52 562 ... / 52 563 ... – Point angle α = 60°
▲ 52 560 ... / 52 561 ... – Point angle α = 90°

H

λ_s = 0°
γ_s=-5°







					α = 60° Factory standard		α = 60° Factory standard		α = 90° Factory standard		α = 90° Factory standard	
					52 562 ...		52 563 ...		52 560 ...		52 561 ...	
DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	£ V1		£ V1		£ V1		£ V1	
4	50	22	4	5	52.21	04000			52.21	04000		
6	57	21	6	6	65.80	06000	65.80	06000	65.80	06000	65.80	06000
8	63	27	8	6	79.60	08000	79.60	08000	79.60	08000	79.60	08000
10	72	32	10	6	106.61	10000	106.61	10000	106.61	10000	106.61	10000
12	83	38	12	6	137.56	12000	137.56	12000	137.56	12000	137.56	12000
16	92	44	16	8	213.48	16000	213.48	16000	213.48	16000	213.48	16000
P					●		●		●		●	
M												
K												
N												
S												
H					●		●		●		●	
O												

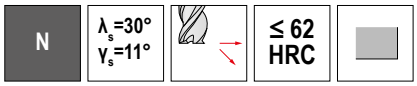
→ v_c/f_z Page 419

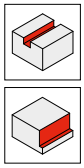
14

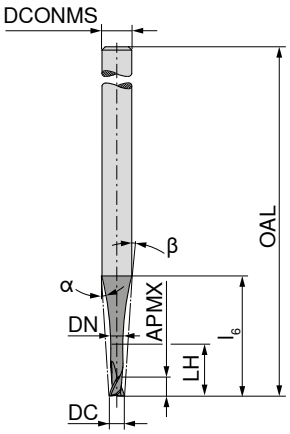
Micro-end milling cutter

The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth









DC mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	T_X	ZEFP	52 802 ... £ V1		52 802 ... £ V1	
0.2	0.12	0.16	0.44	5.7	38	15	14	3	2,2 x DC	2	87.51	**021**		
0.2	0.20	0.16	1.00	6.4	38	15	13	3	5 x DC	2	87.51	**023**		
0.2	0.20	0.16	2.00	9.2	38	15	9	3	10 x DC	2	87.51	**025**		
0.2	0.20	0.16	0.44	5.7	43	15	14	3	2,2 x DC	2			87.51	**022**
0.2	0.20	0.16	1.00	6.4	43	15	13	3	5 x DC	2			87.51	**024**
0.2	0.20	0.16	2.00	9.2	43	15	9	3	10 x DC	2			87.51	**026**
0.3	0.18	0.24	0.66	5.8	38	16,5	14	3	2,2 x DC	2	76.23	**03100**		
0.3	0.30	0.24	1.50	6.9	38	16	11,5	3	5 x DC	2	76.23	**03300**		
0.3	0.30	0.24	3.00	9.7	38	13,5	8,5	3	10 x DC	2	76.23	**03500**		
0.4	0.24	0.32	0.88	5.8	38	16,5	13,5	3	2,2 x DC	2	68.84	**04100**		
0.4	0.40	0.32	2.00	7.4	38	15,5	10,5	3	5 x DC	2	68.84	**04300**		
0.4	0.40	0.32	4.00	10.2	38	14	8	3	10 x DC	2	68.84	**04500**		
0.5	0.30	0.40	1.10	5.8	38	15	13	3	2,2 x DC	2	67.27	**051**		
0.5	0.50	0.40	2.50	7.8	38	15	10	3	5 x DC	2	67.27	**053**		
0.5	0.50	0.40	5.00	10.7	38	13	7	3	10 x DC	2	67.27	**055**		
0.5	0.50	0.40	1.10	5.8	43	15	13	3	2,2 x DC	2			67.27	**052**
0.5	0.50	0.40	2.50	7.8	43	15	10	3	5 x DC	2			67.27	**054**
0.5	0.50	0.40	5.00	14.5	43	13	5	3	10 x DC	2			67.27	**056**
0.6	0.36	0.48	1.32	5.9	38	16,5	12	3	2,2 x DC	2	62.89	**06100**		
0.6	0.60	0.48	3.00	8.3	38	15	9	3	5 x DC	2	62.89	**06300**		
0.6	0.60	0.48	6.00	11.6	38	14	6,5	3	10 x DC	2	62.89	**06500**		
0.7	0.42	0.56	1.54	5.9	38	16,5	11,5	3	2,2 x DC	2	70.27	**07100**		
0.7	0.70	0.56	3.50	8.8	38	14,5	8	3	5 x DC	2	70.27	**07300**		
0.7	0.70	0.56	7.00	12.5	38	14	6	3	10 x DC	2	70.27	**07500**		
0.8	0.48	0.64	1.76	5.9	38	15	11	3	2,2 x DC	2	77.21	**081**		
0.8	0.80	0.64	4.00	9.0	38	15	7	3	5 x DC	2	77.21	**083**		
0.8	0.80	0.64	8.00	13.5	38	12	5	3	10 x DC	2	77.21	**085**		
0.8	0.80	0.64	1.76	5.9	43	15	11	3	2,2 x DC	2			77.21	**082**
0.8	0.80	0.64	4.00	9.0	43	15	7	3	5 x DC	2			77.21	**084**
0.8	0.80	0.64	8.00	15.5	43	9,8	5	3	10 x DC	2			77.21	**086**
0.9	0.54	0.72	1.98	5.9	38	17	10,5	3	2,2 x DC	2	60.50	**09100**		
0.9	0.90	0.72	4.50	9.5	38	14	7	3	5 x DC	2	60.50	**09300**		
0.9	0.90	0.72	9.00	14.4	38	13	5	3	10 x DC	2	60.50	**09500**		
1.0	0.60	0.80	2.20	5.9	38	15	10	3	2,2 x DC	2	64.38	**101**		
1.0	1.00	0.80	2.20	5.9	43	15	10	3	2,2 x DC	2			64.38	**102**
1.0	1.00	0.80	5.00	9.7	43	15	6	3	5 x DC	2	64.38	**103**		
1.0	1.00	0.80	10.00	15.3	43	11	4	3	10 x DC	2	66.33	**105**		
1.0	1.00	0.80	5.00	9.7	50	15	6	3	5 x DC	2			64.38	**104**
1.0	1.00	0.80	10.00	20.6	50	8,5	3	3	10 x DC	2			66.33	**106**
1.1	0.66	0.88	2.42	6.0	38	17	9,5	3	2,2 x DC	2	59.07	**11100**		
1.1	1.10	0.88	5.50	10.0	43	14	6	3	5 x DC	2	59.07	**11300**		

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→ v_c/f_z Page 432–439

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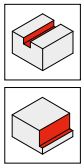
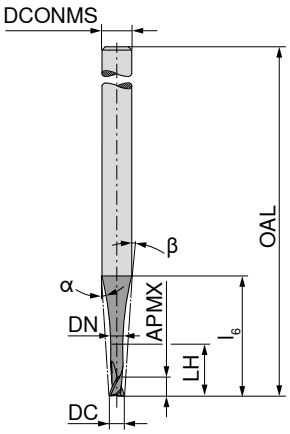
Micro-end milling cutter

The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s=11° | ≤ 62 HRC







Factory standard | Factory standard

DC mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	T_X	ZEFP	52 802 ... £ V1		52 802 ... £ V1	
1.1	1.10	0.88	11.00	15.9	43	13	4	3	10 x DC	2	59.07	**11500**		
1.2	0.72	0.96	2.64	6.0	38	17	9	3	2,2 x DC	2	59.07	**12100**		
1.2	1.20	0.96	6.00	10.5	43	13,5	5,5	3	5 x DC	2	59.07	**12300**		
1.2	1.20	0.96	12.00	16.5	43	13,5	4	3	10 x DC	2	59.07	**12500**		
1.3	0.78	1.04	2.86	6.0	38	17	8,5	3	2,2 x DC	2	58.91	**13100**		
1.3	1.30	1.04	6.50	11.0	43	12,5	5	3	5 x DC	2	58.91	**13300**		
1.3	1.30	1.04	13.00	17.1	43	14	3,5	3	10 x DC	2	58.91	**13500**		
1.4	0.84	1.12	3.08	6.1	38	17	8	3	2,2 x DC	2	58.91	**14100**		
1.4	1.40	1.12	7.00	11.5	43	12	4,5	3	5 x DC	2	58.91	**14300**		
1.4	1.40	1.12	14.00	17.6	43	15	3,5	3	10 x DC	2	58.91	**14500**		
1.5	0.90	1.20	3.30	6.1	38	15	8	3	2,2 x DC	2	69.25	**151**		
1.5	1.50	1.20	3.30	6.1	43	15	8	3	2,2 x DC	2			69.25	**152**
1.5	1.50	1.20	7.50	11.8	43	14	4	3	5 x DC	2	69.25	**153**		
1.5	1.50	1.20	15.00	18.1	43	14,6	3	3	10 x DC	2	73.96	**155**		
1.5	1.50	1.20	7.50	11.8	50	14	4	3	5 x DC	2			69.25	**154**
1.5	1.50	1.20	15.00	22.0	50	6,2	2	3	10 x DC	2			73.96	**156**
1.6	0.96	1.28	3.52	6.2	38	16,5	7	3	2,2 x DC	2	60.33	**16100**		
1.6	1.60	1.28	8.00	12.0	43	12	4	3	5 x DC	2	60.33	**16300**		
1.6	1.60	1.28	16.00	18.7	43	17	3	3	10 x DC	2	60.33	**16500**		
1.7	1.02	1.36	3.74	6.2	38	17	6,5	3	2,2 x DC	2	63.21	**17100**		
1.7	1.70	1.36	8.50	12.5	43	11	3,5	3	5 x DC	2	63.21	**17300**		
1.7	1.70	1.36	17.00	19.3	43	18,5	2,5	3	10 x DC	2	63.21	**17500**		
1.8	1.08	1.44	3.96	6.2	38	15	6	3	2,2 x DC	2	69.25	**181**		
1.8	1.80	1.44	3.96	6.2	43	15	6	3	2,2 x DC	2			69.25	**182**
1.8	1.80	1.44	9.00	12.9	43	12	3	3	5 x DC	2	70.17	**183**		
1.8	1.80	1.44	18.00	20.0	43	19,8	2	3	10 x DC	2	78.43	**185**		
1.8	1.80	1.44	9.00	12.9	50	12	3	3	5 x DC	2			70.17	**184**
1.8	1.80	1.44	18.00	22.0	50	5,3	2	3	10 x DC	2			78.43	**186**
1.9	1.14	1.52	4.18	6.2	38	17,5	5,5	3	2,2 x DC	2	64.19	**19100**		
1.9	1.90	1.52	9.50	13.2	43	10	3	3	5 x DC	2	64.19	**19300**		
1.9	1.90	1.52	19.00	20.5	43	23,5	2,5	3	10 x DC	2	64.19	**19500**		
2.0	1.20	1.60	4.40	11.9	50	15	10	6	2,2 x DC	2	69.25	**201**		
2.0	2.00	1.60	10.00	19.7	50	15	6	6	5 x DC	2	70.17	**203**		
2.0	2.00	1.60	20.00	25.0	50	22,1	5	6	10 x DC	2	78.43	**205**		
2.0	2.00	1.60	4.40	11.9	57	15	10	6	2,2 x DC	2			69.25	**202**
2.0	2.00	1.60	10.00	19.7	57	15	6	6	5 x DC	2			70.17	**204**
2.0	2.00	1.60	20.00	29.0	57	7,8	4	6	10 x DC	2			78.43	**206**

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→ v_c/f_z Page 432–439

14

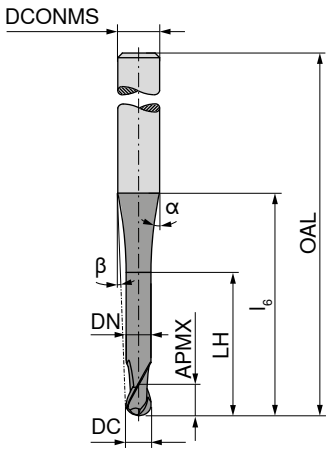
Micro-ball nosed cutter

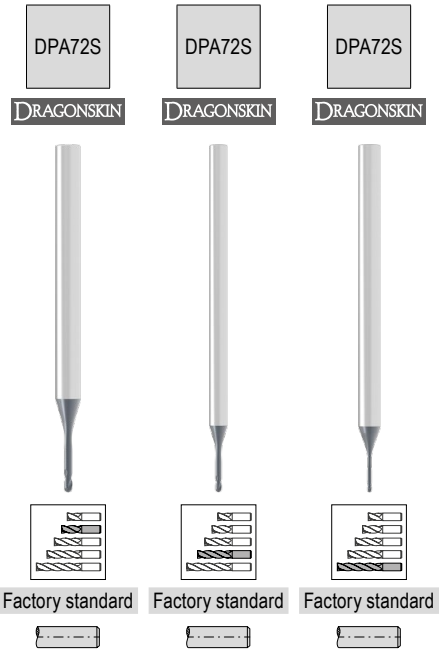
The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s= 6° | ≤ 62 HRC







Factory standard | Factory standard | Factory standard

DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 804 ... £ V1		52 804 ... £ V1		52 804 ... £ V1	
0.2	0.12	0.16	0.44	5.7	38	15	14	3	2,2 x DC	2	97.80	**021**				
0.2	0.20	0.16	1.00	6.4	38	15	13	3	5 x DC	2	97.80	**024**				
0.2	0.20	0.16	2.00	9.2	38	15	9	3	10 x DC	2	97.80	**027**				
0.2	0.12	0.16	0.44	5.7	50	15	14	3	2,2 x DC	2			97.80	**022**		
0.2	0.20	0.16	1.00	6.4	50	15	13	3	5 x DC	2			97.80	**025**		
0.2	0.20	0.16	2.00	9.2	50	15	9	3	10 x DC	2			97.80	**028**		
0.2	0.12	0.16	0.44	11.3	80	15	15	6	2,2 x DC	2					97.80	**023**
0.2	0.20	0.16	1.00	12.0	80	15	14	6	5 x DC	2					97.80	**026**
0.2	0.20	0.16	2.00	14.8	80	15	12	6	10 x DC	2					97.80	**029**
0.3	0.18	0.24	0.66	5.8	38	16,5	14	3	2,2 x DC	2	87.93	**03100**				
0.3	0.30	0.24	1.50	6.9	38	16	11,5	3	5 x DC	2	87.93	**03400**				
0.3	0.30	0.24	3.00	9.7	38	13,5	8,5	3	10 x DC	2	87.93	**03700**				
0.4	0.24	0.32	0.88	5.8	38	16,5	13	3	2,2 x DC	2	79.73	**04100**				
0.4	0.40	0.32	2.00	7.4	38	15,5	10,5	3	5 x DC	2	79.73	**04400**				
0.4	0.40	0.32	4.00	10.2	38	14	8	3	10 x DC	2	79.73	**04700**				
0.5	0.30	0.40	1.10	5.8	38	15	13	3	2,2 x DC	2	76.29	**051**				
0.5	0.50	0.40	2.50	7.8	38	15	10	3	5 x DC	2	76.29	**054**				
0.5	0.50	0.40	5.00	10.7	38	13	7	3	10 x DC	2	76.29	**057**				
0.5	0.30	0.40	1.10	5.8	50	15	13	3	2,2 x DC	2			76.29	**052**		
0.5	0.50	0.40	2.50	7.8	50	15	10	3	5 x DC	2			76.29	**055**		
0.5	0.50	0.40	5.00	14.5	50	13	5	3	10 x DC	2			76.29	**058**		
0.5	0.30	0.40	1.10	11.4	80	15	14	6	2,2 x DC	2					76.29	**053**
0.5	0.50	0.40	2.50	13.4	80	15	12	6	5 x DC	2					76.29	**056**
0.5	0.50	0.40	5.00	20.2	80	15	8	6	10 x DC	2					76.29	**059**
0.6	0.36	0.48	1.32	5.9	38	16,5	12	3	2,2 x DC	2	72.07	**06100**				
0.6	0.60	0.48	3.00	8.3	38	15	9	3	5 x DC	2	72.07	**06400**				
0.6	0.60	0.48	6.00	10.6	38	17	7	3	10 x DC	2	72.07	**06700**				
0.7	0.42	0.56	1.54	5.9	38	16,5	11,5	3	2,2 x DC	2	75.76	**07100**				
0.7	0.70	0.56	3.50	8.8	38	14	8	3	5 x DC	2	75.76	**07400**				
0.7	0.70	0.56	7.00	10.6	38	20,5	7	3	10 x DC	2	75.76	**07700**				
0.8	0.48	0.64	1.76	5.9	38	15	11	3	2,2 x DC	2	85.89	**081**				
0.8	0.80	0.64	4.00	9.0	38	15	7	3	5 x DC	2	85.89	**084**				
0.8	0.80	0.64	8.00	10.5	38	8,2	6	3	10 x DC	2	86.96	**087**				
0.8	0.48	0.64	1.76	5.9	50	15	11	3	2,2 x DC	2			85.89	**082**		
0.8	0.80	0.64	4.00	9.0	50	15	7	3	5 x DC	2			85.89	**085**		
0.8	0.80	0.64	8.00	18.7	50	9,8	4	3	10 x DC	2			86.96	**088**		
0.8	0.48	0.64	1.76	11.5	80	15	13	6	2,2 x DC	2					85.89	**083**

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→ v_c/f_z Page 432–439

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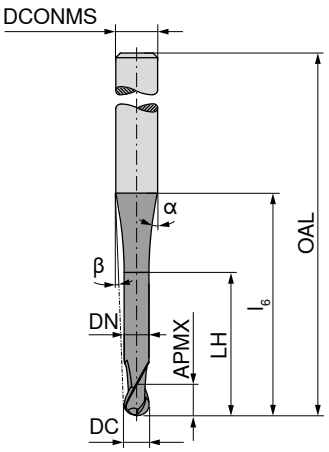
Micro-ball nosed cutter

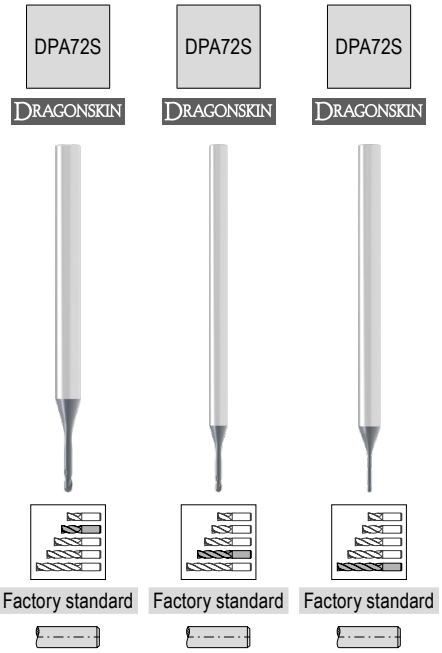
The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s= 6° | ≤ 62 HRC







Factory standard | Factory standard | Factory standard

DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 804 ... £ V1		52 804 ... £ V1		52 804 ... £ V1	
0.8	0.80	0.64	4.00	14.6	80	15	11	6	5 x DC	2					85.89	**086**
0.8	0.80	0.64	8.00	25.9	80	14,8	6	6	10 x DC	2					86.96	**089**
0.9	0.54	0.72	1.98	5.9	38	17	10,5	3	2,2 x DC	2	78.14	**09100**				
0.9	0.90	0.72	4.50	9.5	38	14	7	3	5 x DC	2	78.14	**09400**				
0.9	0.90	0.72	9.00	10.5	38	39,5	6,5	3	10 x DC	2	78.14	**09700**				
1.0	0.60	0.80	2.20	7.8	43	15	11	4	2,2 x DC	2	73.02	**101**				
1.0	1.00	0.80	5.00	11.6	43	15	8	4	5 x DC	2	73.02	**104**				
1.0	1.00	0.80	10.00	18.3	43	8	5	4	10 x DC	2	78.65	**107**				
1.0	0.60	0.80	2.20	7.8	60	15	11	4	2,2 x DC	2			73.02	**102**		
1.0	1.00	0.80	5.00	11.6	60	15	8	4	5 x DC	2			73.02	**105**		
1.0	1.00	0.80	10.00	23.7	60	10,2	4	4	10 x DC	2			78.65	**108**		
1.0	0.60	0.80	2.20	11.5	80	15	13	6	2,2 x DC	2					73.02	**103**
1.0	1.00	0.80	5.00	15.3	80	15	10	6	5 x DC	2					73.02	**106**
1.0	1.00	0.80	10.00	28.7	80	13	5	6	10 x DC	2					78.65	**109**
1.1	0.66	0.88	2.42	7.9	43	16,5	11	4	2,2 x DC	2	71.69	**11100**				
1.1	1.10	0.88	5.50	12.0	43	14,5	7,5	4	5 x DC	2	71.69	**11400**				
1.1	1.10	0.88	11.00	18.3	43	13,5	5,5	4	10 x DC	2	71.69	**11700**				
1.2	0.72	0.96	2.64	7.9	43	15	11	4	2,2 x DC	2	81.36	**121**				
1.2	1.20	0.96	6.00	12.4	43	15	7	4	5 x DC	2	81.36	**124**				
1.2	1.20	0.96	12.00	18.2	43	9,3	5	4	10 x DC	2	84.25	**127**				
1.2	0.72	0.96	2.64	7.9	60	15	11	4	2,2 x DC	2			81.36	**122**		
1.2	1.20	0.96	6.00	12.4	60	15	7	4	5 x DC	2			81.36	**125**		
1.2	1.20	0.96	12.00	26.1	60	9,1	4	4	10 x DC	2			84.25	**128**		
1.2	0.72	0.96	2.64	11.6	80	15	12	6	2,2 x DC	2					81.36	**123**
1.2	1.20	0.96	6.00	16.2	80	15	9	6	5 x DC	2					81.36	**126**
1.2	1.20	0.96	12.00	31.8	80	11,7	5	6	10 x DC	2					84.25	**129**
1.3	0.78	1.04	2.86	8.0	43	16,5	10,5	4	2,2 x DC	2	71.83	**13100**				
1.3	1.30	1.04	6.50	12.8	43	14	6,5	4	5 x DC	2	71.83	**13400**				
1.3	1.30	1.04	13.00	18.2	43	17	5	4	10 x DC	2	71.83	**13700**				
1.4	0.84	1.12	3.08	8.0	43	16,5	10	4	2,2 x DC	2	72.12	**14100**				
1.4	1.40	1.12	7.00	13.2	43	14	6,5	4	5 x DC	2	72.12	**14400**				
1.4	1.40	1.12	14.00	18.1	43	20,5	5	4	10 x DC	2	72.12	**14700**				
1.5	0.90	1.20	3.30	8.0	43	15	9	4	2,2 x DC	2	76.66	**151**				
1.5	1.50	1.20	7.50	13.7	43	15	6	4	5 x DC	2	80.97	**154**				
1.5	1.50	1.20	15.00	18.1	43	13,5	4	4	10 x DC	2	80.97	**157**				
1.5	0.90	1.20	3.30	8.0	60	15	9	4	2,2 x DC	2			76.66	**152**		
1.5	1.50	1.20	7.50	13.7	60	15	6	4	5 x DC	2			80.97	**155**		

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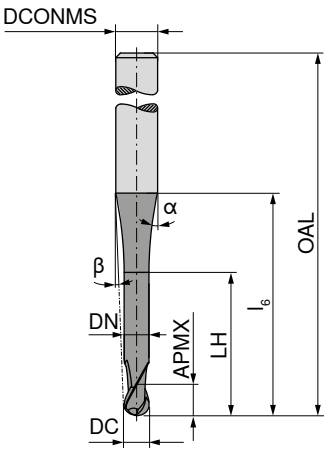
Micro-ball nosed cutter

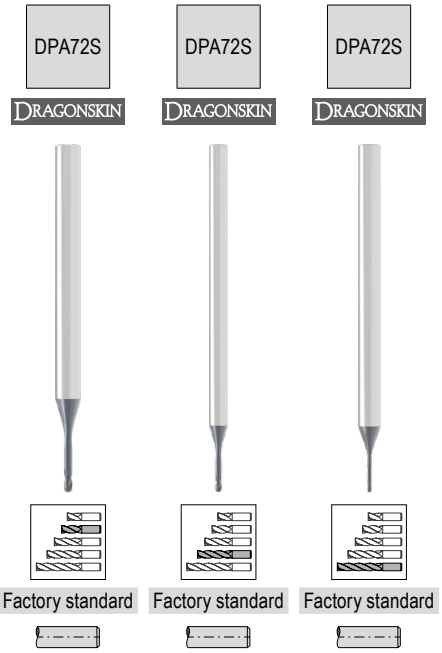
The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s= 6° | ≤ 62 HRC







Factory standard | Factory standard | Factory standard

DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 804 ... £ V1		52 804 ... £ V1		52 804 ... £ V1	
1.5	1.50	1.20	15.00	28.0	60	7,8	3	4	10 x DC	2			80.97	**158**		
1.5	0.90	1.20	3.30	11.7	80	15	11	6	2,2 x DC	2					76.66	**153**
1.5	1.50	1.20	7.50	17.4	80	15	8	6	5 x DC	2					80.97	**156**
1.5	1.50	1.20	15.00	35.8	80	10,2	4	6	10 x DC	2					80.97	**159**
1.6	0.96	1.28	3.52	8.1	43	16,5	9	4	2,2 x DC	2	70.48	**16100**				
1.6	1.60	1.28	8.00	14.1	43	13	5,5	4	5 x DC	2	70.48	**16400**				
1.6	1.60	1.28	16.00	18.5	43	29,5	4,5	4	10 x DC	2	70.48	**16700**				
1.7	1.02	1.36	3.74	8.1	43	16,5	9	4	2,2 x DC	2	73.44	**17100**				
1.7	1.70	1.36	8.50	14.5	43	12,5	5	4	5 x DC	2	73.44	**17400**				
1.7	1.70	1.36	17.00	18.9	43	35,5	4	4	10 x DC	2	73.44	**17700**				
1.8	1.08	1.44	3.96	8.1	43	15	8	4	2,2 x DC	2	80.97	**181**				
1.8	1.80	1.44	9.00	15.0	43	15	5	4	5 x DC	2	80.97	**184**				
1.8	1.80	1.44	18.00	19.5	43	31,1	4	4	10 x DC	2	84.25	**187**				
1.8	1.08	1.44	3.96	8.1	60	15	8	4	2,2 x DC	2			80.97	**182**		
1.8	1.80	1.44	9.00	15.0	60	15	5	4	5 x DC	2			80.97	**185**		
1.8	1.80	1.44	18.00	31.9	60	6,8	2	4	10 x DC	2			84.25	**188**		
1.8	1.08	1.44	3.96	11.8	80	15	11	6	2,2 x DC	2					80.97	**183**
1.8	1.80	1.44	9.00	18.7	80	15	7	6	5 x DC	2					80.97	**186**
1.8	1.80	1.44	18.00	39.3	80	9,1	4	6	10 x DC	2					84.25	**189**
1.9	1.14	1.52	4.18	8.2	43	16,5	8	4	2,2 x DC	2	74.54	**19100**				
1.9	1.90	1.52	9.50	15.5	43	11,5	4,5	4	5 x DC	2	74.54	**19400**				
1.9	1.90	1.52	19.00	19.9	43	54,5	3,5	4	10 x DC	2	74.54	**19700**				
2.0	1.20	1.60	4.40	11.9	57	15	10	6	2,2 x DC	2	76.14	**201**				
2.0	2.00	1.60	10.00	19.7	57	15	6	6	5 x DC	2	80.97	**204**				
2.0	2.00	1.60	20.00	32.0	57	9,5	4	6	10 x DC	2	80.97	**207**				
2.0	1.20	1.60	4.40	11.9	70	15	10	6	2,2 x DC	2			76.14	**202**		
2.0	2.00	1.60	10.00	19.7	70	15	6	6	5 x DC	2			80.97	**205**		
2.0	2.00	1.60	20.00	41.4	70	8,5	3	6	10 x DC	2			80.97	**208**		
2.0	1.20	1.60	4.40	11.9	80	15	10	6	2,2 x DC	2					76.14	**203**
2.0	2.00	1.60	10.00	19.7	80	15	6	6	5 x DC	2					80.97	**206**
2.0	2.00	1.60	20.00	41.4	80	8,5	3	6	10 x DC	2					80.97	**209**

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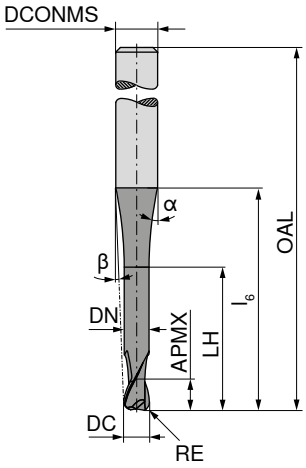
Micro-torus cutter

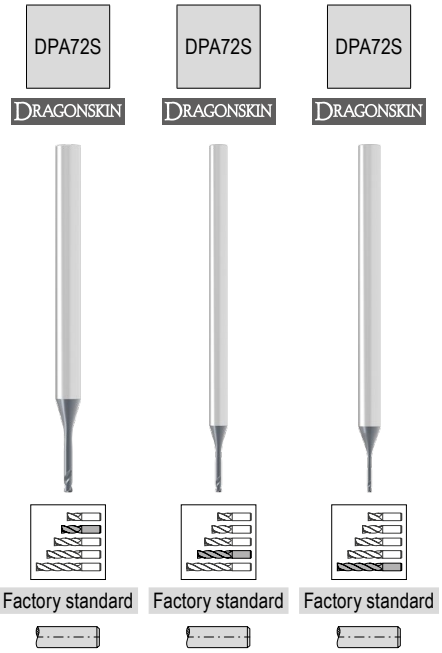
The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s=12° | ≤ 62 HRC







Factory standard | Factory standard | Factory standard

DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 806 ... £ V1		52 806 ... £ V1		52 806 ... £ V1	
0.5	0.1	0.30	0.40	1.10	5.8	38	15	13	3	2,2 x DC	2	77.75	**051**				
0.5	0.1	0.50	0.40	2.50	7.8	38	15	10	3	5 x DC	2	77.75	**054**				
0.5	0.1	0.50	0.40	5.00	10.7	38	13	7	3	10 x DC	2	77.75	**057**				
0.5	0.1	0.30	0.40	1.10	5.8	50	15	13	3	2,2 x DC	2			77.75	**052**		
0.5	0.1	0.50	0.40	2.50	7.8	50	15	10	3	5 x DC	2			77.75	**055**		
0.5	0.1	0.50	0.40	5.00	14.5	50	13	5	3	10 x DC	2			77.75	**058**		
0.5	0.1	0.30	0.40	1.10	11.4	80	15	14	6	2,2 x DC	2					77.75	**053**
0.5	0.1	0.50	0.40	2.50	13.4	80	15	12	6	5 x DC	2					77.75	**056**
0.5	0.1	0.50	0.40	5.00	20.2	80	15	8	6	10 x DC	2					77.75	**059**
0.6	0.1	0.36	0.48	1.32	5.9	38	16,5	12	3	2,2 x DC	2	72.07	**06101**				
0.6	0.1	0.60	0.48	3.00	8.3	38	15	9	3	5 x DC	2	72.07	**06401**				
0.6	0.1	0.60	0.48	6.00	10.6	38	17	7	3	10 x DC	2	72.07	**06701**				
0.8	0.2	0.48	0.64	1.76	5.9	38	16,5	11	3	2,2 x DC	2	75.76	**08102**				
0.8	0.2	0.80	0.64	4.00	9.0	38	14,5	7,5	3	5 x DC	2	75.76	**08402**				
0.8	0.2	0.80	0.64	8.00	10.5	38	27	6,5	3	10 x DC	2	75.76	**08702**				
1.0	0.2	0.60	0.80	2.20	7.8	43	15	11	4	2,2 x DC	2	74.30	**101**				
1.0	0.2	1.00	0.80	5.00	11.6	43	15	8	4	5 x DC	2	80.27	**104**				
1.0	0.2	1.00	0.80	10.00	18.3	43	8	5	4	10 x DC	2	80.27	**107**				
1.0	0.2	0.60	0.80	2.20	7.8	60	15	11	4	2,2 x DC	2			74.30	**102**		
1.0	0.2	1.00	0.80	5.00	11.6	60	15	8	4	5 x DC	2			80.27	**105**		
1.0	0.2	1.00	0.80	10.00	23.7	60	10,2	4	4	10 x DC	2			80.27	**108**		
1.0	0.2	0.60	0.80	2.20	11.5	80	15	13	6	2,2 x DC	2					74.30	**103**
1.0	0.2	1.00	0.80	5.00	15.3	80	15	10	6	5 x DC	2					80.27	**106**
1.0	0.2	1.00	0.80	10.00	28.7	80	13	5	6	10 x DC	2					80.27	**109**
1.2	0.2	0.72	0.96	2.64	7.9	43	16,5	10,5	4	2,2 x DC	2	71.69	**12102**				
1.2	0.2	1.20	0.96	6.00	12.4	43	14,5	7	4	5 x DC	2	71.69	**12402**				
1.2	0.2	1.20	0.96	12.00	18.2	43	15	5	4	10 x DC	2	71.69	**12702**				
1.5	0.3	0.90	1.20	3.30	8.0	43	15	9	4	2,2 x DC	2	77.91	**151**				
1.5	0.3	1.50	1.20	7.50	13.7	43	15	6	4	5 x DC	2	82.61	**154**				
1.5	0.3	1.50	1.20	15.00	18.1	43	24	4	4	10 x DC	2	82.61	**157**				
1.5	0.3	0.90	1.20	3.30	8.0	60	15	9	4	2,2 x DC	2			77.91	**152**		
1.5	0.3	1.50	1.20	7.50	13.7	60	15	6	4	5 x DC	2			82.61	**155**		
1.5	0.3	1.50	1.20	15.00	29.2	60	7,8	3	4	10 x DC	2			82.61	**158**		
1.5	0.3	0.90	1.20	3.30	11.7	80	15	11	6	2,2 x DC	2					77.91	**153**
1.5	0.3	1.50	1.20	7.50	17.4	80	15	8	6	5 x DC	2					82.61	**156**
1.5	0.3	1.50	1.20	15.00	35.8	80	10,2	4	6	10 x DC	2					82.61	**159**
1.6	0.3	0.96	1.28	3.52	8.1	43	16,5	9	4	2,2 x DC	2	70.48	**16103**				

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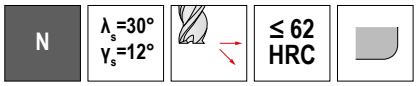
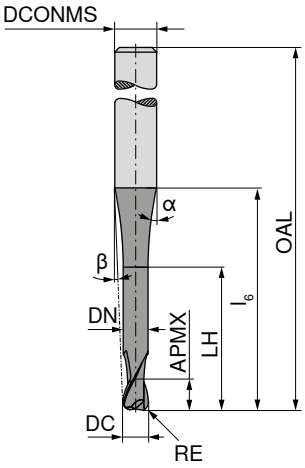
Micro-torus cutter

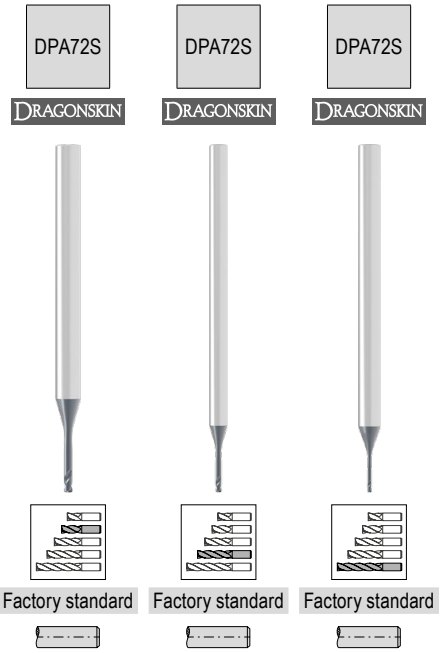
The universal milling cutter for micro-cutting

▲ T_x = maximum engagement depth









Factory standard | Factory standard | Factory standard

DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_X	ZEFP	52 806 ... £ V1		52 806 ... £ V1		52 806 ... £ V1	
1.6	0.3	1.60	1.28	8.00	14.1	43	13	5,5	4	5 x DC	2	70.48	**16403**				
1.6	0.3	1.60	1.28	16.00	18.5	43	29,5	4,5	4	10 x DC	2	70.48	**16703**				
1.8	0.4	1.08	1.44	3.96	8.1	43	16,5	8,5	4	2,2 x DC	2	73.44	**18104**				
1.8	0.4	1.80	1.44	9.00	15.0	43	12	5	4	5 x DC	2	73.44	**18404**				
1.8	0.4	1.80	1.44	18.00	19.5	43	41	4	4	10 x DC	2	73.44	**18704**				
2.0	0.5	1.20	1.60	4.40	11.9	57	15	10	6	2,2 x DC	2	77.57	**201**				
2.0	0.5	2.00	1.60	10.00	19.7	57	15	6	6	5 x DC	2	82.61	**204**				
2.0	0.5	2.00	1.60	20.00	32.0	57	9,5	4	6	10 x DC	2	82.61	**207**				
2.0	0.5	1.20	1.60	4.40	11.9	70	15	10	6	2,2 x DC	2			77.57	**202**		
2.0	0.5	2.00	1.60	10.00	19.7	70	15	6	6	5 x DC	2			82.61	**205**		
2.0	0.5	2.00	1.60	20.00	41.4	70	8,5	3	6	10 x DC	2			82.61	**208**		
2.0	0.5	1.20	1.60	4.40	11.9	80	15	10	6	2,2 x DC	2					77.57	**203**
2.0	0.5	2.00	1.60	10.00	19.7	80	15	6	6	5 x DC	2					82.61	**206**
2.0	0.5	2.00	1.60	20.00	41.4	80	8,5	3	6	10 x DC	2					82.61	**209**

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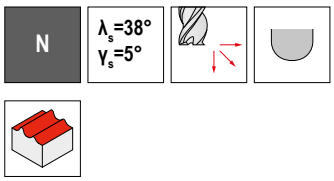
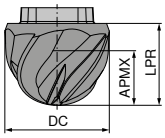
MultiLock – Ball Nosed Cutter

The sustainable exchangeable head system

▲ KLG = Coupling Size







DC mm	KLG	APMX mm	LPR mm	ZEFP	Factory standard 53 803 ... £ W2/5E		Factory standard 53 804 ... £ W2/5E	
12	EL12	7.0	9	4	60.42	**01200**	54.38	**01200**
16	EL16	9.5	12	4	78.60	**01600**	72.53	**01600**
20	EL20	12.0	15	4	96.75	**02000**	90.70	**02000**
25	EL25	16.0	19	4	108.88	**02500**	102.81	**02500**

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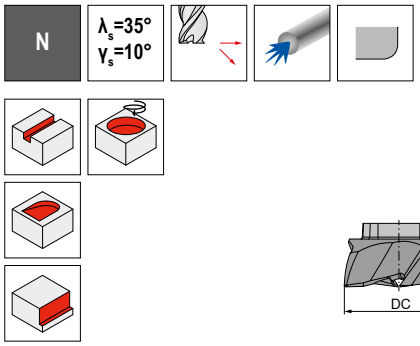
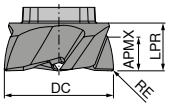
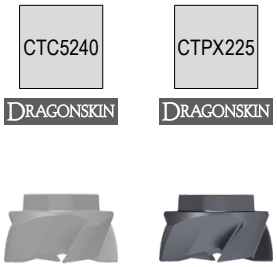
MultiLock – Torus Cutter

The sustainable exchangeable head system

▲ KLG = Coupling Size







DC mm	RE mm	KLG	APMX mm	LPR mm	ZEFP	Factory standard 53 805 ... £ W2/5E		Factory standard 53 806 ... £ W2/5E	
12	0.2	EL12	3.0	5	4	54.38	**01205**	48.31	**01205**
16	0.3	EL16	4.5	7	4	72.53	**01607**	66.50	**01607**
20	0.3	EL20	6.0	8	5	90.70	**02008**	84.65	**02008**
25	0.5	EL25	8.0	10	6	102.81	**02510**	96.75	**02510**

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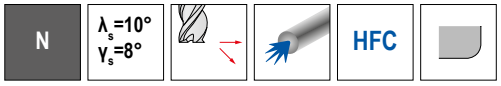
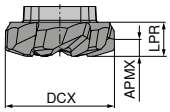
MultiLock – High Feed Cutter

The sustainable exchangeable head system

▲ KLG = Coupling size
▲ r_{3d} = programmed corner radius
▲ APMX does not correspond to the maximum depth of cut















DCX mm	KLG	r_{3D} mm	APMX mm	LPR mm	ZEFP	Factory standard 53 801 ... £ W2/5E		Factory standard 53 802 ... £ W2/5E	
12	EL12	0.7	3.18	4	5	60.42	01202	54.38	01202
16	EL16	1.2	3.73	5	6	78.60	01605	72.53	01605
20	EL20	1.2	4.31	6	6	90.70	02005	84.65	02005
25	EL25	1.2	5.32	7	6	108.88	02505	102.81	02505

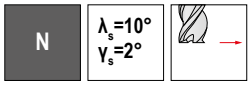
P		●
M		○
K		●
N		
S	●	
H		
O		

→ v_c/f_z Page 442

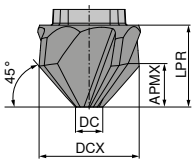
MultiLock – Deburring Cutter

The sustainable exchangeable head system

▲ KLG = Coupling Size











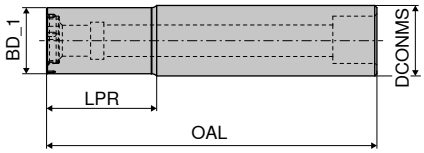
DCX mm	KLG	APMX mm	DC mm	LPR mm	ZEFP	Factory standard 53 800 ... £ W2/5E	
12	EL12	4	4	8	4	55.59	01200
16	EL16	6	4	12	4	73.74	01600

P	●
M	○
K	●
N	○
S	
H	
O	

→ v_c/f_z Page 443

MultiLock – Holders

▲ KLG = Coupling Size





KLG	BD_1 mm	DCONMS mm	OAL mm	LPR mm	84 050 ... £ W1/5D	84 051 ... £ W1/5D
EL12	11	12	66	20	118.67 01200	118.67 01200
EL16	15	16	75	25	129.56 01600	129.56 01600
EL20	19	20	77	25	141.68 02000	141.68 02000
EL25	24	25	87	30	156.22 02500	156.22 02500


Cylindrical screw

TORX® blade


Key D


Molykote


Clamping screw


Threaded bush


Torque screwdriver

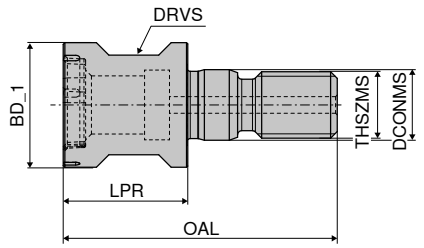
Bit

Spare parts for Article no.	70 950 ... £ 2A/28	80 950 ... £ Y7	80 950 ... £ Y7	70 950 ... £ 2A/28	70 950 ... £ 2A/28	70 950 ... £ 2A/28	80 950 ... £ Y7	80 398 ... £ Y7
84 051 01200 / 84 050 01200	1.33 42000	8.91 054	16.05 120	5.31 303	4.61 41900	6.86 42100	244.07 193	8.22 03500
84 051 01600 / 84 050 01600	1.63 42300	8.91 055	17.19 121	5.31 303	5.50 42200	8.21 42400	244.07 193	8.22 04500
84 051 02000 / 84 050 02000	1.63 42300	8.91 055	17.19 121	5.31 303	5.50 42200	8.21 42400	244.07 193	8.22 04500
84 051 02500 / 84 050 02500	2.00 42600	8.91 055	17.19 121	5.31 303	10.45 42500	7.62 42700	244.07 193	6.08 06000

MultiLock – Screw-in adapter, type A

▲ KLG = Coupling size

▲ For high-feed and torus cutters





KLG	BD_1 mm	THSZMS	OAL mm	LPR mm	DCONMS mm	DRVS mm	84 052 ... £ W1/5D
EL12	11	M6	28	13	6.5	9	124.74 01200
EL16	15	M8	33	14	8.5	12	135.64 01600
EL20	19	M10	37	18	10.5	15	147.74 02000
EL25	24	M12	42	20	12.5	17	173.17 02500

TORX® blade

Key D


Molykote


Clamping screw


Threaded bush


Torque screwdriver

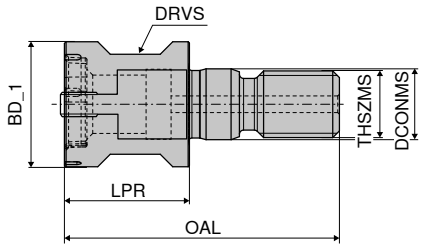
Bit

Spare parts for Article no.	80 950 ... £ Y7	80 950 ... £ Y7	70 950 ... £ 2A/28	70 950 ... £ 2A/28	70 950 ... £ 2A/28	80 950 ... £ Y7	80 398 ... £ Y7
84 052 01200	8.91 054	16.05 120	5.31 303	4.61 41900	6.86 42100	244.07 193	8.22 03500
84 052 01600	8.91 055	17.19 121	5.31 303	5.50 42200	8.21 42400	244.07 193	8.22 04500
84 052 02000	8.91 055	17.19 121	5.31 303	5.50 42200	8.21 42400	244.07 193	8.22 04500
84 052 02500	8.91 055	17.19 121	5.31 303	10.45 42500	7.62 42700	244.07 193	6.08 06000

14

MultiLock – Screw-in adapter, type B

▲ KLG = Coupling size
▲ For radius milling and deburring cutters





KLG	BD_1 mm	THSZMS	OAL mm	LPR mm	DCONMS mm	DRVS mm	84 053 ... £ W1/5D	
EL12	11	M6	28	13	6.5	9	139.28	**01200**
EL16	15	M8	33	14	8.5	12	151.38	**01600**
EL20	20	M10	37	18	10.5	15	163.49	**02000**
EL25	25	M12	42	20	12.5	17	192.55	**02500**

Spare parts for Article no.	TORX® blade 80 950 ... £ Y7		Clamping screw 84 950 ... £ W1/5D		Key D 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7		Mounting bush 84 950 ... £ W1/5D	
84 053 01200	8.91	**054**	48.43	**18600**	16.05	**120**	5.31	**303**	244.07	**193**	104.13	**18000**
84 053 01600	8.91	**055**	52.69	**18800**	17.19	**121**	5.31	**303**	244.07	**193**	113.22	**18100**
84 053 02000	8.91	**055**	56.92	**18700**	17.19	**121**	5.31	**303**	244.07	**193**	122.31	**18200**
84 053 02500	8.91	**055**	66.61	**18900**	17.19	**121**	5.31	**303**	244.07	**193**	144.10	**18300**

Information on how to correctly assemble the MultiLock adapters can be found on → **page 490**.

MultiChange – Programme Overview

The "MultiChange" interchangeable head system enables an extremely fast and problem free tool change. Provides quick changeover and concentricity with the highest stability at the same time. For a multitude of applications, the suitable interchangeable heads are available in the following chapters.

Exchangeable heads

→ Chapter 2, Solid carbide drilling

Page No. 2|107

Solid Carbide NC Spot Drills

Ø 8, 10, 12, 16, 20 mm
NOF 2



SIG 90° | SIG 120° | SIG 142°

→ Chapter 4, Reaming and countersinking

Page No. 4|18 + 4|19

Replaceable reaming heads

Ø 8,00 – 30,20 mm



Through hole

Ø 12,20 – 30,20 mm



Blind hole

→ Chapter 14, Solid carbide milling cutters

Page No. 14|198 – 14|202

Solid carbide shoulder mills
Ø 8, 10, 12, 16, 20 mm /
ZEFP 3+4



Type PCR-UNI | Type PCR-ALU | Type N

Solid carbide torus bull nose milling cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 3+4



Type W | Type N

Solid carbide rough and finish milling cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 4+6



Type NF

Solid carbide finish milling cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 6



Type N

Solid carbide ball-nosed end mills
Ø 10, 12, 16, 20 mm / ZEFP 4



Type N

Solid carbide high-feed cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 6



Type N

Solid carbide quarter round cutter
Ø 8, 10, 12, 16, 20 mm / ZEFP 6



Type N

Solid carbide deburring cutters
Ø 10, 12, 16, 20 mm / ZEFP 4+6



Type N | Type N

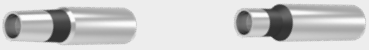
NOF / ZEFP = Number of cutting edges

Tool holder

→ Catalogue – Clamping technology, Chapter 16 Accessories

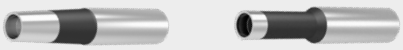
Page No. 16|259 – 16|261

OAL 60 – 90 mm

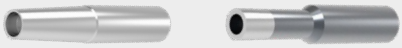


Tapered 87° / Steel | Cylindrical* / Steel

OAL 85 – 120 mm



Tapered 87° / Steel | Cylindrical* / Steel



Tapered 87° / Solid carbide | Cylindrical* / Solid carbide

OAL 110 – 150 mm



Tapered 87° / Solid carbide



Cylindrical* / Solid carbide

OAL 150 – 200 mm



Tapered 87° / Solid carbide



Cylindrical* / Steel



Cylindrical* / Solid carbide

OAL 200 – 250 mm



Cylindrical* / Steel



Cylindrical* / Solid carbide

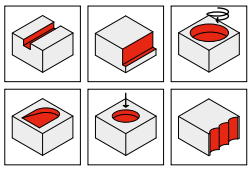
* only conditionally suitable for milling

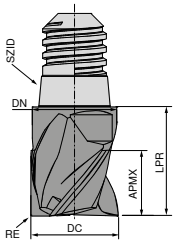
14

MultiChange – End Mill

The exchangeable head system for the highest demands and a wide range of applications

PCR UNI | λ_s=36° γ_s=10° | HPC | APA72S







Factory standard

52 871 ...

DC mm	RE mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	£ V1	
10	0.32	08	7.5	9.8	13	4	128.69	10000
12	0.32	10	9.0	11.8	16	4	148.37	12000
16	0.32	12	12.0	15.8	20	4	193.68	16000
20	0.50	16	15.0	19.8	25	4	254.17	20000

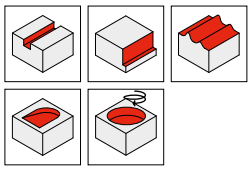
P	●
M	○
K	●
N	
S	
H	
O	

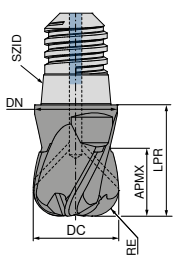
→ v_c/f_z Page 444+445

MultiChange – Torus Cutter

The exchangeable head system for the highest demands and a wide range of applications

W | λ_s=43° γ_s=24° | DLC | DRAGONSKIN







Factory standard

52 870 ...

DC mm	RE mm	SZID	APMX mm	DN mm	LPR mm	ZEFP	£ V1	
10	0.5	08	7.5	9.8	13	3	113.81	10005
10	1.0	08	7.5	9.8	13	3	113.81	10010
12	0.5	10	9.0	11.8	16	3	133.37	12005
12	1.0	10	9.0	11.8	16	3	133.37	12010
12	2.0	10	9.0	11.8	16	3	133.37	12020
16	2.0	12	12.0	15.8	20	3	185.13	16020
16	4.0	12	12.0	15.8	20	3	185.13	16040
20	2.0	16	15.0	19.8	25	3	261.86	20020
20	3.0	16	15.0	19.8	25	3	261.86	20030
20	4.0	16	15.0	19.8	25	3	261.86	20040

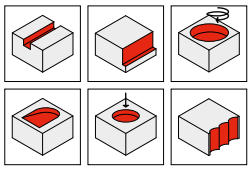
P	
M	
K	
N	●
S	
H	
O	

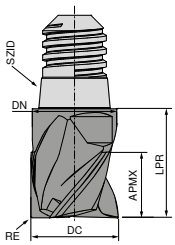
→ v_c/f_z Page 452

MultiChange – End Mill

The exchangeable head system for the highest demands and a wide range of applications

PCR ALU | λ_s=41° γ_s=15° | HPC | DLC | DRAGONSKIN







Factory standard

52 872 ...

DC mm	RE mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	£ V1	
10	0.32	08	7.5	9.8	13	4	133.51	10000
12	0.32	10	9.0	11.8	16	4	160.15	12000
16	0.32	12	12.0	15.8	20	4	211.70	16000
20	0.50	16	15.0	19.8	25	4	286.17	20000

P	
M	
K	
N	●
S	
H	
O	

→ v_c/f_z Page 444+445

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

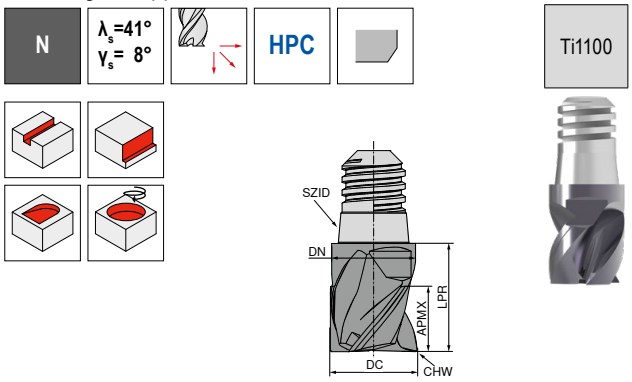
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – End Mill

The exchangeable head system for the highest demands and a wide range of applications



Factory standard

52 861 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	£ V1	
8	06	6.0	7.8	11	0.16	3	77.10	**080**
10	08	7.5	9.8	13	0.20	3	87.59	**100**
12	10	9.0	11.8	16	0.24	3	109.76	**120**
16	12	12.0	15.8	20	0.32	3	153.09	**160**
20	16	15.0	19.8	25	0.40	3	195.53	**200**

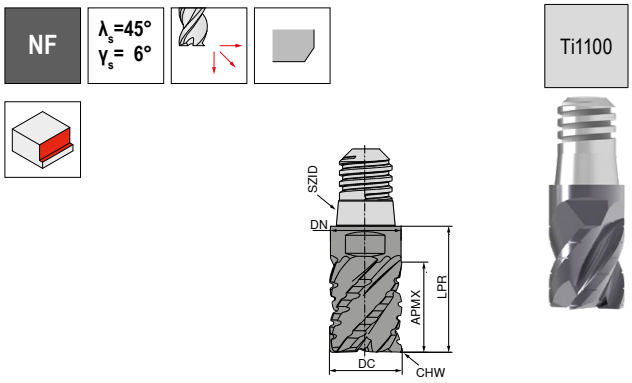
P	●
M	
K	●
N	
S	
H	
O	

→ v_c/f_z Page 446

MultiChange – Roughing-Finishing Cutter

The exchangeable head system for the highest demands and a wide range of applications

▲ With flat cord profile



Factory standard

52 862 ...

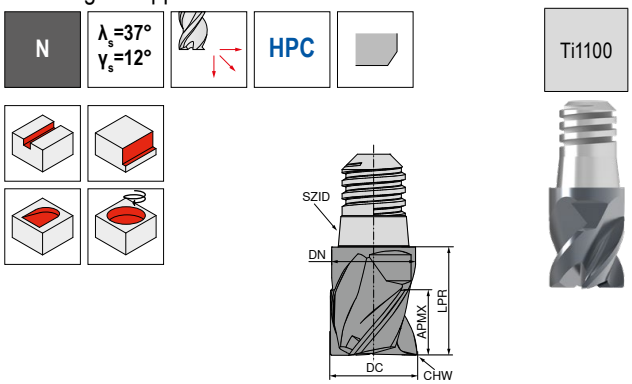
DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	£ V1	
8	06	10.0	7.8	15	0.16	4	95.93	**080**
10	08	12.5	9.8	18	0.20	4	100.06	**100**
12	10	15.0	11.8	22	0.24	4	135.76	**120**
16	12	20.0	15.8	28	0.32	5	205.29	**160**
20	16	25.0	19.8	35	0.40	6	280.31	**200**

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 447

MultiChange – End Mill

The exchangeable head system for the highest demands and a wide range of applications



Factory standard

52 860 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	£ V1	
8	06	6.0	7.8	11	0.16	4	83.75	**080**
10	08	7.5	9.8	13	0.20	4	93.95	**100**
12	10	9.0	11.8	16	0.24	4	119.33	**120**
16	12	12.0	15.8	20	0.32	4	171.32	**160**
20	16	15.0	19.8	25	0.40	4	221.57	**200**

P	●
M	
K	●
N	
S	
H	
O	

→ v_c/f_z Page 446

Assembly instructions

▲ SZID = Coupling Size
▲ SW = Across Flats Size
▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
▲ In unstable applications, the cutting data should be reduced.

Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

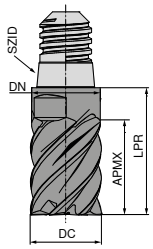
APMX does not correspond to the maximum cutting depth

MultiChange – Finish milling cutter

The exchangeable head system for the highest demands and a wide range of applications







Ti1100



Factory standard

52 863 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	£ V1	
8	06	10.0	7.8	15	6	85.64	080
10	08	12.5	9.8	18	6	96.88	100
12	10	15.0	11.8	22	6	121.25	120
16	12	20.0	15.8	28	6	188.99	160
20	16	25.0	19.8	35	6	261.28	200

P	●
M	○
K	●
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S	
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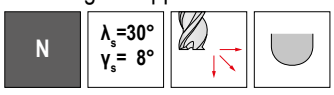
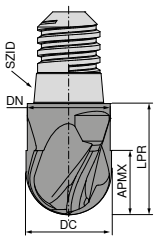
→ v_c/f_z Page 449

MultiChange – Ball Nosed Cutter

The exchangeable head system for the highest demands and a wide range of applications







Ti1100



Factory standard

52 866 ...

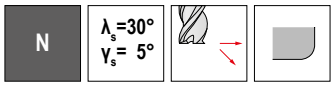
DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	£ V1	
10	08	7.5	9.8	13	4	97.40	100
12	10	9.0	11.8	16	4	121.56	120
16	12	12.0	15.8	20	4	182.68	160
20	16	15.0	19.8	25	4	225.29	200

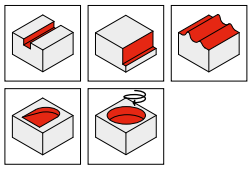
P	●
M	○
K	●
N	●
S	
H	
O	○

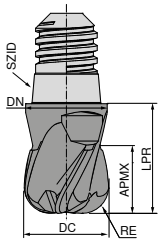
→ v_c/f_z Page 450+451

MultiChange – Torus Cutter

The exchangeable head system for the highest demands and a wide range of applications







Ti1100



Factory standard

52 865 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	RE mm	ZEFP	£ V1	
8	06	6.0	7.8	11	1.0	4	77.10	081
8	06	6.0	7.8	11	2.0	4	77.10	082
10	08	7.5	9.8	13	1.5	4	87.59	101
10	08	7.5	9.8	13	3.0	4	87.59	103
12	10	9.0	11.8	16	1.5	4	109.76	121
12	10	9.0	11.8	16	4.0	4	109.76	124
16	12	12.0	15.8	20	2.0	4	162.77	162
16	12	12.0	15.8	20	5.0	4	162.77	165
20	16	15.0	19.8	25	2.0	4	221.17	202
20	16	15.0	19.8	25	6.0	4	221.17	206

P	●
M	○
K	●
N	●
S	
H	
O	○

→ v_c/f_z Page 450+451

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

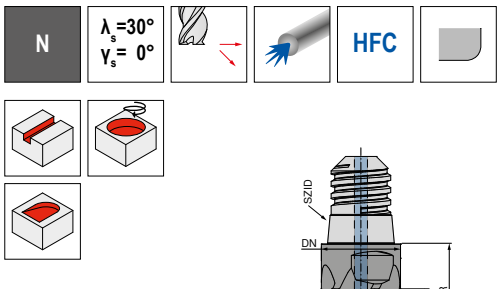
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange –
High Feed Cutter

The exchangeable head system for the highest demands and a wide range of applications





Factory standard

52 864 ...

DCX mm	SZID	r_{3D} mm	APMX mm	LPR ±0,02 mm	ZEFP	£ V1	
8	06	0.7	6.0	11	6	83.75	**080**
10	08	0.9	7.5	13	6	93.95	**100**
12	10	1.0	9.0	16	6	119.33	**120**
16	12	1.4	12.0	20	6	171.32	**160**
20	16	1.7	15.0	25	6	221.57	**200**

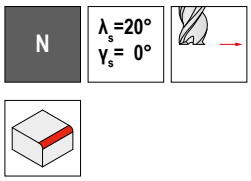
P	●
M	○
K	●
N	
S	
H	
O	

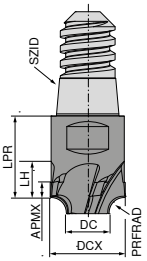
→ v_c/f_z Page 448

▲ r_{3D} = corner radius to be programmed
▲ Ø DCX tapered by 0.2 mm, resulting in Ø DN
▲ Ø DCX halved, resulting in Ø DC

MultiChange –
Quarter-round milling cutter

The exchangeable head system for the highest demands and a wide range of applications







Factory standard

52 869 ...

DCX mm	SZID	PRFRAD ±0,03 mm	APMX mm	DC mm	LPR ±0,02 mm	LH mm	ZEFP	£ V1	
8	06	0.5	2.0	6.63	11	4.5	4	108.33	**080**
8	06	1.0	3.0	5.69	11	5.0	4	108.33	**081**
10	08	1.5	4.0	6.63	13	6.5	4	116.31	**100**
10	08	2.0	4.5	5.69	13	7.0	4	116.31	**101**
12	10	2.5	5.5	6.65	16	8.5	4	140.31	**120**
12	10	3.0	6.0	5.70	16	9.0	4	140.31	**121**
12	10	3.5	6.5	4.76	16	9.5	4	140.31	**122**
16	12	4.0	8.0	7.60	20	12.0	4	198.73	**160**
16	12	4.5	8.5	6.68	20	12.5	4	198.73	**161**
16	12	5.0	9.0	5.74	20	13.0	4	198.73	**162**
20	16	5.0	10.0	9.53	25	15.0	4	268.66	**200**
20	16	6.0	11.0	7.64	25	16.0	4	268.66	**201**

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 453

Assembly instructions

▲ SZID = Coupling Size
▲ SW = Across Flats Size
▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
▲ In unstable applications, the cutting data should be reduced.

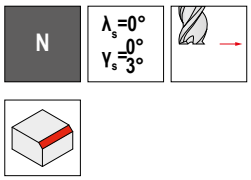
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

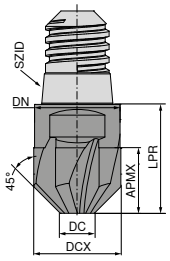
MultiChange – Deburring Cutter

The exchangeable head system for the highest demands and a wide range of applications



Ti1050





Factory standard

52 867 ...

DCX mm	SZID	APMX mm	DC mm	DN mm	LPR ±0,02 mm	ZEFP	£ V1	
10	08	7.5	0.02	9.8	13	4	79.05	**100**
12	10	9.0	0.02	11.8	16	4	102.49	**120**
16	12	12.0	6.40	15.8	20	6	136.29	**160**
20	16	15.0	8.00	19.8	25	6	179.75	**200**

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 454

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

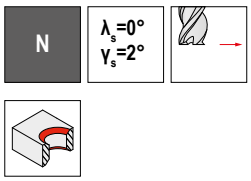
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

Application Tips

APMX does not correspond to the maximum cutting depth

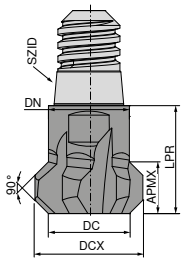
MultiChange – Deburring Cutter

The exchangeable head system for the highest demands and a wide range of applications



Ti1100





Factory standard

52 868 ...

DCX mm	SZID	APMX mm	DC mm	DN mm	LPR ±0,02 mm	ZEFP	£ V1	
10	06	4.8	7.5	8	11	6	87.59	**100**
12	08	5.5	9.0	10	13	6	109.76	**120**
16	10	8.0	12.0	12	16	6	153.09	**160**
20	12	9.5	15.0	16	20	6	195.53	**200**

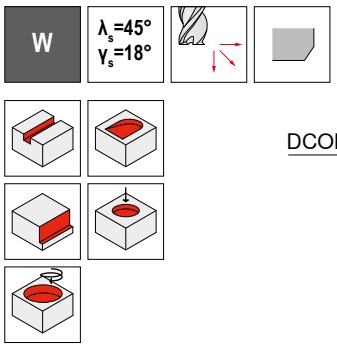
P	●
M	○
K	●
N	●
S	
H	
O	

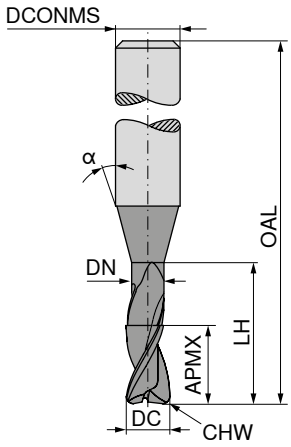
→ v_c/f_z Page 454

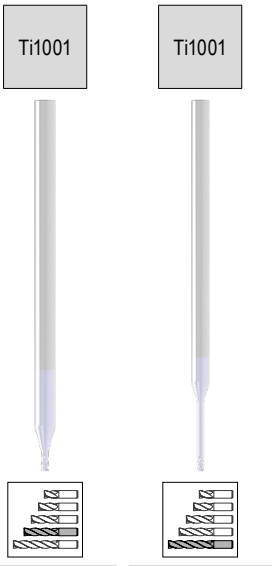
End milling cutter

W

λ_s=45°
γ_s=18°







Factory standard

Factory standard

DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	CHW mm	ZEFP	50 900 ... £ V0/5A		50 900 ... £ V0/5A	
0.2	0.2	0.18	0.6	55	15	3	0.02	2	108.78	**021**		
0.2	0.2	0.18	1.0	55	15	3	0.02	2	110.31	**022**		
0.2	0.2	0.18	1.6	55	15	3	0.02	2	111.44	**023**		
0.2	0.2	0.18	2.0	55	15	3	0.02	2	112.75	**024**		
0.3	0.3	0.28	0.9	55	15	3	0.03	2	108.78	**031**		
0.3	0.3	0.28	1.5	55	15	3	0.03	2	110.31	**032**		
0.3	0.3	0.28	2.4	55	15	3	0.03	2	111.44	**033**		
0.3	0.3	0.28	3.0	55	15	3	0.03	2	112.75	**034**		
0.4	0.4	0.37	1.2	55	15	3	0.04	2	108.78	**041**		
0.4	0.4	0.37	2.0	55	15	3	0.04	2	110.31	**042**		
0.4	0.4	0.37	3.2	55	15	3	0.04	2	111.44	**043**		
0.4	0.4	0.37	4.0	55	15	3	0.04	2	112.75	**044**		
0.5	0.5	0.45	1.5	55	15	3	0.05	2	106.52	**051**		
0.5	0.5	0.45	2.5	55	15	3	0.05	2	107.65	**052**		
0.5	0.5	0.45	4.0	55	15	3	0.05	2	108.78	**053**		
0.5	0.5	0.45	5.0	55	15	3	0.05	2	110.31	**054**		
0.6	0.6	0.58	2.0	55	15	3	0.06	2	89.77	**061**		
0.6	0.6	0.58	3.0	55	15	3	0.06	2	89.43	**062**		
0.6	0.6	0.58	5.0	65	15	3	0.06	2			97.41	**063**
0.6	0.6	0.58	6.0	65	15	3	0.06	2			103.09	**064**
0.8	0.8	0.77	2.5	55	15	3	0.08	2	89.43	**081**		
0.8	0.8	0.77	4.0	55	15	3	0.08	2	89.43	**082**		
0.8	0.8	0.77	6.5	65	15	3	0.08	2			99.47	**083**
0.8	0.8	0.77	8.0	65	15	3	0.08	2			103.09	**084**
1.0	1.0	0.95	3.0	55	15	3	0.10	2	89.43	**101**		
1.0	1.0	0.95	5.0	55	15	3	0.10	2	89.43	**102**		
1.0	1.0	0.95	8.0	65	15	3	0.10	2			94.55	**103**
1.0	1.0	0.95	10.0	65	15	3	0.10	2			103.09	**104**
1.0	1.0	0.95	12.0	65	15	3	0.10	2			105.73	**105**
1.2	1.2	1.15	3.0	55	15	3	0.10	2	89.43	**121**		
1.2	1.2	1.15	6.0	55	15	3	0.10	2	89.43	**122**		
1.2	1.2	1.15	10.0	65	15	3	0.10	2			99.47	**123**
1.2	1.2	1.15	12.0	65	15	3	0.10	2			103.09	**124**
1.3	1.3	1.25	4.0	55	15	3	0.10	2	89.43	**131**		
1.3	1.3	1.25	7.0	55	15	3	0.10	2	89.77	**132**		
1.3	1.3	1.25	11.0	65	15	3	0.10	2			99.47	**133**
1.3	1.3	1.25	13.0	65	15	3	0.10	2			105.73	**134**
1.5	1.5	1.44	5.0	55	15	3	0.10	2	89.77	**151**		
1.5	1.5	1.44	7.5	55	15	3	0.10	2	89.43	**152**		
1.5	1.5	1.44	12.0	65	15	3	0.10	2			105.73	**153**

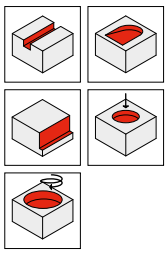
P		
M		
K		
N	●	●
S		
H		
O		

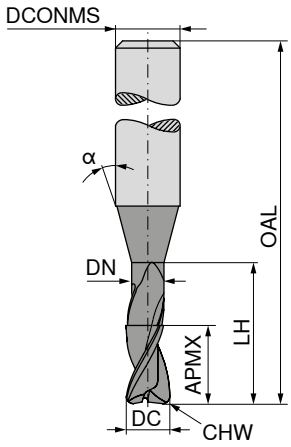
→ v_c/f_z Page 480–485

Continued on next page

End milling cutter











Factory standard

Factory standard





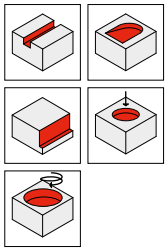
DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	CHW mm	ZEFP	50 900 ... £ V0/5A		50 900 ... £ V0/5A	
1.5	1.5	1.44	15.0	65	15	3	0.10	2			103.09	**154**
1.6	1.6	1.52	5.0	55	15	3	0.10	2	89.77	**161**		
1.6	1.6	1.52	8.0	55	15	3	0.10	2	89.77	**162**		
1.6	1.6	1.52	13.0	65	15	3	0.10	2			99.47	**163**
1.6	1.6	1.52	16.0	65	15	3	0.10	2			105.73	**164**
1.8	1.8	1.72	5.5	55	15	3	0.10	2	89.43	**181**		
1.8	1.8	1.72	9.0	55	15	3	0.10	2	89.77	**182**		
1.8	1.8	1.72	14.5	65	15	3	0.10	2			99.47	**183**
1.8	1.8	1.72	18.0	65	15	3	0.10	2			105.73	**184**
2.0	2.0	1.92	6.0	55	15	3	0.10	2	89.43	**201**		
2.0	2.0	1.92	10.0	55	15	3	0.10	2	89.43	**202**		
2.0	2.0	1.92	14.0	55	15	3	0.10	2	94.55	**203**		
2.0	2.0	1.92	16.0	65	15	3	0.10	2			105.73	**204**
2.0	2.0	1.92	20.0	65	15	3	0.10	2			103.09	**205**
2.3	2.3	2.22	7.0	55	15	3	0.10	2	89.43	**231**		
2.3	2.3	2.22	11.5	55	15	3	0.10	2	89.77	**232**		
2.3	2.3	2.22	18.5	65	15	3	0.10	2			94.55	**233**
2.3	2.3	2.22	20.0	65	15	3	0.10	2			105.73	**234**
2.3	2.3	2.22	23.0	65	15	3	0.10	2			105.73	**235**
3.0	3.0	2.90	9.0	65	15	6	0.10	2	94.55	**301**		
3.0	3.0	2.90	15.0	65	15	6	0.10	2	105.73	**302**		
3.0	3.0	2.90	24.0	100	15	6	0.10	2			114.65	**303**
3.0	3.0	2.90	30.0	100	15	6	0.10	2			119.23	**304**
4.0	4.0	3.90	12.0	65	15	6	0.10	2	105.73	**401**		
4.0	4.0	3.90	20.0	65	15	6	0.10	2	105.73	**402**		
4.0	4.0	3.90	32.0	100	15	6	0.10	2			119.23	**403**
4.0	4.0	3.90	40.0	100	15	6	0.10	2			123.21	**404**
5.0	5.0	4.90	15.0	65	15	6	0.10	2	105.73	**501**		
5.0	5.0	4.90	25.0	65	15	6	0.10	2	105.73	**502**		
5.0	5.0	4.90	40.0	100	15	6	0.10	2			123.21	**503**
5.0	5.0	4.90	50.0	100	15	6	0.10	2			127.01	**504**
6.0	6.0	5.90	18.0	65	15	6	0.10	2	105.73	**601**		
6.0	6.0	5.90	30.0	100	15	6	0.10	2			119.23	**602**
6.0	6.0	5.90	48.0	100	15	6	0.10	2			127.01	**603**
6.0	6.0	5.90	60.0	100	15	6	0.10	2			130.73	**604**

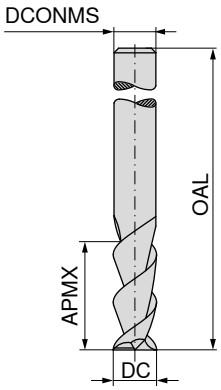
P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 480–485

End milling cutter

W | λ_s=55° γ_s= 5° | HPC









≈DIN 6527



50 960 ...

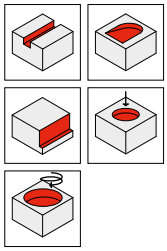
DC h6 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0/5A	
3	12	50	3	2	34.72	**030**
4	15	50	4	2	34.72	**040**
5	20	50	5	2	34.72	**050**
6	20	57	6	2	34.72	**060**
8	20	63	8	2	51.88	**080**
10	25	73	10	2	71.12	**100**
12	25	83	12	2	97.78	**120**
14	30	83	14	2	153.95	**140**
16	30	92	16	2	172.18	**160**
20	38	104	20	2	214.88	**200**

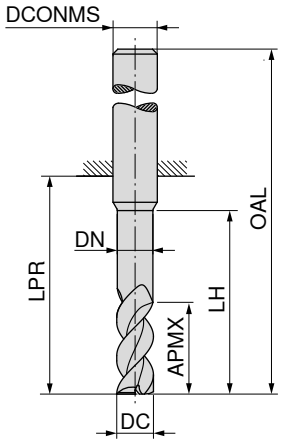
P	
M	
K	
N	●
S	
H	
O	

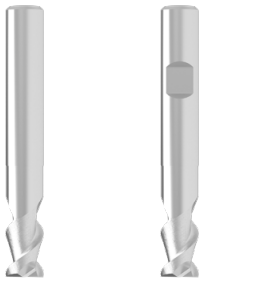
→ v_c/f_z Page 460+461

End milling cutter

W | λ_s=55° γ_s= 7° | HPC









Factory standard





Factory standard



DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 590 ... £ V0/5A		54 591 ... £ V0/5A	
2.7	5.0	2.5	12	19	55	6	2	31.72	**027**	31.72	**027**
3.0	3.5	2.8	12	19	55	6	2	32.23	**033**		
3.0	5.0	2.8	12	19	55	6	2	31.72	**031**	31.72	**031**
3.7	6.5	3.5	12	19	55	6	2	31.72	**037**	31.72	**037**
4.0	4.5	3.8	12	19	55	6	2	32.23	**043**		
4.0	6.5	3.8	12	19	55	6	2	31.72	**041**	31.72	**041**
4.7	8.0	4.5	15	22	58	6	2	31.72	**047**	31.72	**047**
5.0	5.5	4.8	15	22	58	6	2	32.23	**053**		
5.0	8.0	4.8	15	22	58	6	2	31.72	**051**	31.72	**051**
5.7	10.0	5.5	18	22	58	6	2	31.72	**057**	31.72	**057**
6.0	7.0	5.8	18	22	58	6	2	32.23	**063**		
6.0	10.0	5.8	18	22	58	6	2	31.72	**061**	31.72	**061**
6.7	13.0	6.4	24	28	64	8	2	45.62	**067**	45.62	**067**
7.0	13.0	6.7	24	28	64	8	2	45.62	**071**	45.62	**071**
7.7	13.0	7.4	24	28	64	8	2	45.62	**077**	45.62	**077**
8.0	9.0	7.7	24	28	64	8	2	45.62	**083**		
8.0	13.0	7.7	24	28	64	8	2	45.62	**081**	45.62	**081**
8.7	16.0	8.4	30	34	74	10	2	73.64	**087**	73.64	**087**
9.0	16.0	8.7	30	34	74	10	2	73.64	**091**	73.64	**091**
9.7	16.0	9.4	30	34	74	10	2	73.64	**097**	73.64	**097**
10.0	11.0	9.7	30	34	74	10	2	73.64	**103**		
10.0	16.0	9.7	30	34	74	10	2	73.64	**101**	73.64	**101**
10.7	19.0	10.3	36	40	85	12	2	95.92	**107**	95.92	**107**
11.0	19.0	10.6	36	40	85	12	2	95.92	**111**	95.92	**111**
11.7	19.0	11.3	36	40	85	12	2	95.92	**117**	95.92	**117**
12.0	13.0	11.6	36	40	85	12	2	95.92	**123**		
12.0	19.0	11.6	36	40	85	12	2	95.92	**121**	95.92	**121**
13.0	22.0	12.6	42	46	91	14	2	142.57	**131**	142.57	**131**
13.7	22.0	13.3	42	46	91	14	2	142.57	**137**	142.57	**137**
14.0	15.0	13.6	42	46	91	14	2	142.57	**143**		
14.0	22.0	13.6	42	46	91	14	2	142.57	**141**	142.57	**141**
15.0	25.0	14.5	48	52	100	16	2	231.22	**151**	231.22	**151**
15.7	25.0	15.2	48	52	100	16	2	231.22	**157**	231.22	**157**
16.0	17.0	15.5	48	52	100	16	2	231.22	**163**		
16.0	25.0	15.5	48	52	100	16	2	231.22	**161**	231.22	**161**
18.0	20.0	17.5	54	58	106	18	2	293.09	**183**		
18.0	29.0	17.5	54	58	106	18	2	295.00	**181**	295.00	**181**
19.7	32.0	19.2	60	64	114	20	2	322.90	**197**	322.90	**197**
20.0	22.0	19.5	60	64	114	20	2	310.93	**203**		
20.0	32.0	19.5	60	64	114	20	2	322.90	**201**	322.90	**201**
24.7	40.0	24.2	75	80	136	25	2	496.40	**247**	496.40	**247**
25.0	27.0	24.5	75	80	136	25	2	470.38	**253**		
25.0	40.0	24.5	75	80	136	25	2	496.40	**251**	496.40	**251**

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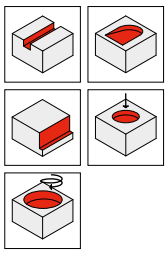
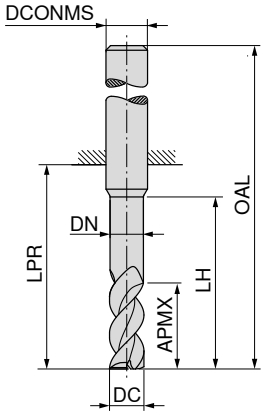
→ v_c/f_z Page 460+461

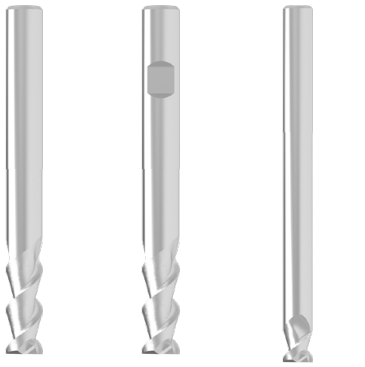
End milling cutter

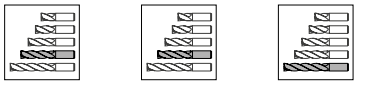
W | λ_s=55° γ_s= 7° | HPC



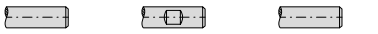


LPR with Shank DIN 6535 HB





Factory standard | Factory standard | Factory standard



DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 590 ... £ V0/5A		54 591 ... £ V0/5A		54 590 ... £ V0/5A	
2.7	8.0	2.5	15	22	58	6	2	36.31	**028**	36.31	**028**		
3.0	3.5	2.8	15	22	58	6	2	34.97	**034**				
3.0	8.0	2.8	15	22	58	6	2	36.31	**032**	36.31	**032**		
3.0	3.5	2.8	24	31	67	6	2					28.69	**035**
3.7	10.5	3.5	20	26	62	6	2	36.31	**038**	36.31	**038**		
4.0	4.5	3.8	20	26	62	6	2	34.97	**044**				
4.0	10.5	3.8	20	26	62	6	2	36.31	**042**	36.31	**042**		
4.0	4.5	3.8	32	38	74	6	2					42.65	**045**
4.7	13.0	4.5	25	34	70	6	2	36.31	**048**	36.31	**048**		
5.0	5.5	4.8	25	34	70	6	2	34.97	**054**				
5.0	13.0	4.8	25	34	70	6	2	36.31	**052**	36.31	**052**		
5.0	5.5	4.8	40	52	88	6	2					43.95	**055**
5.7	16.0	5.5	30	34	70	6	2	36.31	**058**	36.31	**058**		
6.0	7.0	5.8	30	34	70	6	2	34.97	**064**				
6.0	16.0	5.8	30	34	70	6	2	36.31	**062**	36.31	**062**		
6.0	7.0	5.8	48	52	88	6	2					43.95	**065**
6.7	21.0	6.4	40	44	80	8	2	51.96	**068**	51.96	**068**		
7.0	21.0	6.7	40	44	80	8	2	51.96	**072**	51.96	**072**		
7.7	21.0	7.4	40	44	80	8	2	51.96	**078**	51.96	**078**		
8.0	9.0	7.7	40	44	80	8	2	51.25	**084**				
8.0	21.0	7.7	40	44	80	8	2	51.96	**082**	51.96	**082**		
8.0	9.0	7.7	64	68	104	8	2					66.07	**085**
8.7	26.0	8.4	50	54	94	10	2	83.13	**088**	83.13	**088**		
9.0	26.0	8.7	50	54	94	10	2	83.13	**092**	83.13	**092**		
9.7	26.0	9.4	50	54	94	10	2	83.13	**098**	83.13	**098**		
10.0	11.0	9.7	50	54	94	10	2	81.09	**104**				
10.0	26.0	9.7	50	54	94	10	2	83.13	**102**	83.13	**102**		
10.0	11.0	9.7	80	84	124	10	2					134.79	**105**
10.7	31.0	10.3	60	64	109	12	2	137.26	**108**	137.26	**108**		
11.0	31.0	10.6	60	64	109	12	2	137.26	**112**	137.26	**112**		
11.7	31.0	11.3	60	64	109	12	2	137.26	**118**	137.26	**118**		
12.0	13.0	11.6	60	64	109	12	2	134.58	**124**				
12.0	31.0	11.6	60	64	109	12	2	137.26	**122**	137.26	**122**		
12.0	13.0	11.6	96	100	145	12	2					174.11	**125**
13.0	36.0	12.6	70	74	119	14	2	198.54	**132**	198.54	**132**		
13.7	36.0	13.3	70	74	119	14	2	198.54	**138**	198.54	**138**		
14.0	15.0	13.6	70	74	119	14	2	196.08	**144**				
14.0	36.0	13.6	70	74	119	14	2	198.54	**142**	198.54	**142**		
14.0	15.0	13.6	112	116	161	14	2					261.17	**145**
15.0	41.0	14.5	80	84	132	16	2	257.20	**152**	257.20	**152**		

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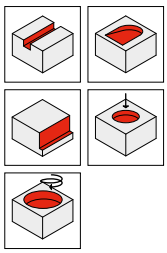
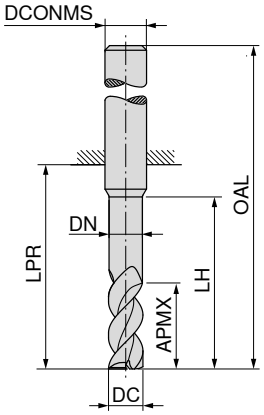
→ v_c/f_z Page 460+461

Continued on next page

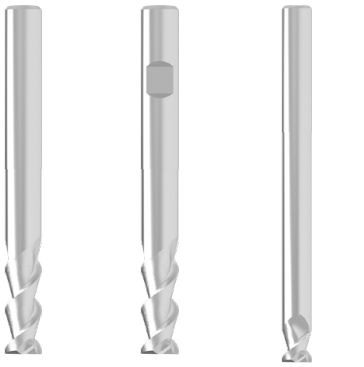
End milling cutter

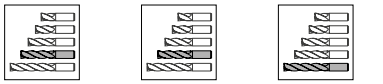
W | λ_s=55° γ_s= 7° | HPC



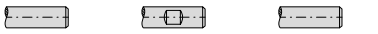


LPR with Shank DIN 6535 HB





Factory standard | Factory standard | Factory standard



DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 590 ... £ V0/5A		54 591 ... £ V0/5A		54 590 ... £ V0/5A	
15.7	41.0	15.2	80	84	132	16	2	257.20	**158**	257.20	**158**		
16.0	17.0	15.5	80	84	132	16	2	255.11	**164**				
16.0	41.0	15.5	80	84	132	16	2	257.20	**162**	257.20	**162**		
16.0	17.0	15.5	128	132	180	16	2					340.94	**165**
18.0	20.0	17.5	90	94	142	18	2	321.00	**184**				
18.0	47.0	17.5	90	94	142	18	2	336.94	**182**	336.94	**182**		
18.0	20.0	17.5	144	148	196	18	2					432.64	**185**
19.7	52.0	19.2	100	104	154	20	2	368.82	**198**	368.82	**198**		
20.0	22.0	19.5	100	104	154	20	2	342.82	**204**				
20.0	52.0	19.5	100	104	154	20	2	368.82	**202**	368.82	**202**		
20.0	22.0	19.5	160	164	214	20	2					474.38	**205**
P													
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N									●		●		●
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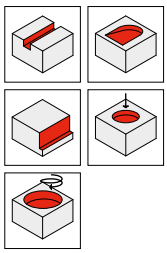
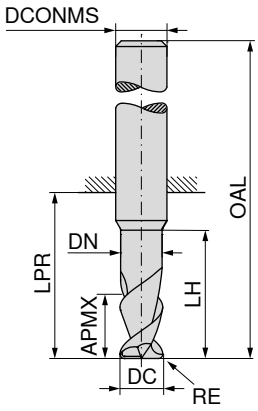
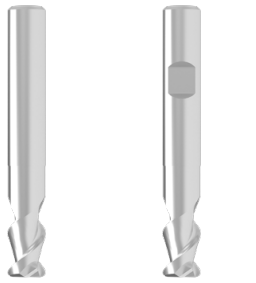
→ v_c/f_z Page 460+461

End milling cutter with corner radius

W | λ_s=55° γ_s= 7° | HPC











	Factory standard	Factory standard
	54 594 ...	54 595 ...

DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V0/5A		£ V0/5A	
3	0.2	5.0	2.8	12	19	55	6	2	35.19	031	35.19	031
3	0.3	5.0	2.8	12	19	55	6	2	35.19	033	35.19	033
3	0.5	5.0	2.8	12	19	55	6	2	35.19	035	35.19	035
4	0.3	6.5	3.8	12	19	55	6	2	35.19	041	35.19	041
4	0.5	6.5	3.8	12	19	55	6	2	35.19	043	35.19	043
4	1.0	6.5	3.8	12	19	55	6	2	35.19	045	35.19	045
5	0.3	8.0	4.8	15	22	58	6	2	36.31	051	36.31	051
5	0.5	8.0	4.8	15	22	58	6	2	36.31	053	36.31	053
5	1.0	8.0	4.8	15	22	58	6	2	36.31	055	36.31	055
6	0.3	10.0	5.8	18	22	58	6	2	37.58	061	37.58	061
6	0.5	10.0	5.8	18	22	58	6	2	37.58	063	37.58	063
6	1.0	10.0	5.8	18	22	58	6	2	37.58	065	37.58	065
8	0.3	13.0	7.7	24	28	64	8	2	50.66	081	50.66	081
8	0.5	13.0	7.7	24	28	64	8	2	50.66	083	50.66	083
8	1.0	13.0	7.7	24	28	64	8	2	50.66	085	50.66	085
10	0.3	16.0	9.7	30	34	74	10	2	78.40	101	78.40	101
10	1.0	16.0	9.7	30	34	74	10	2	78.40	103	78.40	103
10	1.5	16.0	9.7	30	34	74	10	2	78.40	105	78.40	105
12	1.0	19.0	11.6	36	40	85	12	2	100.92	121	100.92	121
12	1.5	19.0	11.6	36	40	85	12	2	100.92	123	100.92	123
12	2.0	19.0	11.6	36	40	85	12	2	100.92	125	100.92	125
16	2.0	25.0	15.5	48	52	100	16	2	239.18	161	239.18	161
16	2.5	25.0	15.5	48	52	100	16	2	241.25	163	241.25	163
16	3.0	25.0	15.5	48	52	100	16	2	241.25	165	241.25	165
20	2.0	32.0	19.5	60	64	114	20	2	326.87	201	326.87	201
20	2.5	32.0	19.5	60	64	114	20	2	326.87	203	326.87	203
20	3.0	32.0	19.5	60	64	114	20	2	326.87	205	326.87	205
20	4.0	32.0	19.5	60	64	114	20	2	326.87	206	326.87	206
25	2.0	40.0	24.5	75	80	136	25	2	500.36	251	500.36	251
25	4.0	40.0	24.5	75	80	136	25	2	502.26	253	502.26	253

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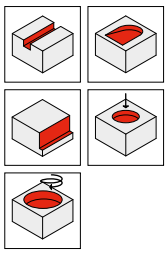
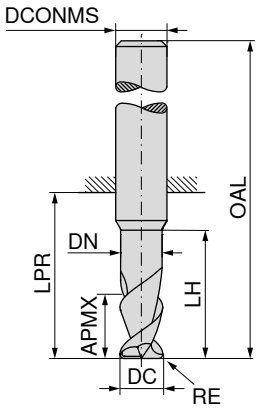
14

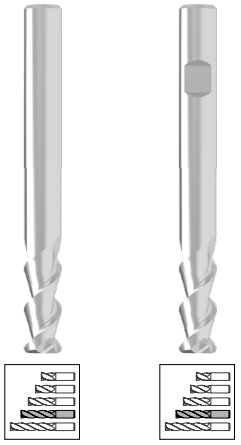
→ v_c/f_z Page 460+461

End milling cutter with corner radius

W | λ_s=55° γ_s= 7° | HPC







Factory standard | Factory standard

DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 594 ... £ V0/5A		54 595 ... £ V0/5A	
3	0.2	8.0	2.8	15	22	58	6	2	35.19	032	35.19	032
3	0.3	8.0	2.8	15	22	58	6	2	35.19	034	35.19	034
3	0.5	8.0	2.8	15	22	58	6	2	35.19	036	35.19	036
4	0.3	10.5	3.8	20	26	62	6	2	38.17	042	38.17	042
4	0.5	10.5	3.8	20	26	62	6	2	38.17	044	38.17	044
4	1.0	10.5	3.8	20	26	62	6	2	38.17	046	38.17	046
5	0.3	13.0	4.8	25	34	70	6	2	41.20	052	41.20	052
5	0.5	13.0	4.8	25	34	70	6	2	41.20	054	41.20	054
5	1.0	13.0	4.8	25	34	70	6	2	41.20	056	41.20	056
6	0.3	16.0	5.8	30	34	70	6	2	41.20	062	41.20	062
6	0.5	16.0	5.8	30	34	70	6	2	41.20	064	41.20	064
6	1.0	16.0	5.8	30	34	70	6	2	41.20	066	41.20	066
8	0.3	21.0	7.7	40	44	80	8	2	57.55	082	57.55	082
8	0.5	21.0	7.7	40	44	80	8	2	57.55	084	57.55	084
8	1.0	21.0	7.7	40	44	80	8	2	57.55	086	57.55	086
10	0.5	26.0	9.7	50	54	94	10	2	88.07	102	88.07	102
10	1.0	26.0	9.7	50	54	94	10	2	88.07	104	88.07	104
10	1.5	26.0	9.7	50	54	94	10	2	88.07	106	88.07	106
12	1.0	31.0	11.6	60	64	109	12	2	143.51	122	143.51	122
12	1.5	31.0	11.6	60	64	109	12	2	143.51	124	143.51	124
12	2.0	31.0	11.6	60	64	109	12	2	143.51	126	143.51	126
16	2.0	41.0	15.5	80	84	132	16	2	271.04	162	271.04	162
16	2.5	41.0	15.5	80	84	132	16	2	273.16	164	273.16	164
16	4.0	41.0	15.5	80	84	132	16	2	273.16	166	273.16	166
20	2.0	52.0	19.5	100	104	154	20	2	374.70	202	374.70	202
20	2.5	52.0	19.5	100	104	154	20	2	376.81	204	376.81	204
20	4.0	52.0	19.5	100	104	154	20	2	376.81	207	376.81	207
25	2.0	65.0	24.5	125	130	186	25	2	699.69	252	699.69	252
25	4.0	65.0	24.5	125	130	186	25	2	699.69	254	699.69	254

P		
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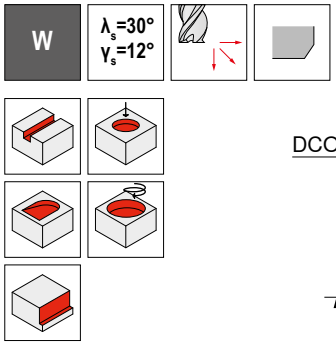
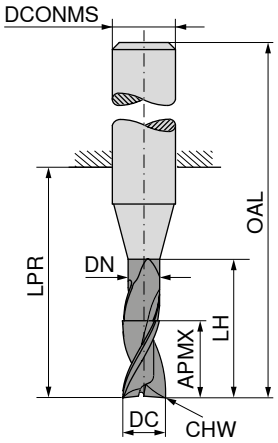
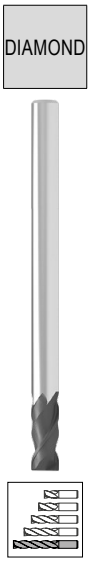
→ v_c/f_z Page 460+461

Slot milling cutter







Factory standard



52 762 ...

DC mm	DC Tol.	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	£ V1	
2	h10	8	1.8	31	32	60	2	0.04	2	219.81	**020**
3	h10	12	2.8	41	42	70	3	0.07	2	239.56	**030**
4	h10	15	3.8	51	52	80	4	0.07	2	296.13	**040**
5	h10	20	4.8	71	72	100	5	0.12	2	345.69	**050**
6	h10	20	5.8	63	64	100	6	0.12	2	387.42	**060**
8	h10	20	7.8	83	84	120	8	0.12	2	533.58	**080**
10	h10	25	9.8	99	100	140	10	0.20	2	687.69	**100**
12	h10	25	11.8	104	105	150	12	0.20	2	899.35	**120**

P	
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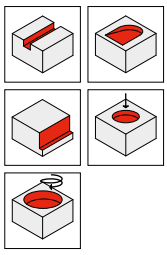
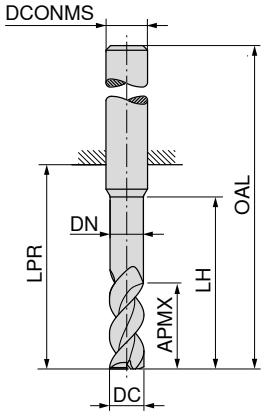
→ v_c/f_z Page 418

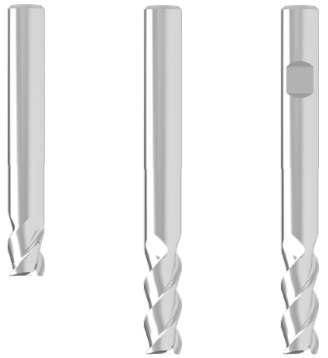
End milling cutter

W | λ_s=45° γ_s= 7° | HPC





LPR with Shank DIN 6535 HB





Factory standard



Factory standard



Factory standard

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 610 ... £ V0/5A		54 610 ... £ V0/5A		54 611 ... £ V0/5A	
3	3.5	2.8	12	19	55	6	3	34.39	033				
3	3.5	2.8	15	22	58	6	3			37.58	034		
3	8.0	2.8	15	22	58	6	3			37.58	032	37.58	032
4	4.5	3.8	12	19	55	6	3	34.39	043				
4	4.5	3.8	20	26	62	6	3			37.58	044		
4	10.5	3.8	20	26	62	6	3			38.93	042	38.93	042
5	5.5	4.8	15	22	58	6	3	34.39	053				
5	5.5	4.8	25	34	70	6	3			37.58	054		
5	13.0	4.8	25	34	70	6	3			38.93	052	38.93	052
6	7.0	5.8	18	22	58	6	3	34.39	063				
6	7.0	5.8	30	34	70	6	3			37.58	064		
6	16.0	5.8	30	34	70	6	3			38.93	062	38.93	062
7	21.0	6.7	40	44	80	8	3			56.56	072	56.56	072
8	9.0	7.7	24	28	64	8	3	48.22	083				
8	9.0	7.7	40	44	80	8	3			53.91	084		
8	21.0	7.7	40	44	80	8	3			56.56	082	56.56	082
9	26.0	8.7	50	54	94	10	3			89.22	092	89.22	092
10	11.0	9.7	30	34	74	10	3	76.50	103				
10	11.0	9.7	50	54	94	10	3			83.55	104		
10	26.0	9.7	50	54	94	10	3			89.22	102	89.22	102
11	31.0	10.6	60	64	109	12	3			148.09	112	148.09	112
12	13.0	11.6	36	40	85	12	3	98.49	123				
12	13.0	11.6	60	64	109	12	3			154.32	124		
12	31.0	11.6	60	64	109	12	3			148.09	122	148.09	122
13	36.0	12.6	70	74	119	14	3			215.27	132	215.27	132
14	15.0	13.6	42	46	91	14	3	142.44	143				
14	15.0	13.6	70	74	119	14	3			223.23	144		
14	36.0	13.6	70	74	119	14	3			215.27	142	215.27	142
15	17.0	14.5	48	52	100	16	3	188.53	153				
15	17.0	14.5	80	84	132	16	3			289.10	154		
15	41.0	14.5	80	84	132	16	3			281.14	152	281.14	152
16	17.0	15.5	48	52	100	16	3	188.53	163				
16	17.0	15.5	80	84	132	16	3			289.10	164		
16	41.0	15.5	80	84	132	16	3			281.14	162	281.14	162
18	20.0	17.5	54	58	106	18	3	237.28	183				
18	20.0	17.5	90	94	142	18	3			362.78	184		
18	47.0	17.5	90	94	142	18	3			352.89	182	352.89	182
20	22.0	19.5	60	64	114	20	3	352.89	203				
20	22.0	19.5	100	104	154	20	3			386.68	204		
20	52.0	19.5	100	104	154	20	3			376.81	202	376.81	202
25	27.0	24.5	75	80	136	25	3	643.87	253				
25	27.0	24.5	125	130	186	25	3			753.39	254		

P			
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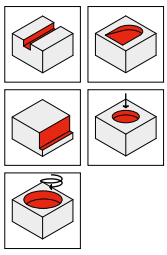
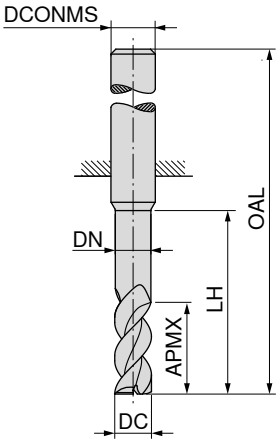
→ v_c/f_z Page 460+461

End milling cutter

W | λ_s=45° γ_s= 7° | HPC









Factory standard



54 610 ...

DC h6 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	£ V0/5A	
3	3.5	2.8	24	67	6	3	46.32	**035**
4	4.5	3.8	32	74	6	3	46.32	**045**
5	5.5	4.8	40	88	6	3	46.32	**055**
6	7.0	5.8	48	88	6	3	46.32	**065**
8	9.0	7.7	64	104	8	3	66.30	**085**
10	11.0	9.7	80	124	10	3	153.02	**105**
12	13.0	11.6	96	145	12	3	203.29	**125**
14	15.0	13.6	112	161	14	3	297.09	**145**
16	17.0	15.5	128	180	16	3	384.73	**165**
18	20.0	17.5	144	196	18	3	488.42	**185**
20	22.0	19.5	160	214	20	3	536.25	**205**

P	
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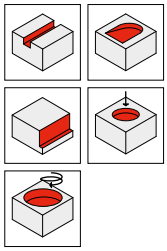
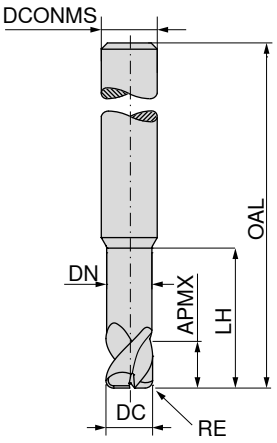
→ v_c/f_z Page 460+461

End milling cutter with corner radius

W | λ_s=45° γ_s= 7° | HPC









Factory standard



54 620 ...

DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	£ V0/5A	
3	0.4	3.5	2.8	12	55	6	3	38.53	**034**
3	0.6	3.5	2.8	12	55	6	3	38.53	**035**
4	0.4	4.5	3.8	12	55	6	3	38.53	**044**
4	0.6	4.5	3.8	12	55	6	3	38.53	**046**
5	0.4	5.5	4.8	15	58	6	3	38.53	**054**
5	0.6	5.5	4.8	15	58	6	3	38.53	**056**
6	0.4	7.0	5.8	18	58	6	3	38.53	**064**
6	0.6	7.0	5.8	18	58	6	3	38.53	**066**
8	0.4	9.0	7.7	24	64	8	3	53.34	**084**
8	0.6	9.0	7.7	24	64	8	3	53.34	**086**
8	0.8	9.0	7.7	24	64	8	3	53.34	**087**
10	1.6	11.0	9.7	30	74	10	3	79.15	**103**
12	2.0	13.0	11.6	36	85	12	3	104.62	**124**
14	0.6	15.0	13.6	42	91	14	3	149.41	**146**
14	0.8	15.0	13.6	42	91	14	3	149.41	**147**
16	1.6	17.0	15.5	48	100	16	3	192.66	**163**
16	3.2	17.0	15.5	48	100	16	3	194.20	**167**
18	1.6	20.0	17.5	54	106	18	3	241.25	**183**
20	3.2	22.0	19.5	60	114	20	3	360.89	**207**
20	5.0	22.0	19.5	60	114	20	3	360.89	**209**

P	
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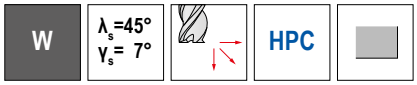
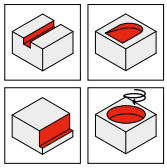
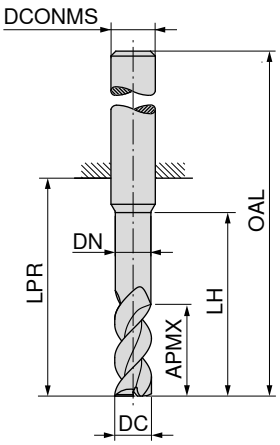
→ v_c/f_z Page 460+461

End milling cutter











Factory standard





Factory standard



DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 630 ... £ V0/5A		54 631 ... £ V0/5A	
6	10	5.8	18	22	58	6	4	35.19	**061**	35.19	**061**
7	13	6.7	24	28	64	8	4	51.25	**071**	51.25	**071**
8	13	7.7	24	28	64	8	4	51.25	**081**	51.25	**081**
9	16	8.7	30	34	74	10	4	79.71	**091**	79.71	**091**
10	16	9.7	30	34	74	10	4	79.71	**101**	79.71	**101**
11	19	10.6	36	40	85	12	4	104.62	**111**	104.62	**111**
12	19	11.6	36	40	85	12	4	104.62	**121**	104.62	**121**
13	22	12.6	42	46	91	14	4	150.19	**131**	150.19	**131**
14	22	13.6	42	46	91	14	4	150.19	**141**	150.19	**141**
15	25	14.5	48	52	100	16	4	195.34	**151**	195.34	**151**
16	25	15.5	48	52	100	16	4	195.34	**161**	195.34	**161**
18	29	17.5	54	58	106	18	4	245.27	**181**	245.27	**181**
20	32	19.5	60	64	114	20	4	281.14	**201**	281.14	**201**

P		
M		
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N	●	●
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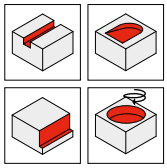
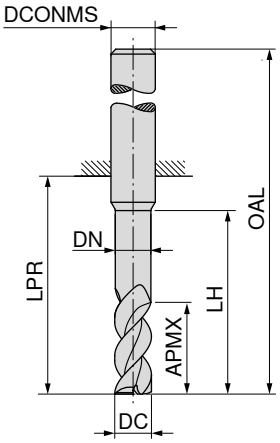
H		
O		

→ v_c/f_z Page 460+461

End milling cutter

W | λ_s=45° γ_s= 7° | HPC













Factory standard | Factory standard





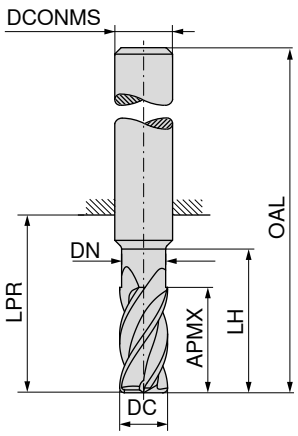
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 630 ... £ V0/5A		54 631 ... £ V0/5A	
6	16	5.8	30	34	70	6	4	37.62	**062**	37.62	**062**
7	21	6.7	40	44	80	8	4	56.56	**072**	56.56	**072**
8	21	7.7	40	44	80	8	4	56.56	**082**	56.56	**082**
9	26	8.7	50	54	94	10	4	89.22	**092**	89.22	**092**
10	26	9.7	50	54	94	10	4	89.22	**102**	89.22	**102**
11	31	10.6	60	64	109	12	4	148.09	**112**	148.09	**112**
12	31	11.6	60	64	109	12	4	148.09	**122**	148.09	**122**
13	36	12.6	70	74	119	14	4	215.27	**132**	215.27	**132**
14	36	13.6	70	74	119	14	4	215.27	**142**	215.27	**142**
15	41	14.5	80	84	132	16	4	281.14	**152**	281.14	**152**
16	41	15.5	80	84	132	16	4	281.14	**162**	281.14	**162**
18	47	17.5	90	94	142	18	4	352.89	**182**	352.89	**182**
20	52	19.5	100	104	154	20	4	376.81	**202**	376.81	**202**

P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 460+461

End milling cutter

W | λ_s=38° γ_s=17° | HPC







Factory standard



54 650 ...

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V0/5A	
6	19	5.8	30	34	70	6	5	87.53	**062**
8	25	7.7	40	44	80	8	5	112.58	**082**
10	31	9.7	50	54	94	10	5	174.27	**102**
12	37	11.6	60	64	109	12	5	281.14	**122**
14	43	13.6	70	74	119	14	5	454.42	**142**
16	49	15.5	80	84	132	16	7	504.35	**162**
18	56	17.5	90	94	142	18	7	629.83	**182**
20	62	19.5	100	104	154	20	7	697.59	**202**

P	
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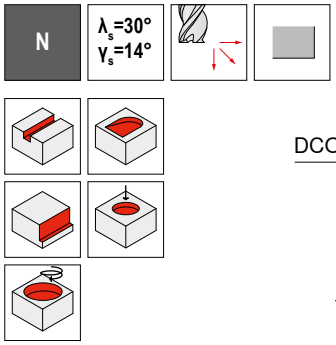
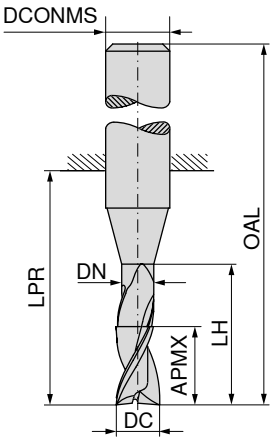
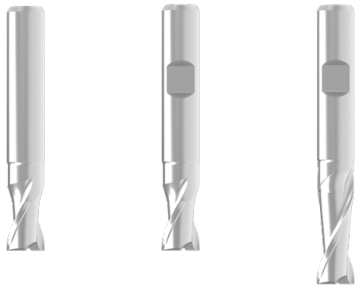
→ v_c/f_z Page 460+461

End milling cutter







Factory standard | Factory standard | Factory standard

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 942 ... £ V1/5B		52 941 ... £ V1/5B		52 948 ... £ V1/5B	
0.20	0.4			10	38	3	2	65.43	92000				
0.25	0.5			10	38	3	2	58.03	92500				
0.30	1.0			10	38	3	2	37.52	93000				
0.35	1.0			10	38	3	2	37.52	93500				
0.40	1.0			10	38	3	2	30.25	94000				
0.50	1.5			10	38	3	2	27.19	95000				
0.60	1.5			10	38	3	2	27.19	96000				
0.70	2.0			10	38	3	2	27.19	97000				
0.80	2.0			10	38	3	2	27.19	98000				
0.90	2.5			10	38	3	2	27.19	99000				
1.00	3.0			10	38	3	2	27.19	31000				
1.00	4.0	0.90	6	22	58	6	2					39.88	01000
1.10	3.0			10	38	3	2	27.19	31100				
1.20	4.0			10	38	3	2	27.19	31200				
1.30	4.0			10	38	3	2	28.60	31300				
1.40	4.0			10	38	3	2	28.60	31400				
1.50	3.0	1.40	6	18	54	6	2	37.52	01500	37.52	01500		
1.50	4.0			10	38	3	2	28.60	31500				
1.50	6.0	1.40	8	22	58	6	2					39.88	01500
1.60	4.0			10	38	3	2	30.40	31600				
1.80	5.0			10	38	3	2	30.40	31800				
2.00	4.0	1.90	8	18	54	6	2	35.98	02000	35.98	02000		
2.00	7.0	1.90	10	22	58	6	2					39.88	02000
2.50	4.0	2.40	8	18	54	6	2			35.98	02500		
2.50	6.0			10	38	3	2	28.60	32500				
2.80	4.0	2.70	9	18	54	6	2	41.40	02800	41.40	02800		
2.80	7.0	2.70	12	22	58	6	2					42.97	02800
3.00	6.0	2.90	9	18	54	6	2	35.98	03000	35.98	03000		
3.00	10.0	2.90	14	22	58	6	2					39.88	03000
3.50	6.0	3.30	9	18	54	6	2			35.98	03500		
3.80	7.0	3.60	12	18	54	6	2	41.40	03800	41.40	03800		
3.80	10.0	3.60	18	22	58	6	2					42.97	03800
4.00	7.0	3.80	12	18	54	6	2	35.72	04000	35.72	04000		
4.00	13.0	3.80	18	22	58	6	2					39.88	04000
4.50	7.0	4.30	12	18	54	6	2			35.98	04500		
4.80	8.0	4.60	16	18	54	6	2	41.40	04800	41.40	04800		
4.80	13.0	4.60	18	22	58	6	2					42.97	04800
5.00	8.0	4.80	16	18	54	6	2	35.72	05000	35.72	05000		
5.00	15.0	4.80	18	22	58	6	2					39.88	05000
5.50	8.0	5.30	16	18	54	6	2			35.98	05500		
5.75	10.0	5.55	16	18	54	6	2	41.40	05700	41.40	05700		

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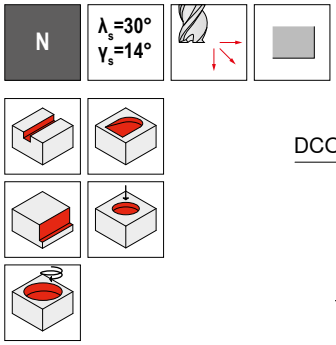
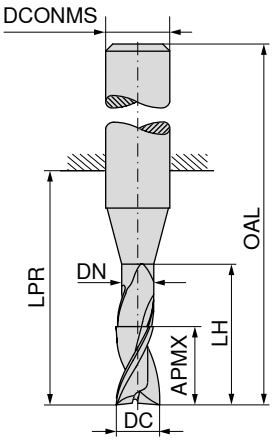
End milling cutter







Factory standard | Factory standard | Factory standard

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 942 ... £ V1/5B		52 941 ... £ V1/5B		52 948 ... £ V1/5B	
5.75	15.0	5.55	18	22	58	6	2					44.08	**05700**
6.00	10.0	5.80	16	18	54	6	2	35.72	**06000**	35.72	**06000**		
6.00	16.0	5.80	20	22	58	6	2					39.88	**06000**
6.75	10.0	6.45	16	23	59	8	2	47.84	**06700**	47.84	**06700**		
6.75	16.0	6.45	23	34	70	8	2					53.56	**06700**
7.00	12.0	6.70	18	23	59	8	2			46.31	**07000**		
7.00	16.0	6.70	23	34	70	8	2					47.00	**07000**
7.75	12.0	7.45	18	23	59	8	2	46.17	**07700**	46.17	**07700**		
7.75	16.0	7.45	23	34	70	8	2					50.23	**07700**
8.00	12.0	7.70	20	23	59	8	2	39.88	**08000**	39.88	**08000**		
8.00	22.0	7.70	25	34	70	8	2					46.04	**08000**
8.70	12.0	8.40	12	27	67	10	2	76.71	**08700**	76.71	**08700**		
9.70	13.0	9.40	13	27	67	10	2	74.23	**09700**	74.23	**09700**		
9.70	22.0	9.40	22	33	73	10	2					85.34	**09700**
10.00	13.0	9.70	13	27	67	10	2	62.90	**10000**	62.90	**10000**		
10.00	25.0	9.70	25	33	73	10	2					80.63	**10000**
11.00	25.0	10.60	25	39	84	12	2					113.67	**11000**
12.00	16.0	11.60	16	28	73	12	2	87.73	**12000**	87.73	**12000**		
12.00	26.0	11.60	26	39	84	12	2					108.23	**12000**
13.70	16.0	13.30	26	30	75	14	2	143.77	**13700**	143.77	**13700**		
13.70	26.0	13.30	35	39	84	14	2					151.99	**13700**
14.00	16.0	13.60	28	30	75	14	2	121.20	**14000**	121.20	**14000**		
14.00	26.0	13.60	35	39	84	14	2					140.85	**14000**
16.00	20.0	15.50	32	35	83	16	2	131.87	**16000**	131.87	**16000**		
16.00	30.0	15.50	40	45	93	16	2					168.69	**16000**
20.00	25.0	19.50	40	43	93	20	2	223.10	**20000**	223.10	**20000**		
20.00	40.0	19.50	50	54	104	20	2					274.74	**20000**

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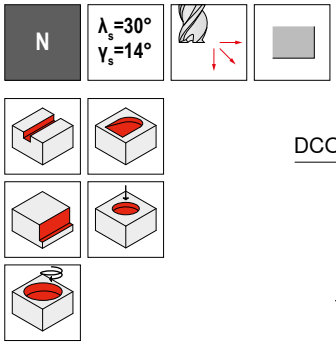
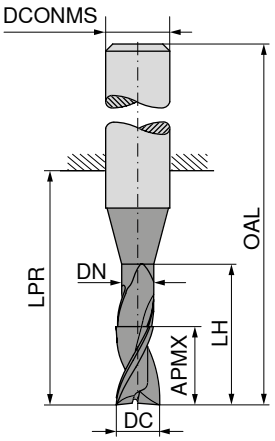
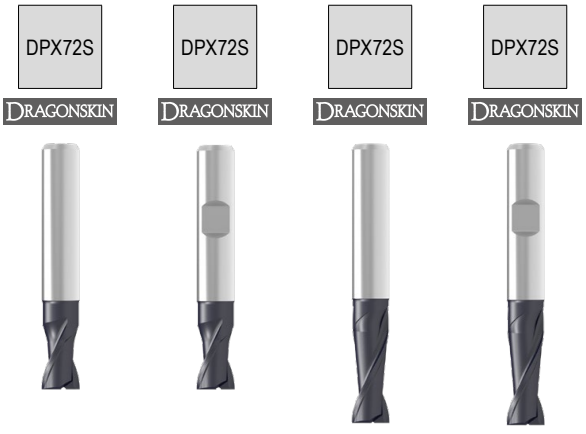
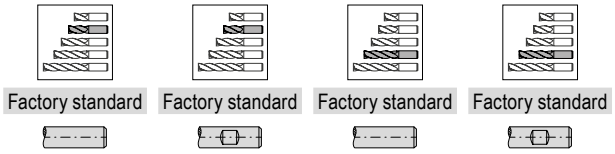
End milling cutter









Factory standard | Factory standard | Factory standard | Factory standard

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 943 ... £ V1/5B		52 944 ... £ V1/5B		52 947 ... £ V1/5B		52 949 ... £ V1/5B	
0.20	0.4			10	38	3	2	73.08	**92000**						
0.25	0.5			10	38	3	2	73.08	**92500**						
0.30	1.0			10	38	3	2	49.65	**93000**						
0.35	1.0			10	38	3	2	49.65	**93500**						
0.40	1.0			10	38	3	2	41.28	**94000**						
0.50	1.5			10	38	3	2	37.94	**95000**						
0.60	1.5			10	38	3	2	37.94	**96000**						
0.70	2.0			10	38	3	2	37.94	**97000**						
0.80	2.0			10	38	3	2	37.94	**98000**						
0.90	2.5			10	38	3	2	37.94	**99000**						
1.00	3.0			10	38	3	2	37.94	**31000**						
1.00	4.0	0.90	6	22	58	6	2					55.80	**01000**	55.80	**01000**
1.10	3.0			10	38	3	2	37.94	**31100**						
1.20	4.0			10	38	3	2	37.94	**31200**						
1.30	4.0			10	38	3	2	37.94	**31300**						
1.40	4.0			10	38	3	2	39.36	**31400**						
1.50	4.0			10	38	3	2	39.36	**31500**						
1.50	6.0	1.40	8	22	58	6	2					55.80	**01500**	55.80	**01500**
1.50	3.0	1.40	6	18	54	6	2	45.75	**01500**	45.75	**01500**				
1.60	4.0			10	38	3	2	41.40	**31600**						
1.80	5.0			10	38	3	2	41.40	**31800**						
2.00	4.0	1.90	8	18	54	6	2	50.64	**02000**	50.64	**02000**				
2.00	7.0	1.90	10	22	58	6	2					55.80	**02000**	55.80	**02000**
2.00	5.0			10	38	3	2	41.40	**32000**						
2.50	4.0	2.40	8	18	54	6	2	50.64	**02500**	50.64	**02500**				
2.50	6.0			10	38	3	2	43.81	**32500**						
2.80	4.0	2.70	9	18	54	6	2	57.34	**02800**	57.34	**02800**				
2.80	7.0	2.70	12	22	58	6	2					58.16	**02800**	58.16	**02800**
3.00	6.0	2.90	9	18	54	6	2	50.64	**03000**	50.64	**03000**				
3.00	10.0	2.90	14	22	58	6	2					55.80	**03000**	55.80	**03000**
3.00	6.0			10	38	3	2	43.81	**33000**						
3.50	6.0	3.30	9	18	54	6	2	54.54	**03500**	54.54	**03500**				
3.80	7.0	3.60	12	18	54	6	2	57.34	**03800**	57.34	**03800**				
3.80	10.0	3.60	18	22	58	6	2					58.16	**03800**	58.16	**03800**
4.00	7.0	3.80	12	18	54	6	2	50.64	**04000**	50.64	**04000**				
4.00	13.0	3.80	18	22	58	6	2					55.80	**04000**	55.80	**04000**
4.50	7.0	4.30	12	18	54	6	2	54.54	**04500**	54.54	**04500**				
4.80	8.0	4.60	16	18	54	6	2	57.34	**04800**	57.34	**04800**				
4.80	13.0	4.60	18	22	58	6	2					58.16	**04800**	58.16	**04800**
5.00	8.0	4.80	16	18	54	6	2	50.64	**05000**	50.64	**05000**				

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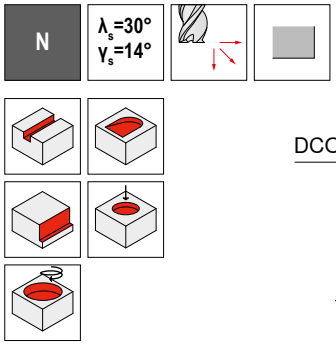
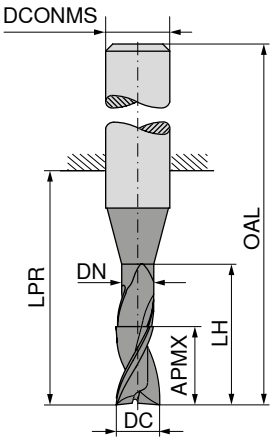
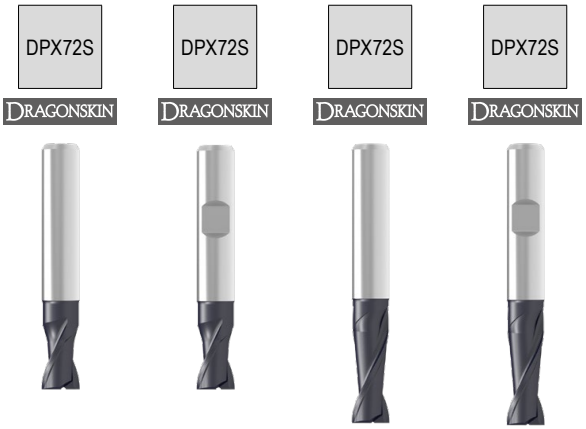
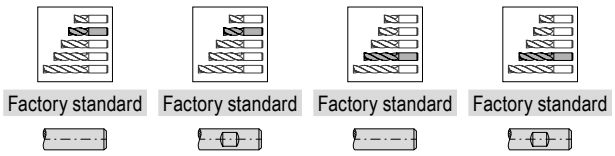
End milling cutter









DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 943 ... £ V1/5B		52 944 ... £ V1/5B		52 947 ... £ V1/5B		52 949 ... £ V1/5B	
5.00	15.0	4.80	18	22	58	6	2					55.80	**05000**	55.80	**05000**
5.50	8.0	5.30	16	18	54	6	2	54.54	**05500**	54.54	**05500**				
5.75	10.0	5.55	16	18	54	6	2	57.34	**05700**	57.34	**05700**				
5.75	15.0	5.55	18	22	58	6	2					59.43	**05700**	59.43	**05700**
6.00	10.0	5.80	16	18	54	6	2	50.64	**06000**	50.64	**06000**				
6.00	16.0	5.80	20	22	58	6	2					55.80	**06000**	55.80	**06000**
6.75	10.0	6.45	16	23	59	8	2			68.90	**06700**				
6.75	16.0	6.45	23	34	70	8	2					75.88	**06700**	75.88	**06700**
7.00	12.0	6.70	18	23	59	8	2	71.42	**07000**	71.42	**07000**				
7.00	16.0	6.70	23	34	70	8	2					68.48	**07000**	68.48	**07000**
7.75	12.0	7.45	18	23	59	8	2	66.39	**07700**	66.39	**07700**				
7.75	16.0	7.45	23	34	70	8	2					71.83	**07700**	71.83	**07700**
8.00	12.0	7.70	20	23	59	8	2	61.10	**08000**	61.10	**08000**				
8.00	22.0	7.70	25	34	70	8	2					67.38	**08000**	67.38	**08000**
8.70	12.0	8.40	12	27	67	10	2			106.41	**08700**				
9.00	13.0	8.70	13	27	67	10	2	101.40	**09000**	101.40	**09000**				
9.00	22.0	8.70	22	33	73	10	2					115.35	**09000**	115.35	**09000**
9.70	13.0	9.40	13	27	67	10	2	103.91	**09700**	103.91	**09700**				
9.70	22.0	9.40	22	33	73	10	2					117.56	**09700**	117.56	**09700**
10.00	13.0	9.70	13	27	67	10	2	90.10	**10000**	90.10	**10000**				
10.00	25.0	9.70	25	33	73	10	2					113.67	**10000**	113.67	**10000**
11.00	25.0	10.60	25	39	84	12	2					156.30	**11000**	156.30	**11000**
11.70	16.0	11.30	16	28	73	12	2	149.20	**11700**	149.20	**11700**				
12.00	16.0	11.60	16	28	73	12	2	125.10	**12000**	125.10	**12000**				
12.00	26.0	11.60	26	39	84	12	2					153.51	**12000**	153.51	**12000**
13.70	16.0	13.30	26	30	75	14	2			196.79	**13700**				
14.00	16.0	13.60	28	30	75	14	2	167.43	**14000**	167.43	**14000**				
16.00	20.0	15.50	32	35	83	16	2	189.70	**16000**	189.70	**16000**				
16.00	30.0	15.50	40	45	93	16	2					248.41	**16000**	248.41	**16000**
18.00	20.0	17.50	34	37	85	18	2	242.72	**18000**	242.72	**18000**				
20.00	25.0	19.50	40	43	93	20	2	303.97	**20000**	303.97	**20000**				
20.00	40.0	19.50	50	54	104	20	2					375.23	**20000**	375.23	**20000**

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K	●	●	●	●
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End milling cutter

N

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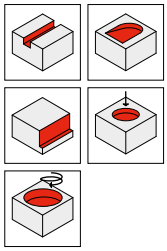

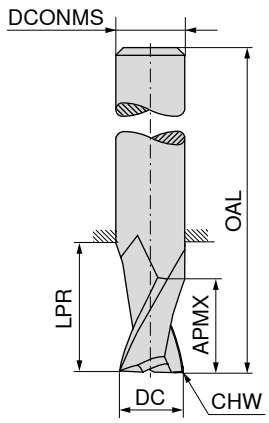

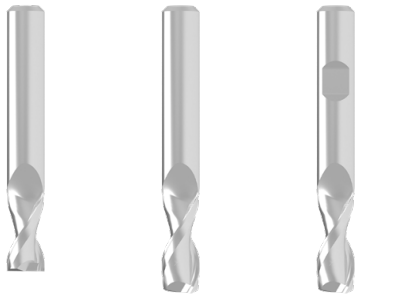

Factory standard | ≈DIN 6527 | ≈DIN 6527

DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	50 593 ... £ V0/5A		50 594 ... £ V0/5A		50 594 ... £ V0/5A	
0.25	0.5	10	38	3.0		2			39.51	**925**		
0.30	1.0	10	38	3.0		2			36.31	**930**		
0.35	1.0	10	38	3.0		2			36.31	**935**		
0.40	1.0	10	38	3.0		2			36.31	**940**		
0.50	1.5	10	38	3.0		2			36.31	**950**		
0.60	1.5	10	38	3.0		2			36.31	**960**		
0.70	2.0	10	38	3.0		2			36.31	**970**		
0.80	2.0	10	38	3.0		2			36.31	**980**		
0.90	2.5	10	38	3.0		2			36.31	**990**		
1.00	3.0	22	50	3.0		2			38.17	**010**		
1.10	3.0	22	50	3.0		2			38.17	**011**		
1.20	4.0	22	50	3.0		2			38.17	**012**		
1.40	4.0	22	50	3.0		2			38.17	**014**		
1.50	4.0	22	50	3.0		2			38.17	**015**		
1.60	4.0	22	50	3.0		2			38.17	**016**		
1.80	5.0	22	50	3.0		2			38.17	**018**		
2.00	5.0	22	50	3.0	0.07	2			35.12	**020**		
2.00	8.0	8	32	2.0	0.07	2	17.91	**020**				
2.50	6.0	22	50	3.0	0.07	2			38.17	**025**		
2.50	8.0	8	32	2.5	0.07	2	17.91	**025**				
2.80	8.0	21	57	6.0	0.07	2					31.90	**028**
3.00	8.0	21	57	6.0	0.15	2					31.90	**030**
3.00	12.0	12	32	3.0	0.15	2	17.91	**030**				
3.50	12.0	12	32	3.5	0.15	2	17.91	**035**				
3.80	11.0	21	57	6.0	0.15	2					31.90	**038**
4.00	11.0	21	57	6.0	0.15	2					31.90	**040**
4.00	12.0	12	40	4.0	0.15	2	18.46	**040**				
4.50	14.0	22	50	4.5	0.15	2	22.53	**045**				
4.80	13.0	21	57	6.0	0.15	2					31.90	**048**
5.00	13.0	21	57	6.0	0.15	2					31.90	**050**
5.00	14.0	22	50	5.0	0.15	2	22.53	**050**				
5.50	16.0	22	50	5.5	0.15	2	26.58	**055**				
5.80	13.0	21	57	6.0	0.15	2					31.90	**058**
6.00	13.0	21	57	6.0	0.15	2					31.90	**060**
6.50	16.0	16	50	6.5	0.15	2	34.47	**065**				
6.80	16.0	27	63	8.0	0.15	2					36.82	**068**
7.00	16.0	27	63	8.0	0.15	2					36.82	**070**
7.00	20.0	24	60	7.0	0.15	2	34.47	**070**				
7.50	20.0	24	60	7.5	0.15	2	34.64	**075**				
7.80	19.0	27	63	8.0	0.15	2					36.82	**078**

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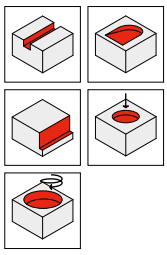
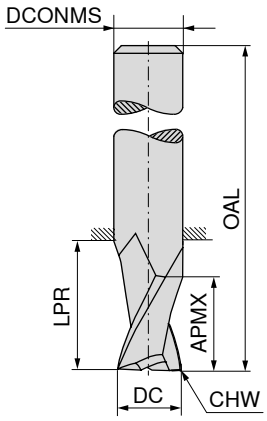
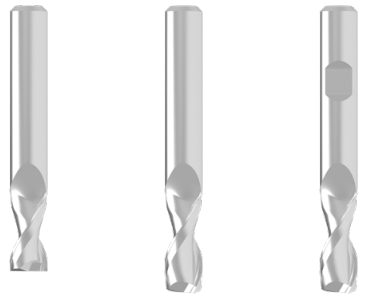
End milling cutter

N | λ_s=30° γ_s=13°







	Factory standard		≈DIN 6527		≈DIN 6527	
	50 593 ...		50 594 ...		50 594 ...	
DC e8 mm	£ V0/5A		£ V0/5A		£ V0/5A	
8.00	19.0	27	63	8.0	0.15	2					36.82	080
8.50	20.0	24	60	8.5	0.15	2	46.38	085				
8.70	19.0	32	72	10.0	0.15	2					56.98	087
9.00	19.0	32	72	10.0	0.15	2					56.98	090
9.00	20.0	24	60	9.0	0.15	2	46.38	090				
9.50	22.0	34	70	9.5	0.15	2	55.10	095				
9.70	22.0	32	72	10.0	0.15	2					56.98	097
10.00	22.0	32	72	10.0	0.15	2					56.98	100
10.70	26.0	38	83	12.0	0.15	2					88.66	107
11.00	22.0	30	70	11.0	0.15	2	73.00	110				
11.00	26.0	38	83	12.0	0.15	2					88.66	110
11.70	26.0	38	83	12.0	0.15	2					88.66	117
12.00	26.0	38	83	12.0	0.15	2					84.65	120
13.00	25.0	30	75	13.0	0.15	2	106.30	130				
13.70	26.0	38	83	14.0	0.15	2					108.39	137
14.00	22.0	30	75	14.0	0.15	2	100.62	140				
14.00	26.0	38	83	14.0	0.15	2					108.39	140
15.00	25.0	30	75	15.0	0.15	2	140.48	150				
15.70	32.0	44	92	16.0	0.15	2					142.95	157
16.00	32.0	44	92	16.0	0.15	2					127.18	160
17.70	32.0	44	92	18.0	0.15	2					236.91	177
18.00	32.0	44	92	18.0	0.15	2					168.40	180
19.70	38.0	54	104	20.0	0.15	2					312.25	197
20.00	38.0	54	104	20.0	0.15	2					213.36	200

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→ v_c/f_z Page 480–483

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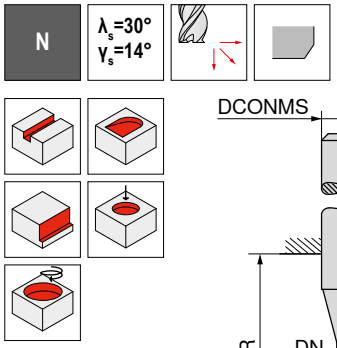
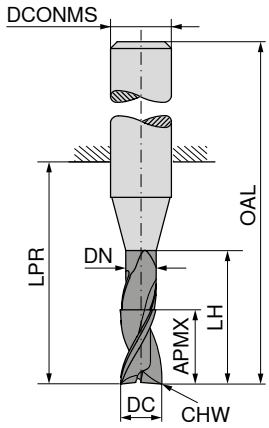
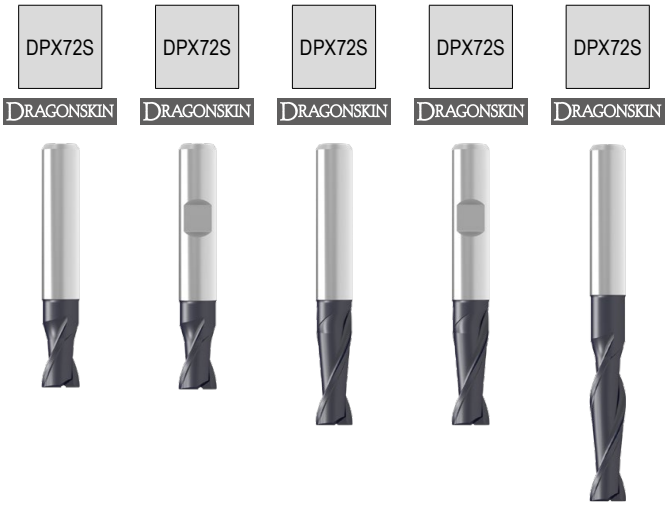
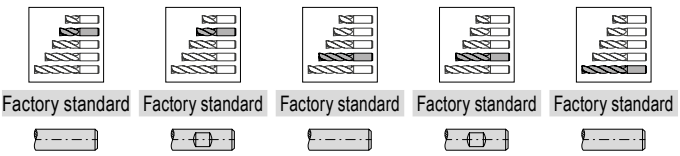
End milling cutter









DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 939 ... £ V1/5B		52 940 ... £ V1/5B		52 945 ... £ V1/5B		52 946 ... £ V1/5B		52 950 ... £ V1/5B	
2.00	4	1.90	8	18	54	6	0.04	2	44.36	**02000**	44.36	**02000**						
2.00	5			10	38	3	0.04	2	38.35	**32000**								
2.00	6			10	38	2	0.04	2					55.80	**22000**				
2.00	7	1.90	10	22	58	6	0.04	2							48.54	**02000**		
2.50	4	2.40	8	18	54	6	0.07	2	44.36	**02500**	44.36	**02500**						
2.50	6			10	38	3	0.07	2	44.36	**32500**								
2.80	4	2.70	9	18	54	6	0.07	2	50.34	**02800**	50.34	**02800**						
2.80	7			10	38	3	0.07	2					61.50	**32800**				
2.80	7	2.70	12	22	58	6	0.07	2							50.64	**02800**		
3.00	6	2.90	9	18	54	6	0.07	2	44.36	**03000**	44.36	**03000**						
3.00	6			10	38	3	0.07	2	44.36	**33000**								
3.00	7			10	38	3	0.07	2					55.80	**33000**				
3.00	10	2.90	14	22	58	6	0.07	2							48.54	**03000**		
3.00	20	2.90	24	32	60	3	0.07	2									69.85	**33000**
3.50	6	3.30	9	18	54	6	0.07	2	47.84	**03500**	47.84	**03500**						
3.80	7	3.60	12	18	54	6	0.07	2	50.34	**03800**	50.34	**03800**						
3.80	8	3.60	20	22	50	4	0.07	2					61.50	**43800**				
3.80	10	3.60	18	22	58	6	0.07	2							50.64	**03800**		
4.00	7	3.80	12	18	54	6	0.07	2	44.36	**04000**	44.36	**04000**						
4.00	8	3.80	20	22	50	4	0.07	2					55.80	**44000**				
4.00	13	3.80	18	22	58	6	0.07	2							48.54	**04000**		
4.00	30	3.80	35	47	75	4	0.07	2									76.99	**44000**
4.50	7	4.30	12	18	54	6	0.12	2	47.84	**04500**	47.84	**04500**						
4.80	8	4.60	16	18	54	6	0.12	2	50.34	**04800**	50.34	**04800**						
4.80	10	4.60	20	22	50	5	0.12	2					61.50	**54800**				
4.80	13	4.60	18	22	58	6	0.12	2							50.64	**04800**		
5.00	8	4.80	16	18	54	6	0.12	2	44.36	**05000**	44.36	**05000**						
5.00	10	4.80	20	22	50	5	0.12	2					55.80	**55000**				
5.00	15	4.80	18	22	58	6	0.12	2							48.54	**05000**		
5.00	30	4.80	35	47	75	5	0.12	2									82.42	**55000**
5.50	8	5.30	16	18	54	6	0.12	2	47.84	**05500**	47.84	**05500**						
5.75	10	5.55	16	18	54	6	0.12	2	55.92	**05700**	55.92	**05700**						
5.75	15	5.55	18	22	58	6	0.12	2					62.77	**05700**	62.77	**05700**		
6.00	10	5.80	16	18	54	6	0.12	2	44.36	**06000**	44.36	**06000**						
6.00	16	5.80	20	22	58	6	0.12	2					55.80	**06000**	55.80	**06000**		
6.00	40	5.80	60	64	100	6	0.12	2									95.41	**06000**
6.75	16	6.45	23	34	70	8	0.12	2					89.27	**06700**	89.27	**06700**		
7.00	12	6.70	18	23	59	8	0.12	2	62.90	**07000**	62.90	**07000**						

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→ v_c/f_z Page 480–485

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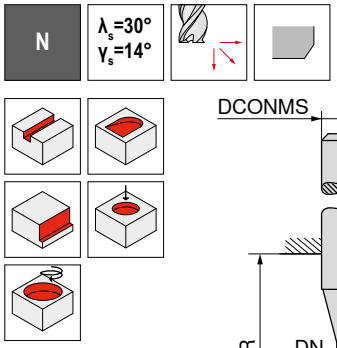
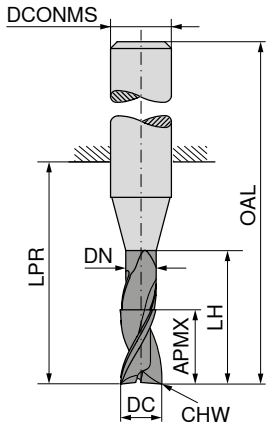
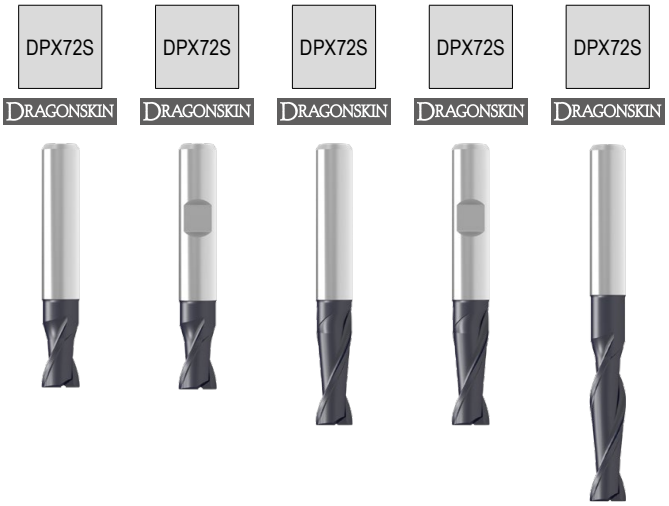
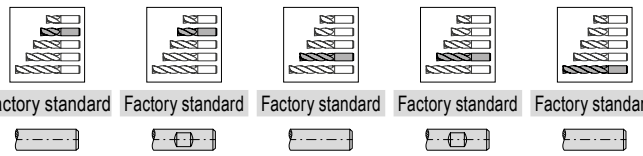
End milling cutter









DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 939 ... £ V1/5B		52 940 ... £ V1/5B		52 945 ... £ V1/5B		52 946 ... £ V1/5B		52 950 ... £ V1/5B	
7.00	16	6.70	23	34	70	8	0.12	2					80.35	**07000**	80.35	**07000**		
7.75	12	7.45	18	23	59	8	0.12	2	63.07	**07700**	63.07	**07700**						
7.75	16	7.45	23	34	70	8	0.12	2					77.11	**07700**	77.11	**07700**		
8.00	12	7.70	20	23	59	8	0.12	2	54.54	**08000**	54.54	**08000**						
8.00	22	7.70	25	34	70	8	0.12	2					67.38	**08000**	67.38	**08000**		
8.00	40	7.70	60	64	100	8	0.12	2									110.31	**08000**
9.00	13	8.70	22	27	67	10	0.20	2	89.27	**09000**	89.27	**09000**						
9.00	22	8.70	28	33	73	10	0.20	2					128.32	**09000**	128.32	**09000**		
9.70	13	9.40	22	27	67	10	0.20	2	97.48	**09700**	97.48	**09700**						
9.70	22	9.40	28	33	73	10	0.20	2					131.11	**09700**	131.11	**09700**		
10.00	13	9.70	24	27	67	10	0.20	2	83.83	**10000**	83.83	**10000**						
10.00	25	9.70	30	33	73	10	0.20	2					113.67	**10000**	113.67	**10000**		
10.00	40	9.70	55	60	100	10	0.20	2									153.51	**10000**
11.00	25	10.60	32	39	84	12	0.20	2					174.39	**11000**	174.39	**11000**		
12.00	16	11.60	26	28	73	12	0.20	2	115.63	**12000**	115.63	**12000**						
12.00	26	11.60	35	39	84	12	0.20	2					153.51	**12000**	153.51	**12000**		
12.00	45	11.60	50	55	100	12	0.20	2									203.75	**12000**
13.70	26	13.30	35	39	84	14	0.20	2					224.62	**13700**	224.62	**13700**		
14.00	16	13.60	28	30	75	14	0.20	2	156.30	**14000**	156.30	**14000**						
14.00	26	13.60	35	39	84	14	0.20	2					196.79	**14000**	196.79	**14000**		
16.00	20	15.50	32	35	83	16	0.20	2	166.17	**16000**	166.17	**16000**						
16.00	30	15.50	40	45	93	16	0.20	2					248.41	**16000**	248.41	**16000**		
16.00	65	15.50	90	102	150	16	0.20	2									468.61	**16000**
20.00	25	19.50	40	43	93	20	0.30	2	280.31	**20000**	280.31	**20000**						
20.00	40	19.50	50	54	104	20	0.30	2					375.23	**20000**	375.23	**20000**		
20.00	65	19.50	90	100	150	20	0.30	2									578.83	**20000**

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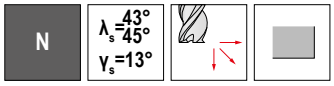
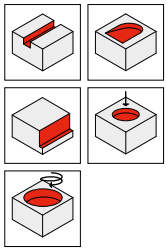
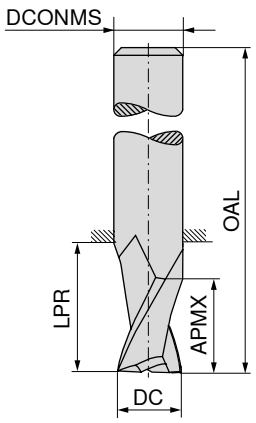
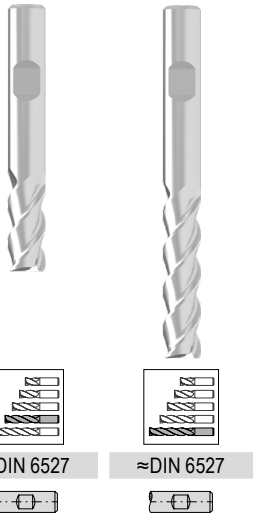
End milling cutter









DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP		≈DIN 6527 50 614 ... £ V0/5A		≈DIN 6527 50 614 ... £ V0/5A	
3.0	8	21	57	6	3		33.94	030		
3.5	11	21	57	6	3		37.40	035		
3.5	15	23	59	6	3				57.70	036
4.0	11	21	57	6	3		33.94	040		
4.0	19	27	63	6	3				57.70	041
4.5	13	21	57	6	3		37.40	045		
4.5	19	27	63	6	3				57.70	046
5.0	13	21	57	6	3		33.34	050		
5.0	24	32	68	6	3				62.63	051
5.5	13	21	57	6	3		37.40	055		
5.5	24	32	68	6	3				62.63	056
6.0	13	21	57	6	3		33.94	060		
6.0	24	32	68	6	3				60.75	061
6.5	16	27	63	8	3		43.95	065		
6.5	30	44	80	8	3				86.22	066
7.0	16	27	63	8	3		42.65	070		
7.0	30	44	80	8	3				86.22	071
7.5	19	27	63	8	3		40.22	075		
7.5	30	44	80	8	3				86.22	076
8.0	19	27	63	8	3		39.51	080		
8.0	38	52	88	8	3				79.36	081
8.5	19	32	72	10	3		60.72	085		
8.5	38	48	88	10	3				135.92	086
9.0	19	32	72	10	3		60.72	090		
9.0	38	48	88	10	3				135.92	091
9.5	22	32	72	10	3		70.84	095		
9.5	38	48	88	10	3				135.92	096
10.0	22	32	72	10	3		63.39	100		
10.0	45	55	95	10	3				132.35	101
11.0	26	38	83	12	3		100.62	110		
11.0	45	57	102	12	3				190.42	111
12.0	26	38	83	12	3		91.12	120		
12.0	53	65	110	12	3				190.42	121
14.0	26	38	83	14	3		116.94	140		
14.0	53	65	110	14	3				241.84	141
16.0	32	44	92	16	3		160.21	160		
16.0	63	75	123	16	3				332.57	161
18.0	32	44	92	18	3		194.20	180		
18.0	63	75	123	18	3				401.47	181
20.0	38	54	104	20	3		252.10	200		
20.0	75	91	141	20	3				536.07	201
P							○		○	
M							●		●	
K							○		○	
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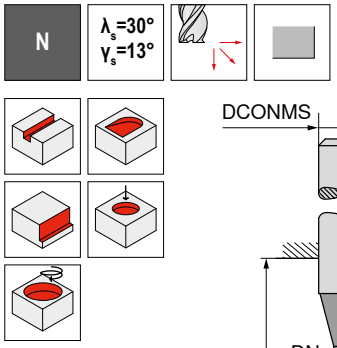
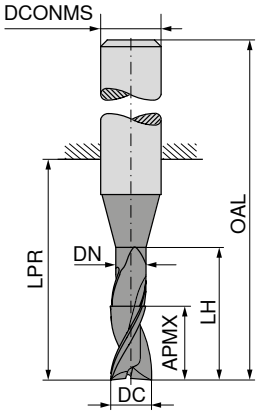
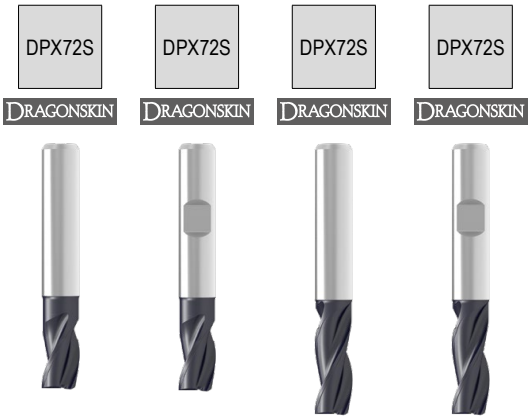
S							●		●	
H										
O							○		○	

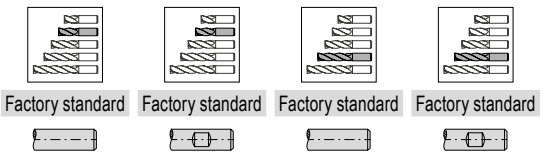
→ v_c/f_z Page 480–485

End milling cutter









DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 921 ... £ V1/5B		52 922 ... £ V1/5B		52 926 ... £ V1/5B		52 927 ... £ V1/5B	
1.00	4	0.90	5	22	58	6	3					55.66	**01000**		
1.00	4			22	58	6	3							55.66	**01000**
1.50	3	1.40	6	18	54	6	3	50.51	**01500**	50.51	**01500**				
1.50	3	1.40	6	10	38	3	3	42.97	**31500**						
1.50	6	1.40	7	22	58	6	3					55.66	**01500**		
1.50	6			22	58	6	3							55.66	**01500**
2.00	4	1.90	8	18	54	6	3	50.51	**02000**	50.51	**02000**				
2.00	4	1.90	8	10	38	3	3	42.97	**32000**						
2.00	7	1.90	8	22	58	6	3					55.66	**02000**		
2.00	7			22	58	6	3							55.66	**02000**
2.50	4	2.40	8	18	54	6	3	49.65	**02500**	49.65	**02500**				
2.50	4	2.40	8	10	38	3	3	42.97	**32500**						
2.80	6	2.70	9	18	54	6	3	53.99	**02800**	53.99	**02800**				
3.00	6	2.90	9	18	54	6	3	50.51	**03000**	50.51	**03000**				
3.00	6	2.90	9	10	38	3	3	42.97	**33000**						
3.00	10	2.90	14	22	58	6	3					55.66	**03000**	55.66	**03000**
3.50	6	3.30	9	18	54	6	3	49.65	**03500**	49.65	**03500**				
3.80	6	3.60	12	18	54	6	3	53.99	**03800**	53.99	**03800**				
4.00	7	3.80	12	18	54	6	3	50.51	**04000**	50.51	**04000**				
4.00	13	3.80	17	22	58	6	3					55.66	**04000**	55.66	**04000**
4.50	7	4.30	12	18	54	6	3	49.65	**04500**	49.65	**04500**				
4.80	8	4.60	16	18	54	6	3	53.99	**04800**	53.99	**04800**				
5.00	8	4.80	16	18	54	6	3	50.51	**05000**	50.51	**05000**				
5.00	15	4.80	19	22	58	6	3					55.66	**05000**	55.66	**05000**
5.50	8	5.30	16	18	54	6	3	49.65	**05500**	49.65	**05500**				
5.75	8	5.55	16	18	54	6	3	59.68	**05700**	59.68	**05700**				
6.00	10	5.80	16	18	54	6	3	50.51	**06000**	50.51	**06000**				
6.00	16	5.80	20	22	58	6	3					55.66	**06000**	55.66	**06000**
7.00	19	6.70	23	28	64	8	3					71.54	**07000**	71.54	**07000**
7.75	10	7.45	18	22	58	8	3	67.38	**07700**	67.38	**07700**				
8.00	12	7.70	20	23	59	8	3	58.97	**08000**	58.97	**08000**				
8.00	22	7.70	26	34	70	8	3					68.21	**08000**	68.21	**08000**
9.00	23	8.70	28	32	72	10	3					123.04	**09000**	123.04	**09000**
9.70	12	9.40	18	19	59	10	3	103.76	**09700**	103.76	**09700**				
10.00	13	9.70	24	27	67	10	3	90.80	**10000**	90.80	**10000**				
10.00	25	9.70	31	33	73	10	3					113.95	**10000**	113.95	**10000**
11.00	25	10.60	34	38	83	12	3					164.51	**11000**	164.51	**11000**
11.70	16	11.30	20	22	67	12	3	146.55	**11700**	146.55	**11700**				

P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

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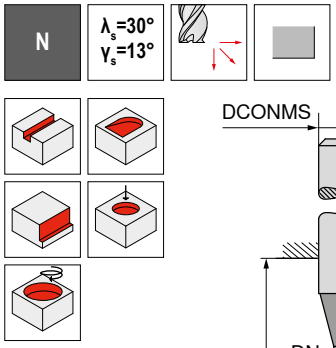
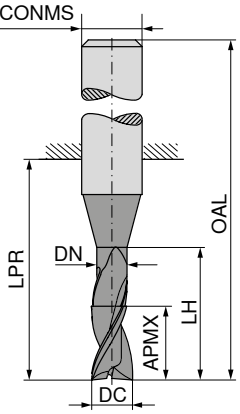
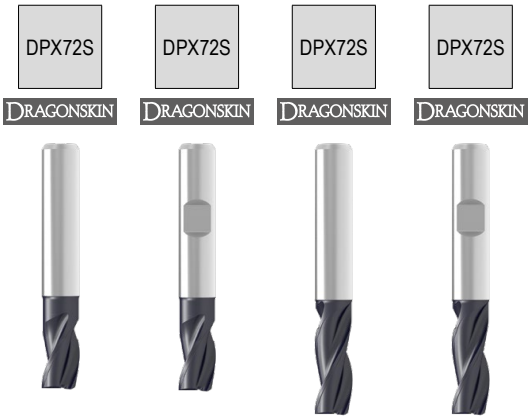
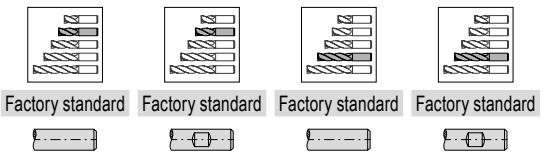
Continued on next page

End milling cutter







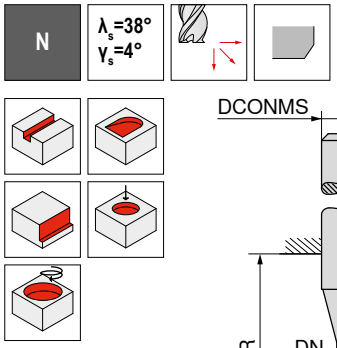


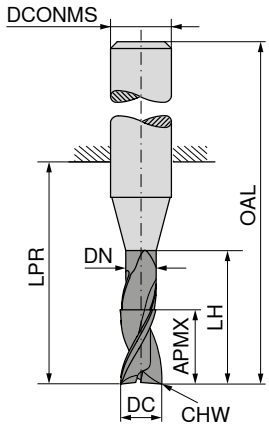
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 921 ... £ V1/5B		52 922 ... £ V1/5B		52 926 ... £ V1/5B		52 927 ... £ V1/5B	
12.00	16	11.60	26	28	73	12	3	124.97	**12000**	124.97	**12000**				
12.00	26	11.60	37	39	84	12	3					153.51	**12000**	153.51	**12000**
14.00	16	13.60	28	30	75	14	3	167.43	**14000**	167.43	**14000**				
14.00	26	13.60	37	39	84	14	3					195.27	**14000**	195.27	**14000**
16.00	20	15.50	32	35	83	16	3	191.09	**16000**	191.09	**16000**				
16.00	32	15.50	43	45	93	16	3					245.52	**16000**	245.52	**16000**
20.00	25	19.50	40	43	93	20	3	303.97	**20000**	303.97	**20000**				
20.00	40	19.50	52	54	104	20	3					376.49	**20000**	376.49	**20000**

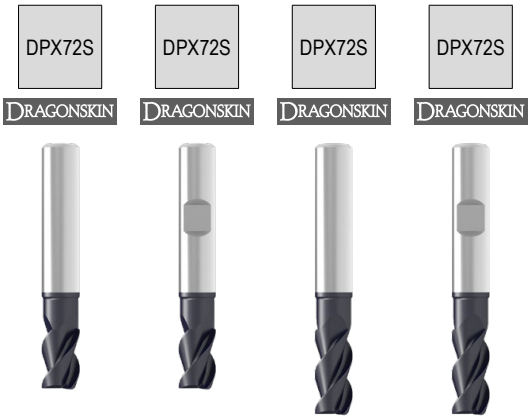
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

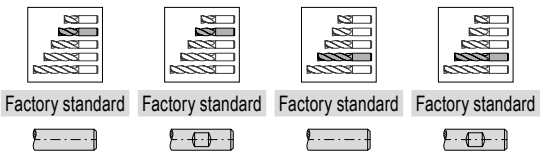
→ v_c/f_z Page 480–483

End milling cutter









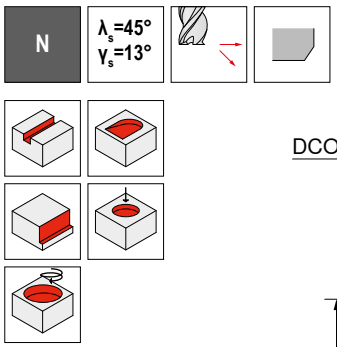
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	CHW mm	DCONMS h6 mm	ZEFP	52 929 ... £ V1/5B		52 930 ... £ V1/5B		52 932 ... £ V1/5B		52 933 ... £ V1/5B	
2.0	4	1.9	8	18	54	0.04	6	3	50.64	02000	50.64	02000				
2.0	7	1.9	10	22	58	0.04	6	3					56.91	02000	56.91	02000
2.5	5	2.4	8	18	54	0.07	6	3	50.23	02500	50.23	02500				
3.0	6	2.9	9	18	54	0.07	6	3	50.64	03000	50.64	03000				
3.0	10	2.9	14	22	58	0.07	6	3					56.91	03000	56.91	03000
4.0	7	3.8	12	18	54	0.07	6	3	50.64	04000	50.64	04000				
4.0	13	3.8	17	22	58	0.07	6	3					56.91	04000	56.91	04000
5.0	8	4.8	16	18	54	0.12	6	3	50.64	05000	50.64	05000				
5.0	15	4.8	19	22	58	0.07	6	3					56.91	05000	56.91	05000
6.0	10	5.8	16	18	54	0.12	6	3	50.64	06000	50.64	06000				
6.0	16	5.8	20	22	58	0.12	6	3					56.91	06000	56.91	06000
7.0	11	6.7	18	23	59	0.12	8	3	65.27	07000	65.27	07000				
7.0	19	6.7	23	34	70	0.12	8	3					71.54	07000	71.54	07000
8.0	12	7.7	20	23	59	0.12	8	3	59.68	08000	59.68	08000				
8.0	22	7.7	26	34	70	0.12	8	3					68.64	08000	68.64	08000
9.0	13	8.7	22	27	67	0.20	10	3	100.99	09000	100.99	09000				
9.0	23	8.7	28	33	73	0.12	10	3					123.04	09000	123.04	09000
10.0	14	9.7	24	27	67	0.20	10	3	90.80	10000	90.80	10000				
10.0	25	9.7	31	33	73	0.20	10	3					114.79	10000	114.79	10000
12.0	16	11.6	26	28	73	0.20	12	3	125.95	12000	125.95	12000				
12.0	28	11.6	37	39	84	0.20	12	3					154.78	12000	154.78	12000
14.0	18	13.6	28	30	75	0.20	14	3	168.69	14000	168.69	14000				
14.0	30	13.6	37	39	84	0.20	14	3					196.79	14000	196.79	14000
16.0	20	15.5	32	35	83	0.20	16	3	189.70	16000	189.70	16000				
16.0	35	15.5	43	45	93	0.20	16	3					249.68	16000	249.68	16000
20.0	25	19.5	40	43	93	0.30	20	3	306.90	20000	306.90	20000				
20.0	40	19.5	52	54	104	0.20	20	3					375.23	20000	375.23	20000

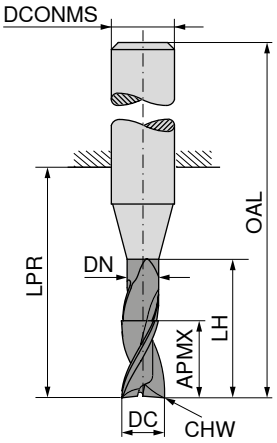
P	○	○	○	○
M	●	●	●	●
K	○	○	○	○
N	●	●	●	●
S	●	●	●	●
H				
O	●	●	●	●

14

→ v_c/f_z Page 480–483

End milling cutter





DPX72S

DRAGONSKIN





Factory standard



52 935 ...

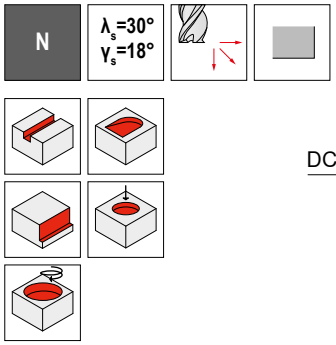
DC e8 mm	DN mm	APMX mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1/5B	
3	3.0	20	20	24	60	6	0.07	3	111.02	**03000**
4	3.8	30	35	39	75	6	0.07	3	111.02	**04000**
5	4.8	30	35	39	75	6	0.12	3	111.02	**05000**
6	5.8	40	60	64	100	6	0.12	3	107.26	**06000**
8	7.7	40	60	64	100	8	0.12	3	122.32	**08000**
10	9.7	40	55	60	100	10	0.20	3	161.72	**10000**
12	11.6	45	50	55	100	12	0.20	3	221.71	**12000**
14	13.6	45	50	55	100	14	0.20	3	338.89	**14000**
16	15.5	65	90	102	150	16	0.20	3	499.36	**16000**
20	19.5	65	90	100	150	20	0.30	3	578.83	**20000**

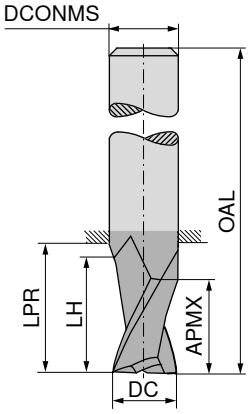
P	○
M	●
K	○
N	●
S	●
H	
O	●

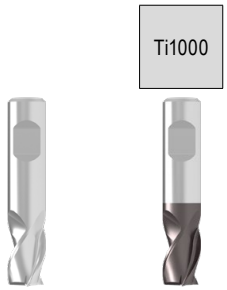
→ v_c/f_z Page 480–485

Mini milling cutter

▲ Shank similar to DIN 6535









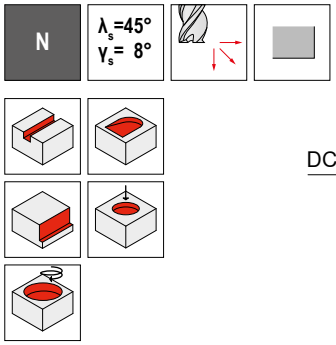


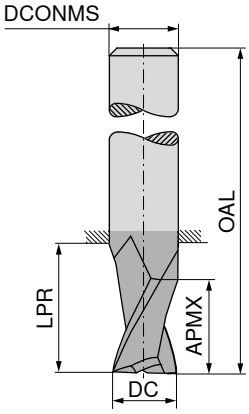
							Factory standard		Factory standard	
							50 598 ...		50 599 ...	
DC e8 mm	APMX mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V0/5A		£ V0/5A	
2.00	4	4.0	10	35	6	3	22.22	020	30.91	020
2.50	4	4.0	10	35	6	3	23.32	025	31.90	025
3.00	5	5.0	10	36	6	3	22.22	030	30.91	030
3.50	5	5.0	10	36	6	3	23.32	035	31.90	035
4.00	7	7.0	12	38	6	3	22.18	040	29.26	040
4.50	7	7.0	12	38	6	3	23.32	045	31.90	045
5.00	8	8.0	13	39	6	3	22.18	050	29.41	050
5.50	8	8.0	13	39	6	3	23.32	055	32.23	055
5.75	8	8.0	13	39	6	3	23.32	057	32.23	057
6.00	8	8.5	13	39	6	3	22.18	060	29.41	060
6.75	11	11.5	16	43	8	3	31.14	067	39.51	067
7.00	11	11.5	16	43	8	3	29.82	070	37.40	070
7.75	11	11.5	16	43	8	3	31.72	077	40.44	077
8.00	11	11.5	16	43	8	3	34.39	080	39.88	080
8.70	13	13.5	18	50	10	3	48.81	087	59.45	087
9.00	13	13.5	18	50	10	3	43.80	090	53.82	090
9.70	13	13.5	18	50	10	3	48.81	097	59.45	097
10.00	13	13.5	18	50	10	3	47.68	100	57.16	100
12.00	15	15.5	24	55	12	3	63.22	120	74.05	120
14.00	15	15.5	26	58	14	3	108.20	140	116.94	140
16.00	18	18.5	28	62	16	3	120.94	160	133.44	160
18.00	20	20.5	35	70	18	3	152.45	180	167.03	180
20.00	22	22.5	40	75	20	3	194.58	200	206.73	200
P							○		●	
M							○		○	
K							○		●	
N							●		○	
S							○		○	
H									○	
O							●		○	

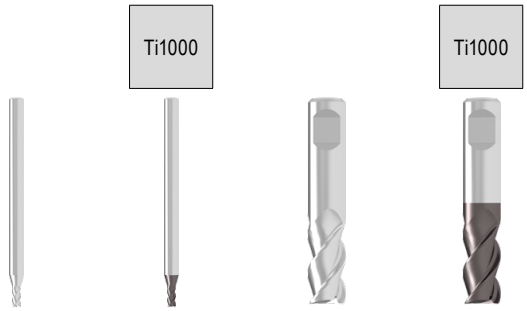
→ v_c/f_z Page 480–483

Mini milling cutter

▲ Shank similar to DIN 6535





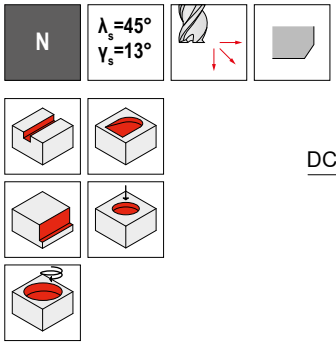


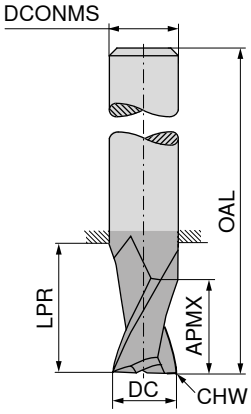
						Factory standard		Factory standard		Factory standard		Factory standard			
						50 664 ...		50 691 ...		50 664 ...		50 691 ...			
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	£ V0/5A		£ V0/5A		£ V0/5A		£ V0/5A			
0.50	1.5	17	45	3	3	23.85	30500	28.68	30500						
1.00	2.0	12	45	6	3					23.14	01000	24.82	01000		
1.00	2.0	17	45	3	3	23.85	31000	28.68	31000						
1.20	2.0	12	45	6	3					23.14	01200	24.82	01200		
1.20	3.0	17	45	3	3	23.14	31200	28.68	31200						
1.50	3.0	12	45	6	3					23.14	01500	24.82	01500		
1.50	3.0	17	45	3	3	23.85	31500	28.68	31500						
1.80	3.0	12	45	6	3					23.14	01800	24.82	01800		
1.80	3.0	17	45	3	3	23.14	31800	28.68	31800						
2.00	4.0	13	45	6	3					23.75	02000	29.28	02000		
2.50	6.0	13	45	6	3					23.75	02500	29.28	02500		
2.80	6.0	13	45	6	3					23.75	02800	29.28	02800		
3.00	6.0	13	45	6	3					23.75	03000	29.28	03000		
3.50	7.0	13	45	6	3					24.82	03500	29.28	03500		
3.80	7.0	13	45	6	3					24.82	03800	29.28	03800		
4.00	7.0	12	45	6	3					24.82	04000	29.28	04000		
4.50	8.0	11	45	6	3					25.39	04500	29.28	04500		
4.80	8.0	11	45	6	3					25.39	04800	29.28	04800		
5.00	8.0	11	45	6	3					25.39	05000	29.28	05000		
5.50	8.0	9	45	6	3					25.39	05500	29.28	05500		
5.75	8.0	9	45	6	3					25.39	05700	29.28	05700		
6.00	8.0	9	45	6	3					25.39	06000	29.28	06000		
6.70	10.0	19	55	8	3					36.83	06700	29.28	06700		
7.00	12.0	19	55	8	3					36.83	07000	29.28	07000		
7.70	12.0	19	55	8	3					36.83	07700	41.62	07700		
8.00	13.0	19	55	8	3					36.83	08000	41.62	08000		
8.70	14.0	17	55	10	3					52.08	08700	50.58	08700		
9.00	16.0	17	55	10	3					52.08	09000	50.58	09000		
9.70	16.0	17	55	10	3					52.08	09700	50.58	09700		
10.00	16.0	17	55	10	3					52.08	10000	50.58	10000		
P								●				●			
M								●				●			
K								●				●			
N						●		○		●		○			
S						○		●		○		●			
H															
O															

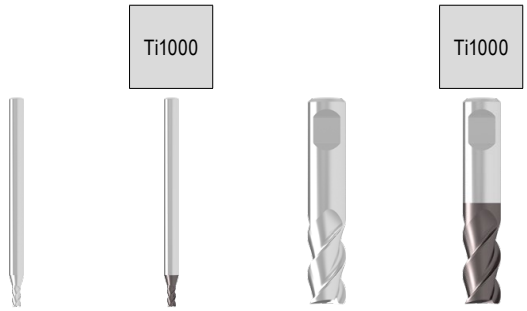
→ v_c/f_z Page 456–459

Mini milling cutter

▲ Shank similar to DIN 6535



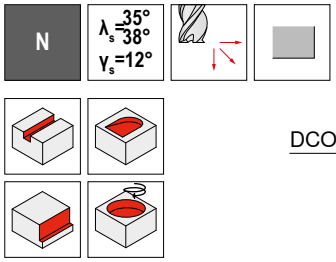


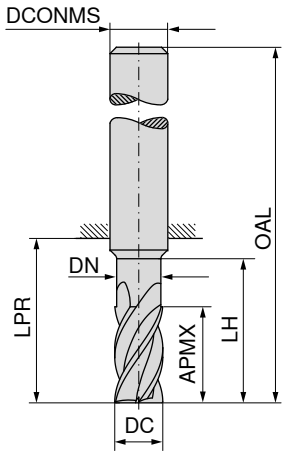


DC e8 mm	CHW mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	Factory standard	Factory standard	Factory standard	Factory standard
							50 608 ...	50 609 ...	50 608 ...	50 609 ...
							£ V0/5A	£ V0/5A	£ V0/5A	£ V0/5A
0.50	0.05	1.5	17	45	3	3	23.29 30500	28.68 30500		
1.00	0.05	2.0	12	45	6	3			23.49 01000	30.21 01000
1.00	0.05	2.0	17	45	3	3	23.29 31000	28.68 31000		
1.20	0.05	2.0	12	45	6	3			23.49 01200	30.21 01200
1.20	0.05	3.0	17	45	3	3	23.29 31200	28.68 31200		
1.50	0.05	3.0	12	45	6	3			23.49 01500	30.21 01500
1.50	0.05	3.0	17	45	3	3	23.29 31500	28.68 31500		
1.80	0.05	3.0	12	45	6	3			23.49 01800	30.21 01800
1.80	0.05	3.0	17	45	3	3	23.29 31800	28.68 31800		
2.00	0.05	4.0	13	45	6	3			25.16 020	30.21 02000
2.50	0.05	6.0	13	45	6	3			25.16 025	30.21 02500
2.80	0.05	6.0	13	45	6	3			24.46 02800	30.21 02800
3.00	0.10	6.0	13	45	6	3			25.16 030	30.21 03000
3.50	0.10	7.0	13	45	6	3			25.60 03500	30.21 03500
3.80	0.10	7.0	13	45	6	3			25.60 03800	30.21 03800
4.00	0.10	7.0	12	45	6	3			26.79 040	30.21 04000
4.50	0.10	8.0	11	45	6	3			26.19 04500	30.21 04500
4.80	0.10	8.0	11	45	6	3			26.19 04800	30.21 04800
5.00	0.10	8.0	11	45	6	3			27.35 050	30.21 05000
5.50	0.10	8.0	9	45	6	3			26.19 05500	30.21 05500
5.75	0.10	8.0	9	45	6	3			26.19 05700	30.21 05700
6.00	0.10	8.0	9	45	6	3			27.35 060	30.21 06000
6.70	0.10	10.0	19	55	8	3			37.99 06700	30.21 06700
7.00	0.10	12.0	19	55	8	3			38.93 070	30.21 07000
7.70	0.10	12.0	19	55	8	3			37.99 07700	42.90 07700
8.00	0.10	13.0	19	55	8	3			38.93 080	42.90 08000
8.70	0.10	14.0	17	55	10	3			50.17 08700	52.18 08700
9.00	0.10	16.0	17	55	10	3			50.17 09000	52.18 09000
9.70	0.10	16.0	17	55	10	3			53.70 09700	52.18 09700
10.00	0.10	16.0	17	55	10	3			55.10 100	52.18 10000
P								●		●
M								●		●
K								●		●
N							●	○	●	○
S							○	●	○	●
H										
O										

→ v_c/f_z Page 456–459

End milling cutter









Factory standard





Factory standard



DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 209 ... £ V1/5B		52 213 ... £ V1/5B	
2	4	1.9	8	18	54	6	4	35.57	**02000**		
2	7			22	58	6	4			39.75	**02000**
3	6	2.9	9	18	54	6	4	35.57	**03000**		
3	10	2.8	14	22	58	6	4			39.75	**03000**
4	7	3.8	12	18	54	6	4	35.57	**04000**		
4	13	3.8	17	22	58	6	4			39.75	**04000**
5	8	4.8	16	18	54	6	4	35.57	**05000**		
5	15	4.8	19	22	58	6	4			39.75	**05000**
6	10	5.8	16	18	54	6	4	35.57	**06000**		
6	16	5.7	20	22	58	6	4			39.75	**06000**
8	12	7.7	20	22	58	8	4	39.75	**08000**		
8	22	7.7	26	34	70	8	4			45.61	**08000**
10	14	9.7	24	26	66	10	4	62.63	**10000**		
10	25	9.6	31	33	73	10	4			80.63	**10000**
12	16	11.6	26	28	73	12	4	87.19	**12000**		
12	28	11.6	37	39	84	12	4			107.68	**12000**
14	18	13.6	28	30	75	14	4	120.79	**14000**		
16	22	15.5	32	34	82	16	4	131.11	**16000**		
16	35	15.6	43	45	93	16	4			170.21	**16000**
18	20	17.5	34	32	80	18	4	171.48	**18000**		
20	25	19.5	40	42	92	20	4	220.33	**20000**		
20	40	19.6	52	54	104	20	4			272.07	**20000**

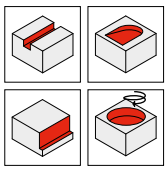
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		
O	○	○

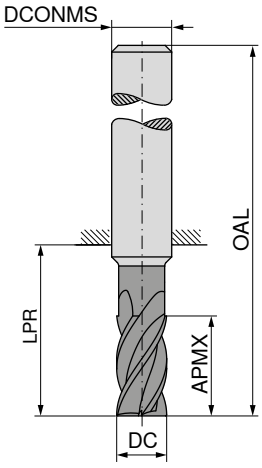
→ v_c/f_z Page 480–483

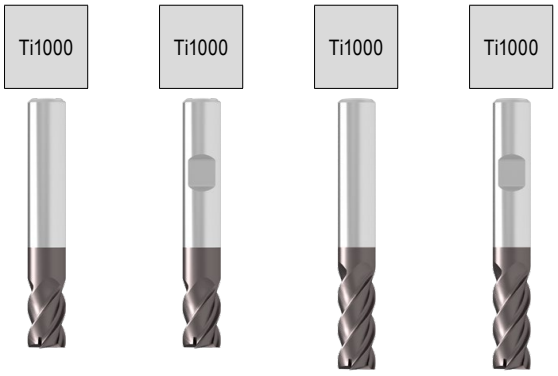
End milling cutter

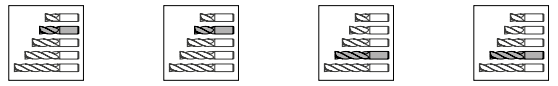
▲ Cutting edges with irregular pitch

N | λ_s=30° γ_s=12° | HPC









DIN 6527 | DIN 6527 | DIN 6527 | ≈DIN 6527

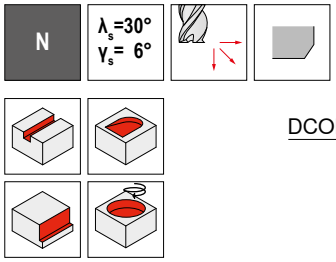


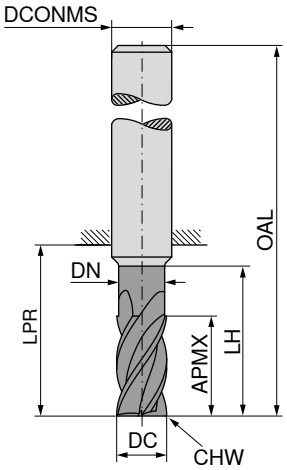
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 121 ... £ V1		52 131 ... £ V1		52 126 ... £ V1		52 132 ... £ V1	
3.0	6	18	54	6	4	75.92	030	75.92	030				
3.0	10	22	58	6	4					83.00	030	83.00	030
3.5	7	18	54	6	4	75.92	035	75.92	035				
3.5	13	22	58	6	4					83.00	035	83.00	035
4.0	7	18	54	6	4	75.92	040	75.92	040				
4.0	13	22	58	6	4					83.00	040	83.00	040
4.5	8	18	54	6	4	75.92	045	75.92	045				
4.5	15	22	58	6	4					83.00	045	83.00	045
5.0	8	18	54	6	4	75.92	050	75.92	050				
5.0	15	22	58	6	4					83.00	050	83.00	050
6.0	10	18	54	6	4	75.92	060	75.92	060				
6.0	16	22	58	6	4					83.00	060	83.00	060
8.0	12	23	59	8	4	87.90	080	87.90	080				
8.0	22	34	70	8	4					100.82	080	100.82	080
10.0	14	27	67	10	4	131.28	100	131.28	100				
10.0	25	33	73	10	4					164.94	100	164.94	100
12.0	16	28	73	12	4	182.61	120	182.61	120				
12.0	28	39	84	12	4					214.11	120	214.11	120
14.0	16	30	75	14	4	245.42	140	245.42	140				
14.0	30	39	84	14	4					265.76	140	265.76	140
16.0	20	35	83	16	4	272.57	160	272.57	160				
16.0	35	45	93	16	4					328.78	160	328.78	160
18.0	20	32	80	18	4	322.14	180	322.14	180				
18.0	35	45	93	18	4					389.32	180	389.32	180
20.0	25	43	93	20	4	404.16	200	404.16	200				
20.0	40	54	104	20	4					500.92	200	500.92	200

P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

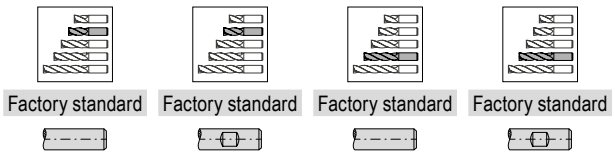
→ v_c/f_z Page 480–483

End milling cutter









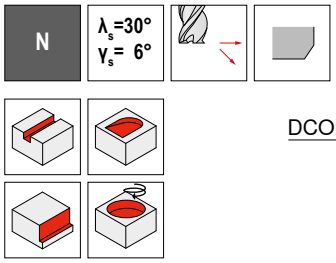
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 206 ... £ V1/5B		52 207 ... £ V1/5B		52 210 ... £ V1/5B		52 211 ... £ V1/5B	
1.5	3	1.4	6	10	38	3	0.02	4	43.67	31500						
2.0	4	1.9	8	10	38	3	0.03	4	37.94	32000						
2.0	4	1.9	8	18	54	6	0.03	4	43.93	02000	43.93	02000				
2.0	7			10	38	2	0.03	4					55.23	22000		
2.5	4	2.4	8	10	38	3	0.04	4	37.94	32500						
3.0	6	2.9	9	10	38	3	0.04	4	37.94	33000						
3.0	6	2.9	9	18	54	6	0.04	4	43.93	03000	43.93	03000				
3.0	10	2.8	14	14	38	3	0.03	4					55.23	33000		
4.0	7	3.8	12	18	54	6	0.05	4	43.93	04000	43.93	04000				
4.0	13	3.8	17	22	50	4	0.04	4					55.23	44000		
5.0	8	4.8	16	18	54	6	0.06	4	43.93	05000	43.93	05000				
5.0	15	4.8	19	22	50	5	0.04	4					55.23	55000		
6.0	10	5.8	16	18	54	6	0.07	4	43.93	06000	43.93	06000				
6.0	16	5.7	20	22	58	6	0.04	4					55.23	06000	55.23	06000
7.0	19	6.7	23	27	63	8	0.05	4					71.12	07000		
8.0	12	7.7	20	22	58	8	0.08	4	53.82	08000	53.82	08000				
8.0	22	7.7	26	34	70	8	0.06	4					67.66	08000	67.66	08000
9.0	23	8.7	28	33	73	10	0.07	4					122.47	09000		
10.0	14	9.7	24	26	66	10	0.10	4	83.26	10000	83.26	10000				
10.0	25	9.6	31	33	73	10	0.08	4					113.52	10000	113.52	10000
11.0	26	10.6	34	39	84	12	0.10	4					164.51	11000		
12.0	16	11.6	26	28	73	12	0.13	4	113.95	12000	113.95	12000				
12.0	28	11.6	37	39	84	12	0.13	4					153.51	12000	153.51	12000
14.0	18	13.6	28	30	75	14	0.15	4	154.78	14000	154.78	14000				
14.0	30	13.6	37	39	84	14	0.15	4					193.88	14000		
16.0	22	15.5	32	34	82	16	0.18	4	166.17	16000	166.17	16000				
16.0	35	15.6	43	45	93	16	0.18	4					245.52	16000	245.52	16000
20.0	25	19.5	40	42	92	20	0.20	4	279.04	20000	279.04	20000				
20.0	40	19.6	52	54	104	20	0.20	4					373.82	20000	373.82	20000

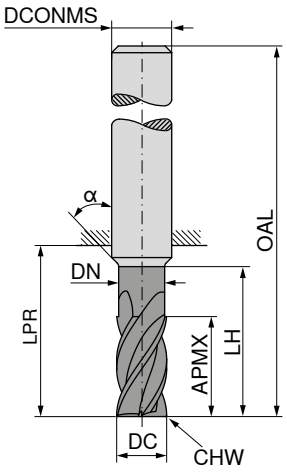
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

→ v_c/f_z Page 480–483

End milling cutter

▲ Transition angle α = 30°







Factory standard | Factory standard | Factory standard

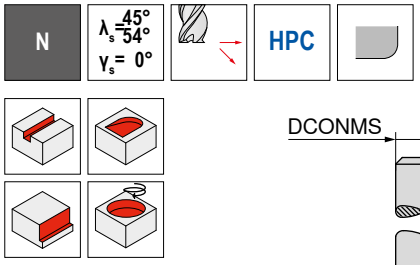
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 219 ... £ V1/5B		52 214 ... £ V1/5B		52 222 ... £ V1/5B	
3	16	2.8	32	47	75	3	0.04	4			57.34	33000		
4	16	3.8	32	47	75	4	0.05	4			59.96	44000		
4	20	3.8	48	72	100	4	0.05	4			64.16	44100		
5	20	4.8	35	47	75	5	0.06	4			67.08	55000		
5	25	4.8	55	72	100	5	0.06	4			74.90	55100		
6	24	5.8	42	44	80	6	0.07	4	86.33	06000				
6	30	5.8	62	64	100	6	0.07	4					100.41	06000
8	32	7.8	60	64	100	8	0.08	4	106.41	08000				
8	40	7.8	75	84	120	8	0.08	4					128.32	08000
10	40	9.8	58	60	100	10	0.10	4	145.02	10000				
10	50	9.8	78	80	120	10	0.10	4					174.39	10000
12	48	11.8	60	75	120	12	0.13	4	210.71	12000				
12	60	11.8	90	105	150	12	0.13	4					252.47	12000
14	45	13.8	50	55	100	14	0.15	4	274.74	14000				
14	56	13.8	95	105	150	14	0.15	4					308.27	14000
16	50	15.8	70	77	125	16	0.18	4	318.03	16000				
16	65	15.8	95	102	150	16	0.18	4					359.78	16000
18	72	17.8	95	102	150	18	0.18	4					523.02	18000
20	60	19.8	80	85	135	20	0.20	4	557.95	20000				
20	80	19.8	95	100	150	20	0.20	4					605.40	20000
25	75	24.5	90	94	150	25	0.25	4	737.91	25000				

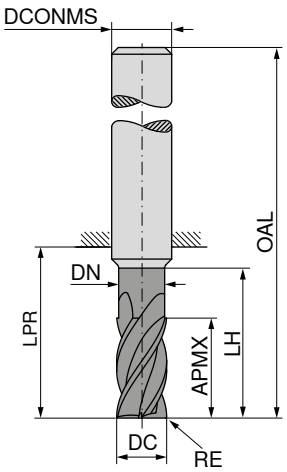
P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H	○	○	○
O	○	○	○

→ v_c/f_z Page 480–485

End milling cutter with corner radius

▲ optimal quiet running with irregular helix











Factory standard



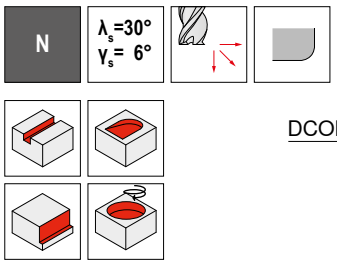
52 102 ...

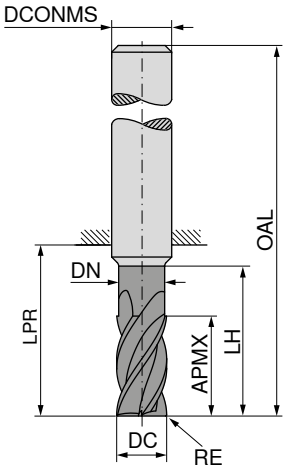
DC e8 mm	RE ±0.01 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
2	0.2	7	1.8	11	58	6	4	118.46	**022**
3	0.3	8	2.8	13	58	6	4	113.51	**033**
4	0.4	11	3.8	16	58	6	4	108.78	**044**
5	0.5	13	4.8	18	58	6	4	108.78	**055**
6	0.5	16	5.8	26	58	6	4	113.16	**065**
6	1.0	16	5.8	26	58	6	4	113.16	**066**
8	0.5	22	7.8	32	64	8	4	161.37	**085**
8	1.0	22	7.8	32	64	8	4	161.37	**086**
8	1.5	22	7.8	32	64	8	4	161.37	**087**
10	0.5	25	9.8	35	73	10	4	204.99	**105**
10	1.0	25	9.8	35	73	10	4	204.99	**106**
10	1.5	25	9.8	35	73	10	4	204.99	**107**
12	0.5	28	11.8	38	84	12	4	274.29	**125**
12	1.0	28	11.8	38	84	12	4	274.29	**126**
12	1.5	28	11.8	38	84	12	4	274.29	**127**

P	○
M	●
K	○
N	●
S	●
H	
O	●

→ v_c/f_z Page 480–483

End milling cutter with corner radius











Factory standard



52 231 ...

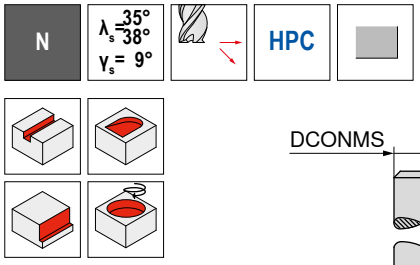
DC e8 mm	RE ±0.01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1/5B	
3	0.3	8	2.8	13	21	57	6	4	87.46	**03003**
3	0.5	8	2.8	13	21	57	6	4	87.46	**03005**
4	0.3	11	3.8	16	21	57	6	4	85.64	**04003**
4	0.5	11	3.8	16	21	57	6	4	85.64	**04005**
5	0.3	13	4.8	18	21	57	6	4	85.64	**05003**
5	0.5	13	4.8	18	21	57	6	4	85.64	**05005**
6	0.5	13	5.8	26	21	57	6	4	74.76	**06005**
6	1.0	13	5.8	26	21	57	6	4	74.76	**06010**
6	1.5	13	5.8	26	21	57	6	4	76.58	**06015**
8	0.5	19	7.8	32	27	63	8	4	113.82	**08005**
8	1.0	19	7.8	32	27	63	8	4	113.82	**08010**
8	1.5	19	7.8	32	27	63	8	4	119.67	**08015**
8	2.0	19	7.8	32	27	63	8	4	119.67	**08020**
10	1.0	22	9.8	35	32	72	10	4	142.24	**10010**
10	1.5	22	9.8	35	32	72	10	4	149.20	**10015**
10	2.0	22	9.8	35	32	72	10	4	149.20	**10020**
12	1.0	26	11.8	38	38	83	12	4	189.70	**12010**
12	1.5	26	11.8	38	38	83	12	4	195.27	**12015**
12	2.0	26	11.8	38	38	83	12	4	195.27	**12020**
12	3.0	26	11.8	38	38	83	12	4	196.79	**12030**
16	1.0	32	15.8	44	44	92	16	4	315.22	**16010**
16	1.5	32	15.8	44	44	92	16	4	322.19	**16015**
16	2.0	32	15.8	44	44	92	16	4	322.19	**16020**
16	3.0	32	15.8	44	44	92	16	4	324.98	**16030**
20	1.5	38	19.8	52	54	104	20	4	482.66	**20015**
20	2.0	38	19.8	52	54	104	20	4	482.66	**20020**
20	3.0	38	19.8	52	54	104	20	4	485.44	**20030**

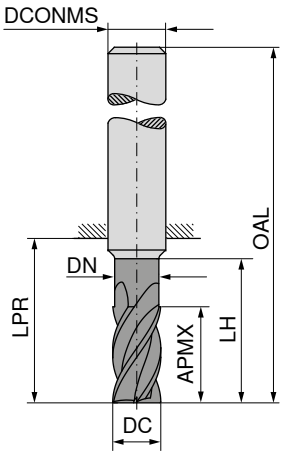
P	●
M	○
K	●
N	○
S	○
H	○
O	○

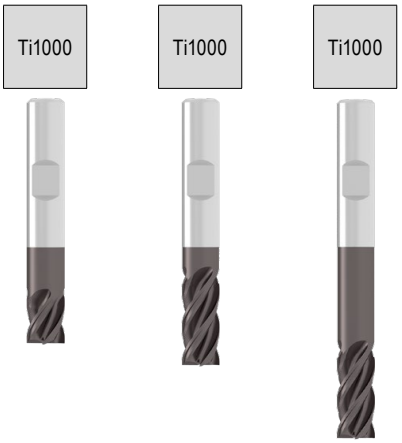
→ v_c/f_z Page 480–483

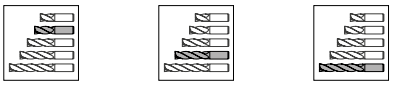
End milling cutter

N | λ_s = 35° 38° γ_s = 9° | HPC









≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527



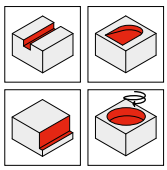
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 070 ... £ V3/5C		54 070 ... £ V3/5C		54 070 ... £ V3/5C	
3	5			14	50	6	4	16.49	**03100**				
3	8	2.8	13	21	57	6	4			16.49	**03200**		
3	8	2.8	15	22	69	6	4					24.11	**03400**
4	8			18	54	6	4	16.49	**04100**				
4	11	3.8	17	21	57	6	4			16.49	**04200**		
4	11	3.8	20	26	69	6	4					24.11	**04400**
5	9			18	54	6	4	16.49	**05100**				
5	13	4.8	19	21	57	6	4			16.49	**05200**		
5	13	4.8	25	34	69	6	4					26.64	**05400**
6	10			18	54	6	4	16.49	**06100**				
6	13	5.8	19	21	57	6	4			20.30	**06200**		
6	13	5.8	30	34	69	6	4					30.44	**06400**
8	12			22	58	8	4	24.11	**08100**				
8	17	7.7	40	44	79	8	4					38.06	**08400**
8	21	7.7	25	27	63	8	4			25.38	**08200**		
10	14			26	66	10	4	30.44	**10100**				
10	21	9.7	50	54	93	10	4					53.28	**10400**
10	22	9.7	30	32	72	10	4			34.25	**10200**		
12	16			28	73	12	4	44.40	**12100**				
12	25	11.6	60	64	108	12	4					65.97	**12400**
12	26	11.6	36	38	83	12	4			53.28	**12200**		
16	22			34	82	16	4	77.38	**16100**				
16	32	15.5	42	44	92	16	4			82.46	**16200**		
16	33	15.5	80	84	132	16	4					123.06	**16400**
20	26			42	92	20	4	115.44	**20100**				
20	38	19.5	52	54	104	20	4			124.33	**20200**		
20	42	19.5	100	104	154	20	4					168.73	**20400**

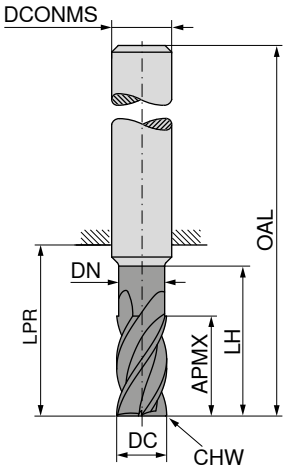
P	●	●	●
M	●	●	○
K	●	●	●
N	○	○	
S	○	○	
H			
O			

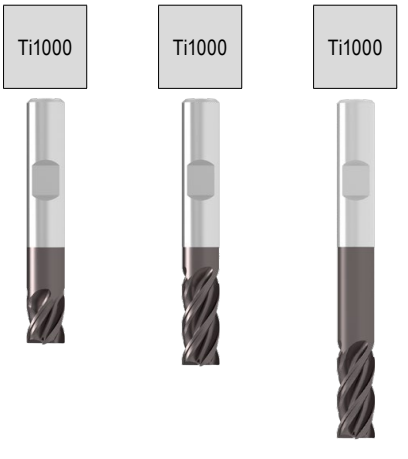
→ v_c/f_z Page 462–467

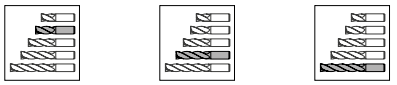
End milling cutter

N | λ_s 35° 38° | γ_s 9° | HPC









≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527



DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	54 071 ... £ V3/5C		54 071 ... £ V3/5C		54 071 ... £ V3/5C	
3	5			14	50	6	0.1	4	16.49	03100				
3	8	2.8	13	21	57	6	0.1	4			16.49	03200		
3	8	2.8	15	22	69	6	0.1	4					24.11	03400
4	8			18	54	6	0.1	4	16.49	04100				
4	11	3.8	17	21	57	6	0.1	4			16.49	04200		
4	11	3.8	20	26	69	6	0.1	4					24.11	04400
5	9			18	54	6	0.1	4	16.49	05100				
5	13	4.8	19	21	57	6	0.1	4			16.49	05200		
5	13	4.8	25	34	69	6	0.1	4					26.64	05400
6	10			18	54	6	0.1	4	16.49	06100				
6	13	5.8	19	21	57	6	0.1	4			20.30	06200		
6	13	5.8	30	34	69	6	0.1	4					30.44	06400
8	12			22	58	8	0.2	4	24.11	08100				
8	17	7.7	40	44	79	8	0.2	4					38.06	08400
8	21	7.7	25	27	63	8	0.2	4			25.38	08200		
10	14			26	66	10	0.2	4	30.44	10100				
10	21	9.7	50	54	93	10	0.2	4					53.28	10400
10	22	9.7	30	32	72	10	0.2	4			34.25	10200		
12	16			28	73	12	0.3	4	44.40	12100				
12	25	11.6	60	64	108	12	0.3	4					65.97	12400
12	26	11.6	36	38	83	12	0.3	4			53.28	12200		
16	22			34	82	16	0.3	4	77.38	16100				
16	33	15.5	80	84	132	16	0.3	4					123.06	16400
16	36	15.5	42	44	92	16	0.3	4			82.46	16200		
20	26			42	92	20	0.3	4	115.44	20100				
20	41	19.5	52	54	104	20	0.3	4			124.33	20200		
20	42	19.5	100	104	154	20	0.3	4					168.73	20400

P	●	●	●
M	●	●	○
K	●	●	●
N	○	○	
S	○	○	
H			
O			

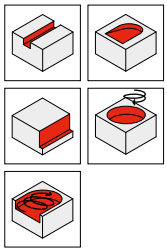
14

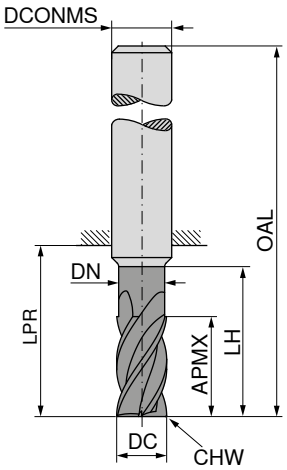
→ v_c/f_z Page 462–467

End milling cutter

▲ Cutting depth: 3 x DC

N | λ_s = 35° 36° | γ_s = 9° | HPC





NEW

Ti1000





≈DIN 6527



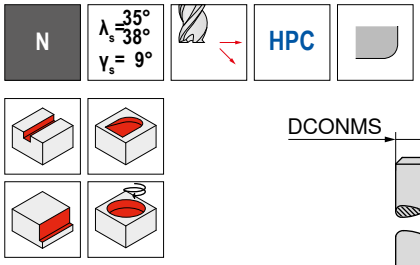
54 078 ...

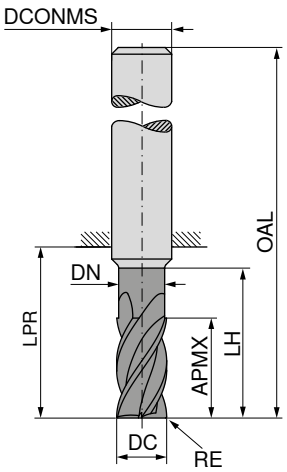
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V3/5C	
6	19	5.8	24	26	62	6	0.1	4	34.47	**06200**
8	25	7.7	30	32	68	8	0.2	4	44.51	**08200**
10	31	9.7	38	40	80	10	0.2	4	58.33	**10200**
12	37	11.6	46	48	93	12	0.2	4	92.73	**12200**
16	49	15.5	58	60	108	16	0.3	4	143.13	**16200**
20	61	19.5	74	76	126	20	0.3	4	215.88	**20200**

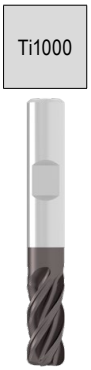
P	●
M	●
K	●
N	
S	
H	
O	

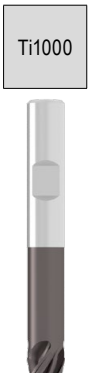
→ v_c/f_z Page 464+465

End milling cutter with corner radius













≈DIN 6527

≈DIN 6527





DC h10 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 072 ... £ V3/5C		54 072 ... £ V3/5C	
3	0.1	8	2.8	13	21	57	6	4	21.56	03201		
3	0.3	8	2.8	13	21	57	6	4	21.56	03203		
3	0.5	8	2.8	13	21	57	6	4	21.56	03205		
3	1.0	8	2.8	13	21	57	6	4	21.56	03210		
3	0.5	8	2.8	15	22	69	6	4			29.17	03405
3	0.3	8	2.8	15	22	69	6	4			29.17	03403
3	1.0	8	2.8	15	22	69	6	4			29.17	03410
4	0.1	11	3.8	17	21	57	6	4	21.56	04201		
4	0.3	11	3.8	17	21	57	6	4	21.56	04203		
4	0.5	11	3.8	17	21	57	6	4	21.56	04205		
4	1.0	11	3.8	17	21	57	6	4	21.56	04210		
4	0.5	11	3.8	20	26	69	6	4			29.17	04405
4	0.3	11	3.8	20	26	69	6	4			29.17	04403
4	1.0	11	3.8	20	26	69	6	4			29.17	04410
5	0.5	13	4.8	19	21	57	6	4	21.56	05205		
5	0.1	13	4.8	19	21	57	6	4	21.56	05201		
5	0.3	13	4.8	19	21	57	6	4	21.56	05203		
5	1.0	13	4.8	19	21	57	6	4	21.56	05210		
5	0.5	13	4.8	25	34	69	6	4			31.72	05405
5	0.3	13	4.8	25	34	69	6	4			31.72	05403
5	1.0	13	4.8	25	34	69	6	4			31.72	05410
6	0.3	13	5.8	19	21	57	6	4	24.11	06203		
6	0.1	13	5.8	19	21	57	6	4	24.11	06201		
6	0.5	13	5.8	19	21	57	6	4	24.11	06205		
6	1.0	13	5.8	19	21	57	6	4	24.11	06210		
6	1.5	13	5.8	19	21	57	6	4	24.11	06215		
6	2.0	13	5.8	19	21	57	6	4	24.11	06220		
6	1.0	13	5.8	30	34	69	6	4			35.52	06410
6	0.3	13	5.8	30	34	69	6	4			35.52	06403
6	0.5	13	5.8	30	34	69	6	4			35.52	06405
6	1.5	13	5.8	30	34	69	6	4			35.52	06415
6	2.0	13	5.8	30	34	69	6	4			35.52	06420
8	0.5	17	7.7	40	44	79	8	4			48.21	08405
8	0.3	17	7.7	40	44	79	8	4			48.21	08403
8	1.0	17	7.7	40	44	79	8	4			48.21	08410
8	1.5	17	7.7	40	44	79	8	4			48.21	08415
8	2.0	17	7.7	40	44	79	8	4			48.21	08420
8	0.1	21	7.7	25	27	63	8	4	31.72	08201		
8	0.3	21	7.7	25	27	63	8	4	31.72	08203		
8	0.5	21	7.7	25	27	63	8	4	31.72	08205		
8	1.0	21	7.7	25	27	63	8	4	31.72	08210		

P	●	●
M	●	○
K	●	●
N	○	
S	○	
H		
O		

→ v_c/f_z Page 462–467

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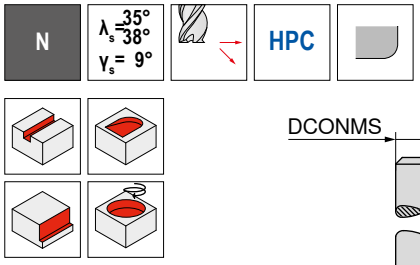
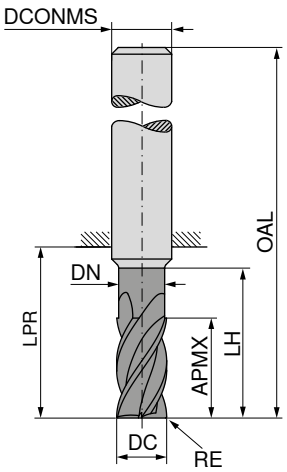
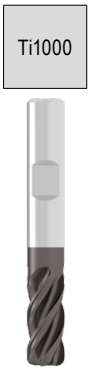
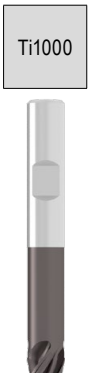
Continued on next page

End milling cutter with corner radius













≈DIN 6527

≈DIN 6527





DC h10 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 072 ... £ V3/5C		54 072 ... £ V3/5C	
8	1.5	21	7.7	25	27	63	8	4	31.72	**08215**		
8	2.0	21	7.7	25	27	63	8	4	31.72	**08220**		
10	1.0	21	9.7	50	54	93	10	4			64.69	**10410**
10	0.3	21	9.7	50	54	93	10	4			64.69	**10403**
10	0.5	21	9.7	50	54	93	10	4			64.69	**10405**
10	1.5	21	9.7	50	54	93	10	4			64.69	**10415**
10	2.0	21	9.7	50	54	93	10	4			64.69	**10420**
10	0.5	22	9.7	30	32	72	10	4	40.60	**10205**		
10	0.1	22	9.7	30	32	72	10	4	40.60	**10201**		
10	0.3	22	9.7	30	32	72	10	4	40.60	**10203**		
10	1.0	22	9.7	30	32	72	10	4	40.60	**10210**		
10	1.5	22	9.7	30	32	72	10	4	40.60	**10215**		
10	2.0	22	9.7	30	32	72	10	4	40.60	**10220**		
12	1.5	25	11.6	60	64	108	12	4			93.89	**12415**
12	0.3	25	11.6	60	64	108	12	4			93.89	**12403**
12	0.5	25	11.6	60	64	108	12	4			93.89	**12405**
12	1.0	25	11.6	60	64	108	12	4			93.89	**12410**
12	2.0	25	11.6	60	64	108	12	4			93.89	**12420**
12	3.0	25	11.6	60	64	108	12	4			93.89	**12430**
12	0.3	26	11.6	36	38	83	12	4	62.16	**12203**		
12	0.1	26	11.6	36	38	83	12	4	62.16	**12201**		
12	0.5	26	11.6	36	38	83	12	4	62.16	**12205**		
12	1.0	26	11.6	36	38	83	12	4	62.16	**12210**		
12	1.5	26	11.6	36	38	83	12	4	62.16	**12215**		
12	2.0	26	11.6	36	38	83	12	4	62.16	**12220**		
12	3.0	26	11.6	36	38	83	12	4	62.16	**12230**		
16	1.5	33	15.5	80	84	132	16	4			145.89	**16415**
16	0.3	33	15.5	80	84	132	16	4			145.89	**16403**
16	0.5	33	15.5	80	84	132	16	4			145.89	**16405**
16	1.0	33	15.5	80	84	132	16	4			145.89	**16410**
16	2.0	33	15.5	80	84	132	16	4			145.89	**16420**
16	3.0	33	15.5	80	84	132	16	4			145.89	**16430**
16	4.0	33	15.5	80	84	132	16	4			145.89	**16440**
16	0.3	36	15.5	42	44	92	16	4	95.15	**16203**		
16	0.1	36	15.5	42	44	92	16	4	95.15	**16201**		
16	0.5	36	15.5	42	44	92	16	4	95.15	**16205**		
16	1.0	36	15.5	42	44	92	16	4	95.15	**16210**		
16	1.5	36	15.5	42	44	92	16	4	95.15	**16215**		
16	2.0	36	15.5	42	44	92	16	4	95.15	**16220**		
16	3.0	36	15.5	42	44	92	16	4	95.15	**16230**		
16	4.0	36	15.5	42	44	92	16	4	95.15	**16240**		

P	●	●
M	●	○
K	●	●
N	○	
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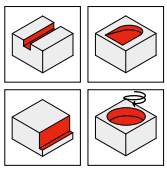
H		
O		

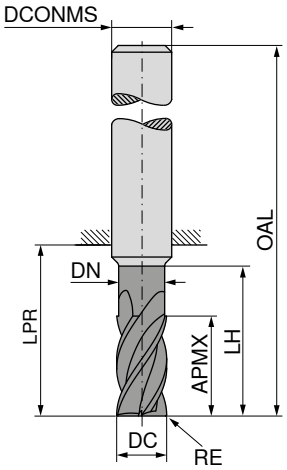
→ v_c/f_z Page 462–467

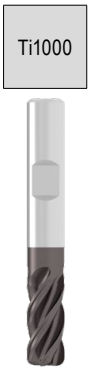
Continued on next page

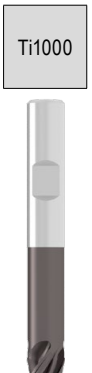
End milling cutter with corner radius

N | λ_s 35° 38° | γ_s 9° | HPC













≈DIN 6527 | ≈DIN 6527





DC h10 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 072 ... £ V3/5C		54 072 ... £ V3/5C	
20	0.1	41	19.5	52	54	104	20	4	137.02	**20201**		
20	0.3	41	19.5	52	54	104	20	4	137.02	**20203**		
20	0.5	41	19.5	52	54	104	20	4	137.02	**20205**		
20	1.0	41	19.5	52	54	104	20	4	137.02	**20210**		
20	1.5	41	19.5	52	54	104	20	4	137.02	**20215**		
20	2.0	41	19.5	52	54	104	20	4	137.02	**20220**		
20	3.0	41	19.5	52	54	104	20	4	137.02	**20230**		
20	4.0	41	19.5	52	54	104	20	4	137.02	**20240**		
20	1.5	42	19.5	100	104	154	20	4			215.67	**20415**
20	0.3	42	19.5	100	104	154	20	4			215.67	**20403**
20	0.5	42	19.5	100	104	154	20	4			215.67	**20405**
20	1.0	42	19.5	100	104	154	20	4			215.67	**20410**
20	2.0	42	19.5	100	104	154	20	4			215.67	**20420**
20	3.0	42	19.5	100	104	154	20	4			215.67	**20430**
20	4.0	42	19.5	100	104	154	20	4			215.67	**20440**

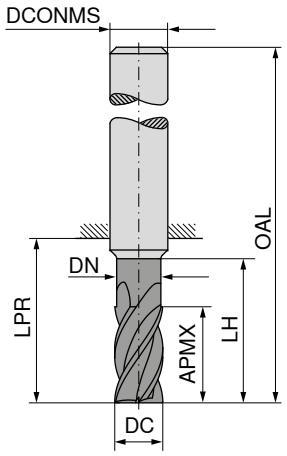
P	●	●
M	●	○
K	●	●
N	○	
S	○	
H		
O		

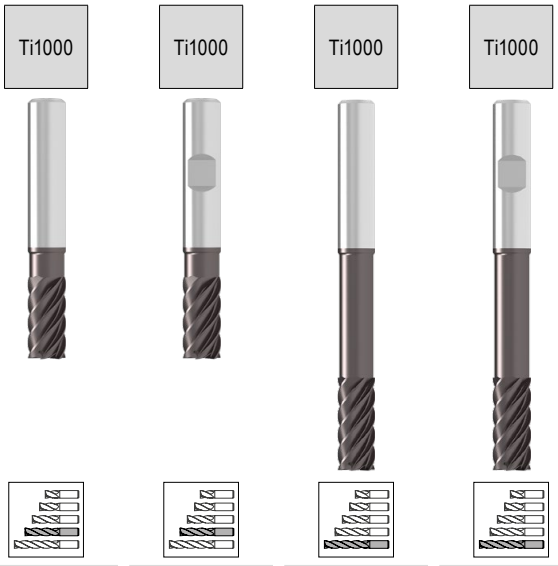
→ v_c/f_z Page 462–467

14

Finish milling cutter

N | λ_s=48° γ_s=13° | HPC





≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527 | ≈DIN 6527



DC $_{h10}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	54 076 ... £ V3/5C	54 075 ... £ V3/5C	54 076 ... £ V3/5C	54 075 ... £ V3/5C
6	13	5.6	19	21	57	6	6	24.11 **06200**	24.11 **06200**		
6	15	5.6	42	44	80	6	6			38.06 **06400**	38.06 **06400**
8	19	7.6	25	27	63	8	6	31.72 **08200**	31.72 **08200**		
8	20	7.6	62	64	100	8	6			48.21 **08400**	48.21 **08400**
10	22	9.6	30	32	72	10	6	41.87 **10200**	41.87 **10200**		
10	25	9.6	58	60	100	10	6			65.97 **10400**	65.97 **10400**
12	26	11.5	36	38	83	12	6	67.24 **12200**	67.24 **12200**		
12	30	11.5	73	75	120	12	6			81.19 **12400**	81.19 **12400**
16	32	15.0	42	44	92	16	6	102.76 **16200**	102.76 **16200**		
16	40	15.0	100	102	150	16	6			154.78 **16400**	154.78 **16400**
20	38	19.0	52	54	104	20	6	156.05 **20200**	156.05 **20200**		
20	50	19.0	98	100	150	20	6			211.87 **20400**	211.87 **20400**
P								●	●	●	●
M								●	●	●	●
K								○	○	○	○
N								○	○	○	○
S								○	○	○	○
H											
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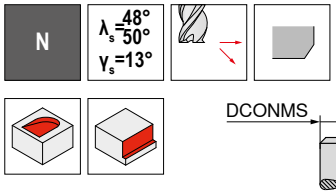
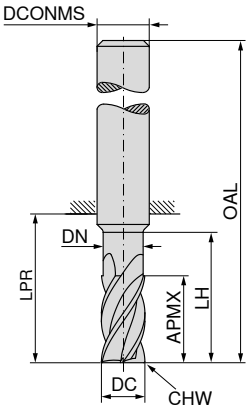
→ v_c/f_z Page 468

Finish milling cutter





LPR with Shank DIN 6535 HB




Factory standard


Factory standard


Factory standard

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 010 ... £ V1/5B		52 015 ... £ V1/5B		52 018 ... £ V1/5B	
5	8	4.8	13	18	54	6	0.02	6	44.48	05000				
5	13	4.8	18	22	58	6	0.02	6			45.61	05000		
6	10	5.8	15	18	54	6	0.03	6	43.49	06000				
6	16	5.8	20	22	58	6	0.03	6			44.19	06000		
6	21			29	65	6	0.03	6					63.18	06000
7	12	6.8	17	23	59	8	0.04	6	52.44	07000				
7	22	6.8	30	34	70	8	0.04	6			53.56	07000		
7	25			39	75	8	0.04	6					80.89	07000
8	12	7.8	17	23	59	8	0.04	6	51.60	08000				
8	22	7.8	32	34	70	8	0.04	6			55.08	08000		
8	28			39	75	8	0.04	6					73.08	08000
9	14	8.8	19	20	60	10	0.04	6	78.95	09000				
9	25	8.8	33	33	73	10	0.04	6			87.58	09000		
9	30			45	85	10	0.04	6					153.51	09000
10	14	9.8	19	20	60	10	0.05	6	78.26	10000				
10	25	9.8	33	33	73	10	0.05	6			88.27	10000		
10	35			45	85	10	0.05	6					142.24	10000
12	16	11.8	21	25	70	12	0.05	6	113.52	12000				
12	28	11.8	38	39	84	12	0.05	6			123.14	12000		
12	45			55	100	12	0.05	6					199.45	12000
14	18	13.8	23	25	70	14	0.06	6	149.20	14000				
14	30	13.8	38	39	84	14	0.06	6			166.17	14000		
16	20	15.8	28	32	80	16	0.06	8	180.08	16000				
16	35	15.8	43	45	93	16	0.06	8			203.75	16000		
16	50			62	110	16	0.06	8					287.26	16000
16	65			77	125	16	0.06	8					322.19	16100
20	25	19.8	33	35	85	20	0.07	8	279.04	20000				
20	40	19.8	45	50	100	20	0.07	8			318.03	20000		
20	55			65	115	20	0.07	8					428.12	20000
20	70			80	130	20	0.07	8					512.01	20100
25	55	24.8	63	69	125	25	0.08	8			535.68	25000		
25	75			94	150	25	0.08	8					957.24	25000

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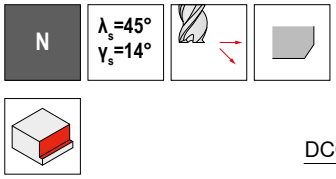
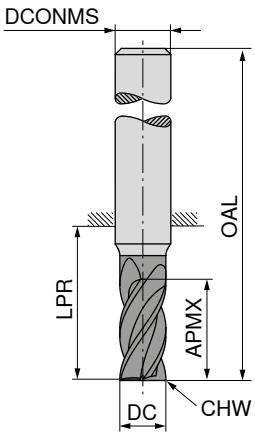
N	●	●	●
S	●	●	●
H			
O	●	●	●

→ v_c/f_z Page 480–485

Finish milling cutter













≈DIN 6527

Factory standard

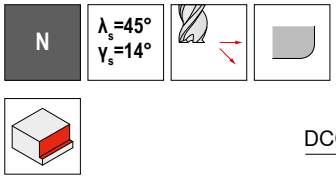


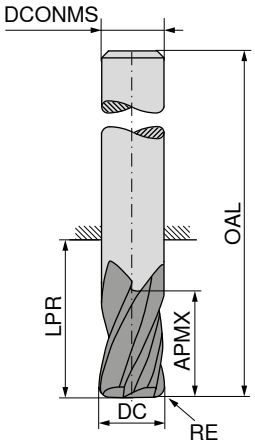


DC f8	APMX	LPR	OAL	DCONMS h6	CHW	ZEFP	50 633 ... £ V0/5A		50 633 ... £ V0/5A	
mm	mm	mm	mm	mm	mm					
4	11	21	57	6	0.15	6	53.73	040		
4	16	26	62	6	0.15	6			74.30	041
5	13	21	57	6	0.15	6	53.73	050		
5	18	26	62	6	0.15	6			74.30	051
6	13	21	57	6	0.15	6	53.73	060		
6	18	26	62	6	0.15	6			74.30	061
7	16	27	63	8	0.15	6	64.26	070		
7	21	32	68	8	0.15	6			99.30	071
8	19	27	63	8	0.15	6	62.63	080		
8	24	32	68	8	0.15	6			87.53	081
9	19	32	72	10	0.15	6	103.27	090		
9	27	40	80	10	0.15	6			157.54	091
10	22	32	72	10	0.15	6	100.62	100		
10	30	40	80	10	0.15	6			153.41	101
12	26	38	83	12	0.15	6	130.73	120		
12	36	48	93	12	0.15	6			210.31	121
14	26	38	83	14	0.15	6	180.90	140		
14	42	54	99	14	0.15	6			282.46	141
16	32	44	92	16	0.15	6	239.00	160		
16	48	60	108	16	0.15	6			363.69	161
16	65	77	125	16	0.15	6			456.69	162
16	75	102	150	16	0.15	6			510.57	163
16	95	102	150	16	0.15	6			590.52	164
18	32	44	92	18	0.15	8	277.15	180		
18	54	66	114	18	0.15	8			445.34	181
20	38	54	104	20	0.15	8	340.15	200		
20	60	76	126	20	0.15	8			566.98	201
20	75	85	135	20	0.15	8			603.09	202
20	95	100	150	20	0.15	8			623.95	203
25	75	94	150	25	0.15	8			745.43	250
25	95	104	160	25	0.15	8			1,088.11	251
32	75	90	150	32	0.15	8	1,490.27	320		
32	95	100	160	32	0.15	8			1,453.84	321
P								○		○
M								●		●
K								●		●
N										
S								○		○
H										
O										

→ v_c/f_z Page 480–485

Finish milling cutter with corner radius











Factory standard



50 634 ...

DC f8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0/5A	
6	0.5	18	26	62	6	6	72.14	**060**
6	1.0	18	26	62	6	6	72.14	**061**
8	0.5	24	32	68	8	6	71.76	**080**
8	1.0	24	32	68	8	6	71.76	**081**
8	2.0	24	32	68	8	6	71.76	**082**
10	0.5	30	40	80	10	6	146.37	**100**
10	1.0	30	40	80	10	6	146.37	**101**
10	2.0	30	40	80	10	6	146.37	**102**
12	0.5	36	48	93	12	6	191.34	**120**
12	1.0	36	48	93	12	6	191.34	**121**
12	2.0	36	48	93	12	6	191.34	**122**
12	3.0	36	48	93	12	6	191.34	**123**
16	0.5	48	60	108	16	6	344.32	**160**
16	1.0	48	60	108	16	6	344.32	**161**
16	2.0	48	60	108	16	6	344.32	**162**
16	3.0	48	60	108	16	6	344.32	**163**
20	0.5	60	76	126	20	8	514.21	**200**
20	1.0	60	76	126	20	8	514.21	**201**
20	2.0	60	76	126	20	8	514.21	**202**
20	3.0	60	76	126	20	8	514.21	**203**

P	○
M	●
K	●
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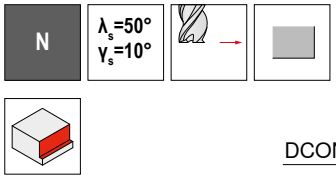
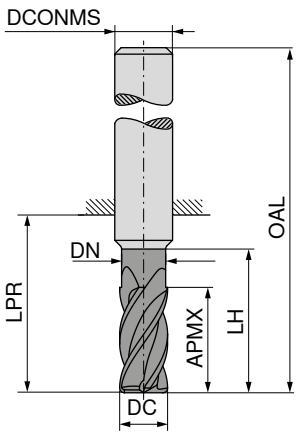
→ v_c/f_z Page 480–485

Finish milling cutter











Factory standard



52 109 ...

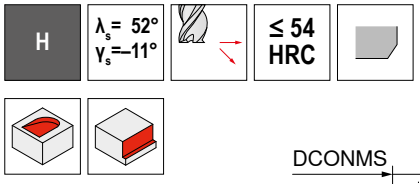
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
6	16	5.8	26	26	58	6	8	97.96	**060**
8	22	7.8	32	32	64	8	10	110.27	**080**
10	25	9.8	35	35	73	10	12	192.87	**100**
12	28	11.8	38	39	84	12	12	261.56	**120**
16	35	15.8	43	45	93	16	16	560.73	**160**
20	40	19.8	50	54	104	20	16	664.37	**200**

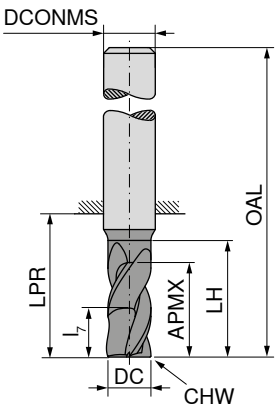
P	○
M	●
K	○
N	●
S	●
H	
O	●

→ v_c/f_z Page 480–483

End milling cutter

▲ With graduated flute depth













DIN 6527

DIN 6527





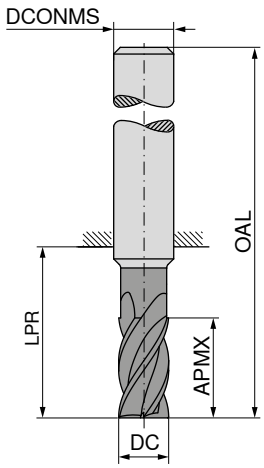
DC f8 mm	APMX mm	LH mm	l_7 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	50 907 ... £ V0/5A		50 907 ... £ V0/5A	
4	11	18	4.4	21	57	6	0.15	4	78.59	**041**		
4	16	19	6.4	26	62	6	0.15	4			86.94	**042**
5	13	19	4.8	21	57	6	0.15	4	78.59	**051**		
5	17	20	6.8	26	62	6	0.15	4			86.94	**052**
6	13	19	5.2	21	57	6	0.15	4	84.09	**061**		
6	18	21	7.2	26	62	6	0.15	4			91.07	**062**
8	19	25	7.6	27	63	8	0.15	4	96.24	**081**		
8	24	27	9.6	32	68	8	0.15	4			104.62	**082**
10	22	30	8.8	32	72	10	0.15	4	164.76	**101**		
10	30	33	12.0	40	80	10	0.15	4			185.83	**102**
12	26	36	10.4	38	83	12	0.15	4	223.79	**121**		
12	36	39	14.4	48	93	12	0.15	4			253.96	**122**
16	32	42	12.8	44	92	16	0.15	4	395.40	**161**		
16	48	51	19.2	60	108	16	0.15	4			479.87	**162**
20	38	52	15.2	54	104	20	0.15	4	569.08	**201**		
20	60	63	24.0	76	126	20	0.15	4			712.59	**202**
P										●		●
M												
K												
N												
S												
H										●		●
O												

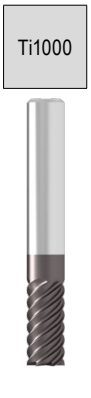
→ v_c/f_z Page 480–485

Finish milling cutter

H | λ_s=50° γ_s=–5° | ≤ 68 HRC











DIN 6527



Factory standard



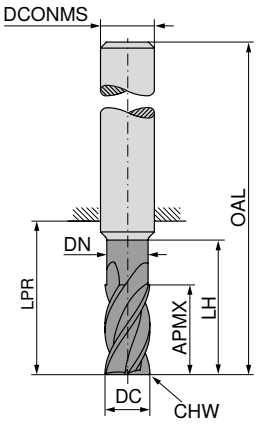


DC f8 mm	APMX mm	OAL mm	DCONMS h5 mm	ZEFP	50 635 ... £ V0/5A		50 635 ... £ V0/5A	
4	11	57	6	6	49.37	040		
4	16	62	6	6			55.68	041
5	13	57	6	6	45.82	050		
5	18	62	6	6			53.27	051
6	13	57	6	6	51.96	060		
6	18	62	6	6			59.44	061
8	19	63	8	6	59.44	080		
8	24	68	8	6			68.73	081
10	22	72	10	6	100.92	100		
10	30	80	10	6			118.46	101
12	26	83	12	6	139.88	120		
12	36	93	12	6			163.23	121
16	32	92	16	8	247.14	160		
16	48	108	16	8			305.57	161
16	90	150	16	8			325.93	162
20	38	104	20	8	355.17	200		
20	60	126	20	8			453.69	201
20	75	135	20	8			404.33	202
20	95	150	20	8			473.76	203
25	75	150	25	8	1,123.72	250		
25	95	160	25	8			1,162.28	251
P					●		●	
M					●		●	
K					○		○	
N					○		○	
S					●		●	
H					●		●	
O					●		●	

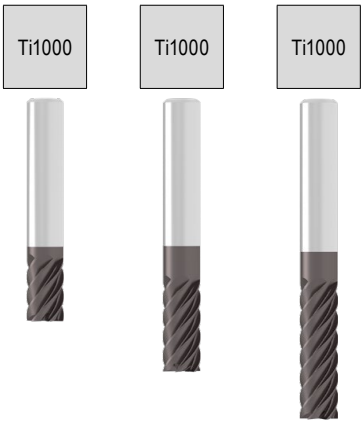
→ v_c/f_z Page 480–485

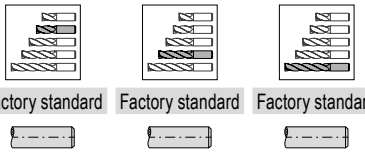
Finish milling cutter

H | λ_s=45° γ_s=16° | ≤ 50 HRC



LPR with Shank DIN 6535 HB





Factory standard | Factory standard | Factory standard

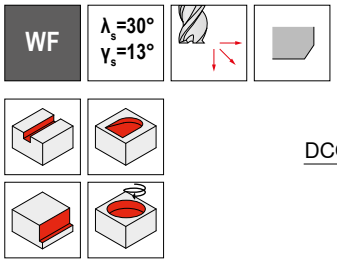
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 112 ... £ V1		52 122 ... £ V1		52 123 ... £ V1	
5	8	4.8	13	18	54	6	0.02	6	87.33	051				
5	13	4.8	18	22	58	6	0.02	6			92.19	051		
6	10	5.8	15	18	54	6	0.03	6	81.72	061				
6	16	5.8	20	22	58	6	0.03	6			90.23	061		
6	21			29	65	6	0.03	6					122.75	061
8	12	7.8	17	23	59	8	0.04	6	101.97	081				
8	22	7.8	32	34	70	8	0.04	6			112.64	081		
8	28			39	75	8	0.04	6					152.21	081
10	14	9.8	19	20	60	10	0.05	6	151.31	101				
10	25	9.8	33	33	73	10	0.05	6			178.43	101		
10	35			45	85	10	0.05	6					276.97	101
12	16	11.8	21	25	70	12	0.05	6	227.42	121				
12	28	11.8	38	39	84	12	0.05	6			263.76	121		
12	45			55	100	12	0.05	6					381.65	121
16	20	15.8	28	32	80	16	0.06	6	367.49	161				
16	35	15.8	43	45	93	16	0.06	6			403.14	161		
16	50			62	110	16	0.06	6					573.78	162
16	65			77	125	16	0.06	6					649.91	163
20	25	19.8	33	35	85	20	0.07	8	535.66	201				
20	40	19.8	45	50	100	20	0.07	8			606.89	201		
20	55			65	115	20	0.07	8					818.93	202
20	70			80	130	20	0.07	8					1,001.68	203
25	55	24.8	63	69	125	25	0.08	8			1,013.09	251		
25	75			94	150	25	0.08	8					1,569.90	251

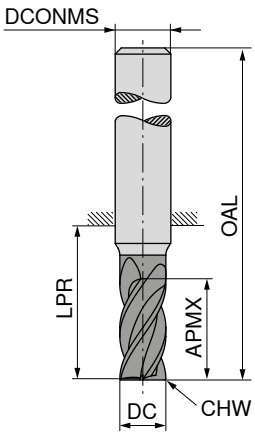
P	○	○	○
M	●	●	●
K	○	○	○
N	●	●	●
S	●	●	●
H			
O	●	●	●

→ v_c/f_z Page 480–485

Roughing-Finishing Cutter

▲ With rough-finishing profile











DIN 6527



50 628 ...

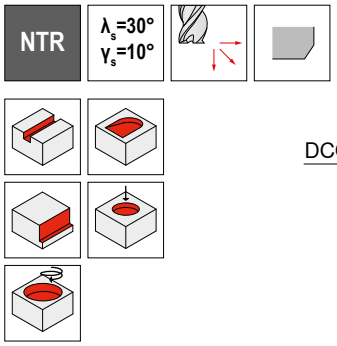
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	£ V0/5A	
5	15	21	57	6	0.25	4	107.83	**050**
6	16	21	57	6	0.25	4	102.52	**060**
8	22	27	63	8	0.25	4	127.38	**080**
10	25	32	72	10	0.25	4	137.26	**100**
12	28	38	83	12	0.25	4	166.69	**120**
16	35	44	92	16	0.25	4	264.59	**160**
20	40	54	104	20	0.25	4	397.86	**200**

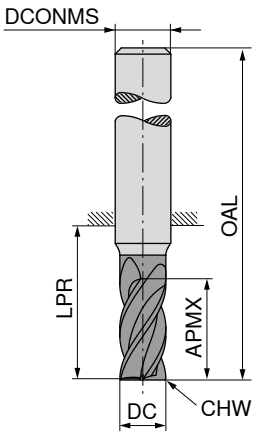
P	
M	
K	
N	●
S	○
H	
O	●

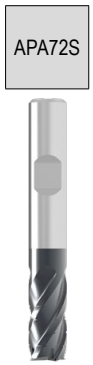
→ v_c/f_z Page 480–483

Roughing-Finishing Cutter

▲ With trapezoidal cord profile









DIN 6527



52 318 ...

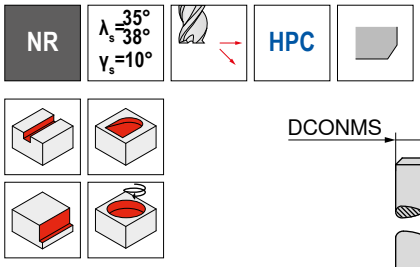
DC h10 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1	
6	13	21	57	6		3	116.39	**06000**
8	19	27	63	8	0.08	3	148.66	**08000**
10	22	32	72	10	0.12	4	163.46	**10000**
12	26	38	83	12	0.15	4	200.85	**12000**
14	26	38	83	14	0.17	4	282.57	**14000**
16	32	44	92	16	0.20	4	305.57	**16000**
18	32	48	92	18	0.22	4	441.70	**18000**
20	38	54	104	20	0.25	4	446.48	**20000**

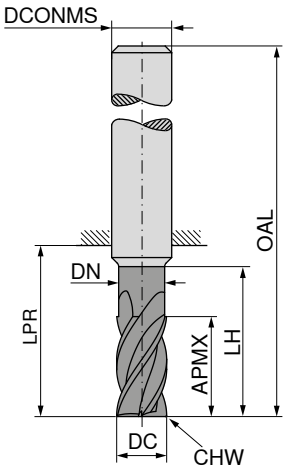
P	●
M	○
K	●
N	○
S	
H	
O	

→ v_c/f_z Page 470+471

Rough milling cutter

▲ With roughing profile





Ti1000





≈DIN 6527



54 077 ...

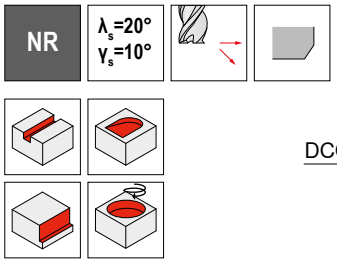
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V3/5C	
4	11	3.8	17	21	57	6	0.1	4	24.11	**00400**
5	13	4.8	19	21	57	6	0.1	4	24.11	**00500**
6	13	5.8	19	21	57	6	0.1	4	29.17	**00600**
8	21	7.7	25	27	63	8	0.2	4	36.79	**00800**
10	22	9.7	30	32	72	10	0.2	4	45.67	**01000**
12	26	11.6	36	38	83	12	0.3	4	74.86	**01200**
16	36	15.5	42	44	92	16	0.3	4	112.91	**01600**
20	41	19.5	52	54	104	20	0.3	4	167.46	**02000**

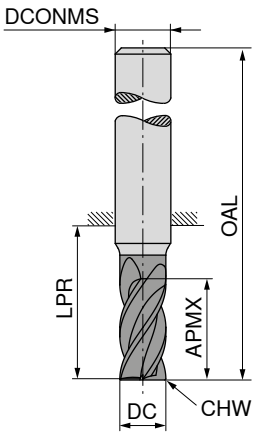
P	●
M	●
K	●
N	○
S	○
H	
O	

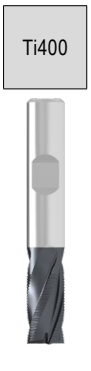
→ v_c/f_z Page 472+473

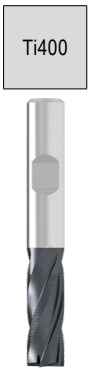
Rough milling cutter

▲ With roughing profile













DIN 6527

DIN 6527



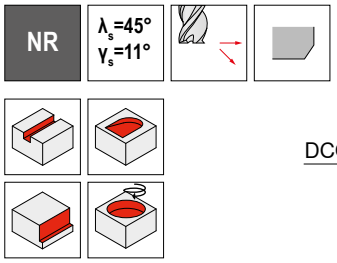


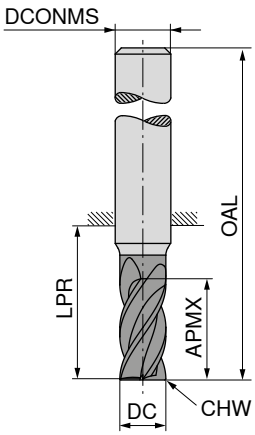
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	50 618 ... £ V0/5A		50 624 ... £ V0/5A	
4	8	21	57	6	0.6	4			104.39	040
5	8	18	54	6	0.6	4	96.63	050		
5	13	21	57	6	0.6	4			104.39	050
6	8	18	54	6	0.6	4	86.94	060		
6	13	21	57	6	0.6	4			97.41	060
7	11	22	58	8	0.6	4	118.26	070		
7	19	27	63	8	0.6	4			129.67	070
8	11	22	58	8	0.6	4	107.43	080		
8	19	27	63	8	0.6	4			115.41	080
9	13	26	66	10	0.6	4	134.42	090		
9	22	32	72	10	0.6	4			141.99	090
10	13	26	66	10	0.6	4	134.42	100		
10	22	32	72	10	0.6	4			134.00	100
11	26	38	83	12	0.6	4			168.40	110
12	16	28	73	12	0.6	4	144.33	120		
12	26	38	83	12	0.6	4			158.89	120
13	26	38	83	14	0.6	4			235.37	130
14	16	31	76	14	0.6	4	204.99	140		
14	26	38	83	14	0.6	4			221.91	140
16	19	34	82	16	0.6	4	251.91	160		
16	32	44	92	16	0.6	4			252.66	160
18	19	36	84	18	0.6	4	302.40	180		
18	32	44	92	18	0.6	4			335.78	180
20	19	42	92	20	0.6	4	361.78	200		
20	38	54	104	20	0.6	4			376.59	200
25	45	65	121	25	0.6	5			488.82	250
P							●		●	
M							○		○	
K							●		●	
N							○		○	
S							○		○	
H										
O							○		○	

→ v_c/f_z Page 480–483

Rough milling cutter

▲ With roughing profile









DIN 6527



50 637 ...

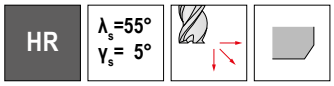
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	£ V0/5A	
6	13	21	57	6	0.5	4	118.46	**060**
8	19	27	63	8	0.5	4	135.92	**080**
10	22	32	72	10	0.5	4	145.64	**100**
12	26	38	83	12	0.5	4	176.15	**120**
14	26	38	83	14	0.5	4	246.98	**140**
16	32	44	92	16	0.5	5	280.00	**160**
18	32	44	92	18	0.5	5	374.14	**180**
20	38	54	104	20	0.5	6	418.60	**200**
25	45	65	121	25	0.5	6	512.70	**250**

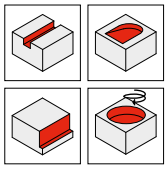
P	○
M	●
K	○
N	○
S	●
H	
O	○

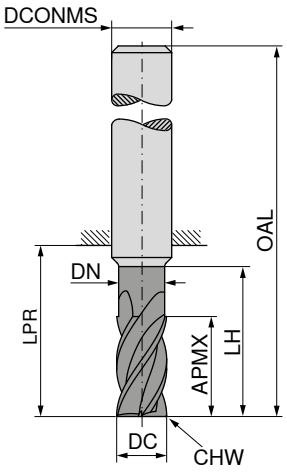
→ v_c/f_z Page 480–483

Rough milling cutter

▲ With round cord profile
▲ With integrated chip breakers in the flutes













Factory standard



52 341 ...

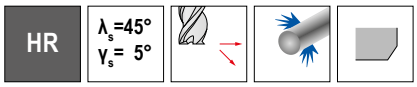
DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V1	
6	16	5.8	21	22	58	6	0.15	4	144.30	**060**
8	22	7.7	27	34	70	8	0.20	4	165.35	**080**
10	25	9.7	30	33	73	10	0.20	4	179.19	**100**
12	28	11.6	38	39	84	12	0.25	4	211.84	**120**
14	30	13.6	40	39	84	14	0.30	4	283.62	**140**
16	35	15.5	45	45	93	16	0.35	5	362.16	**160**
18	35	17.5	45	45	93	18	0.40	5	449.90	**180**
20	40	19.5	55	54	104	20	0.40	5	543.27	**200**

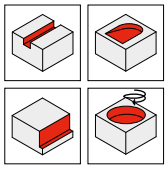
P	○
M	●
K	○
N	
S	
H	
O	

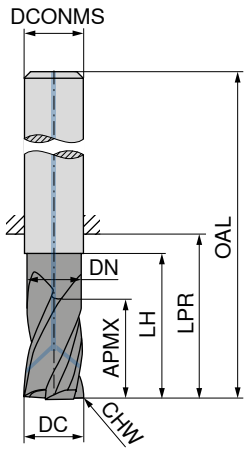
→ v_c/f_z Page 474+475

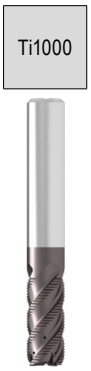
Rough milling cutter

▲ With round cord profile
▲ With integrated chip breakers in the flutes















Factory standard

Factory standard



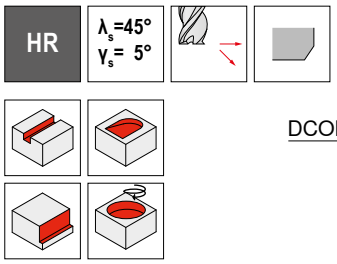


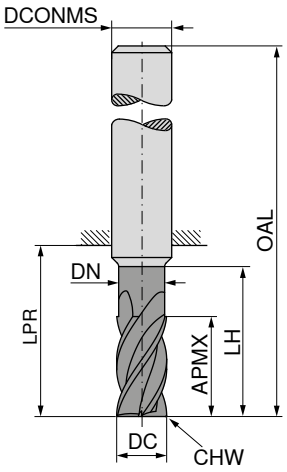
DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 338 ... £ V1		52 339 ... £ V1	
6	16	5.8	21	22	58	6	0.15	4	179.19	**060**	179.19	**060**
8	22	7.7	27	34	70	8	0.20	4	200.66	**080**	200.66	**080**
10	25	9.7	30	33	73	10	0.20	4	235.37	**100**	235.37	**100**
12	28	11.6	38	39	84	12	0.25	4	295.37	**120**	295.37	**120**
16	35	15.5	45	45	93	16	0.35	5	502.47	**160**	502.47	**160**
20	40	19.5	55	54	104	20	0.40	5	742.21	**200**	742.21	**200**
P										●		●
M										●		●
K										●		●
N												
S												
H												
O												

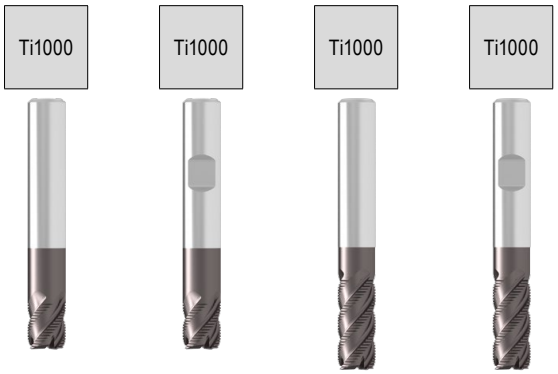
→ v_c/f_z Page 474+475

Rough milling cutter

▲ With round cord profile
▲ With integrated chip breakers in the flutes









Factory standard | Factory standard | Factory standard | Factory standard



DC h11	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	52 342 ... £ V1		52 343 ... £ V1		52 342 ... £ V1		52 343 ... £ V1	
mm	mm	mm	mm	mm	mm	mm	mm									
6	8	6.0		18	54	6	0.15	4	125.17	060	125.17	060				
6	16	5.8	21	22	58	6	0.15	4					160.57	061	160.57	061
8	11	8.0		23	59	8	0.20	4	146.37	080	146.37	080				
8	22	7.7	27	34	70	8	0.20	4					183.94	081	183.94	081
10	13	10.0		27	67	10	0.20	4	153.64	100	153.64	100				
10	25	9.7	30	33	73	10	0.20	4					199.10	101	199.10	101
12	16	12.0		29	74	12	0.25	4	180.17	120	180.17	120				
12	28	11.6	38	39	84	12	0.25	4					235.20	121	235.20	121
14	16	14.0		30	75	14	0.25	4	250.96	140	250.96	140				
14	30	13.5	40	39	84	14	0.25	4					314.90	141	314.90	141
16	19	16.0		36	84	16	0.35	5	313.19	160	313.19	160				
16	35	15.5	45	45	93	16	0.35	5					402.04	161	402.04	161
20	19	20.0		43	93	20	0.40	5	477.40	200	477.40	200				
20	40	19.5	55	54	104	20	0.40	5					603.22	201	603.22	201
25	50	24.0	65	69	125	25	0.50	5					900.16	251	900.16	251
P									●		●		●		●	
M									○		○		○		○	
K									●		●		●		●	
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S																
H																
O																

→ v_c/f_z Page 474+475

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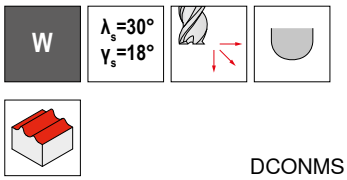
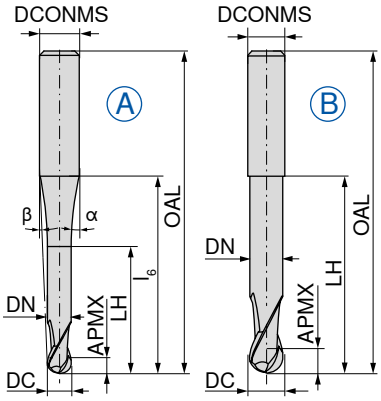
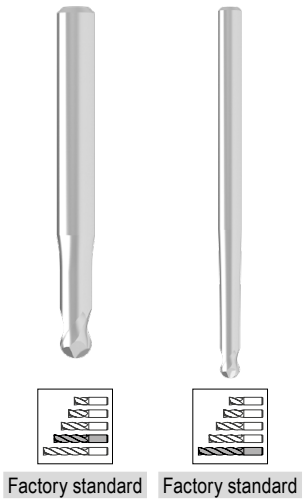
Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm
▲ For Ø DC ≤ 5.0 mm, angle tolerance α and β: ± 0.5°







DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 718 ... £ V1		52 720 ... £ V1	
0.5	1.0	0.45	2.0	9	38	10	8	3	2	A	235.00	**005**		
1.0	2.0	0.95	4.0	9	38	12,5	6,5	3	2	A	206.36	**010**		
1.5	2.5	1.40	7.5	9	38	32	5	3	2	A	182.02	**015**		
2.0	3.0	1.80	8.0	9	38	31	3,5	3	2	A	141.99	**020**		
3.0	3.5	2.80	10.0	20	57	11,5	5	6	2	A	161.98	**030**		
3.0	3.5	2.80	12.0	40	80	3,5	2,5	6	2	A			150.74	**030**
4.0	4.0	3.80	12.0	20	57	11	3,5	6	2	A	154.36	**040**		
4.0	4.0	3.80	20.0	40	80	4	1,5	6	2	A			156.22	**040**
5.0	5.0	4.70	10.0	40	100	1,5	1	6	2	A			202.28	**050**
5.0	5.0	4.70	14.0	20	57	10	2	6	2	A	166.87	**050**		
6.0	6.0	5.60	20.0		57			6	2	B	217.67	**060**		
6.0	6.0	5.60	40.0		100			6	2	B			204.46	**060**
8.0	7.0	7.60	25.0		63			8	2	B	237.54	**080**		
8.0	7.0	7.60	60.0		120			8	2	B			220.21	**080**
10.0	8.0	9.60	30.0		72			10	2	B	257.77	**100**		
10.0	8.0	9.60	60.0		120			10	2	B			247.73	**100**
12.0	8.0	11.50	40.0		83			12	2	B	429.37	**120**		
12.0	10.0	11.50	70.0		160			12	2	B			417.44	**120**

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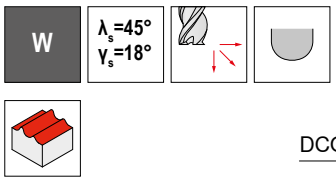
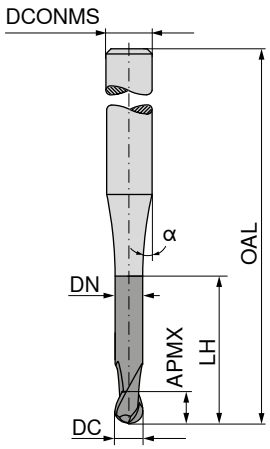
→ v_c/f_z Page 480–486

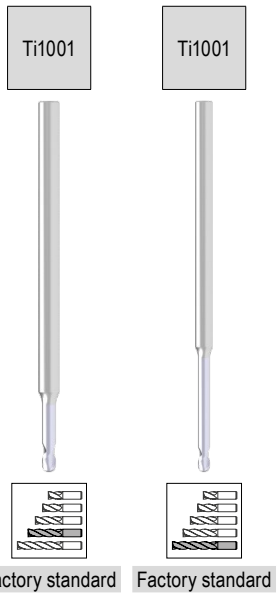
Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

W | λ_s=45° γ_s=18°







DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 903 ... £ V0/5A		50 903 ... £ V0/5A	
0.2	0.2	0.18	0.6	55	15	3	2	108.78	**021**		
0.2	0.2	0.18	1.0	55	15	3	2	110.31	**022**		
0.2	0.2	0.18	1.6	55	15	3	2	111.44	**023**		
0.2	0.2	0.18	2.0	55	15	3	2	112.75	**024**		
0.3	0.3	0.28	0.9	55	15	3	2	108.78	**031**		
0.3	0.3	0.28	1.5	55	15	3	2	110.31	**032**		
0.3	0.3	0.28	2.4	55	15	3	2	111.44	**033**		
0.3	0.3	0.28	3.0	55	15	3	2	112.75	**034**		
0.4	0.4	0.37	1.2	55	15	3	2	108.78	**041**		
0.4	0.4	0.37	2.0	55	15	3	2	110.31	**042**		
0.4	0.4	0.37	3.2	55	15	3	2	111.44	**043**		
0.4	0.4	0.37	4.0	55	15	3	2	112.75	**044**		
0.5	0.5	0.45	1.5	55	15	3	2	106.52	**051**		
0.5	0.5	0.45	2.5	55	15	3	2	107.65	**052**		
0.5	0.5	0.45	4.0	55	15	3	2	108.78	**053**		
0.5	0.5	0.45	5.0	55	15	3	2	110.31	**054**		
0.6	0.6	0.58	2.0	55	15	3	2	89.77	**061**		
0.6	0.6	0.58	3.0	55	15	3	2	89.43	**062**		
0.6	0.6	0.58	5.0	65	15	3	2			97.41	**063**
0.6	0.6	0.58	6.0	65	15	3	2			103.09	**064**
0.8	0.8	0.77	2.5	55	15	3	2	89.43	**081**		
0.8	0.8	0.77	4.0	55	15	3	2	89.43	**082**		
0.8	0.8	0.77	6.5	65	15	3	2			99.47	**083**
0.8	0.8	0.77	8.0	65	15	3	2			103.09	**084**
1.0	1.0	0.95	3.0	55	15	3	2	89.43	**101**		
1.0	1.0	0.95	5.0	55	15	3	2	89.43	**102**		
1.0	1.0	0.95	8.0	65	15	3	2			94.55	**103**
1.0	1.0	0.95	10.0	65	15	3	2			103.09	**104**
1.0	1.0	0.95	12.0	65	15	3	2			105.73	**105**
1.2	1.2	1.15	3.0	55	15	3	2	89.43	**121**		
1.2	1.2	1.15	6.0	55	15	3	2	89.43	**122**		
1.2	1.2	1.15	10.0	65	15	3	2			99.47	**123**
1.2	1.2	1.15	12.0	65	15	3	2			103.09	**124**
1.3	1.3	1.25	4.0	55	15	3	2	89.43	**131**		
1.3	1.3	1.25	7.0	55	15	3	2	89.43	**132**		
1.3	1.3	1.25	11.0	65	15	3	2			99.47	**133**
1.3	1.3	1.25	13.0	65	15	3	2			103.09	**134**
1.5	1.5	1.44	5.0	55	15	3	2	89.77	**151**		
1.5	1.5	1.44	7.5	55	15	3	2	89.43	**152**		

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→ v_c/f_z Page 480–486

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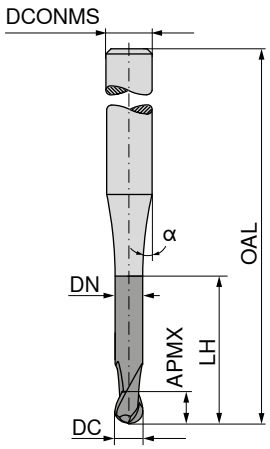
Continued on next page

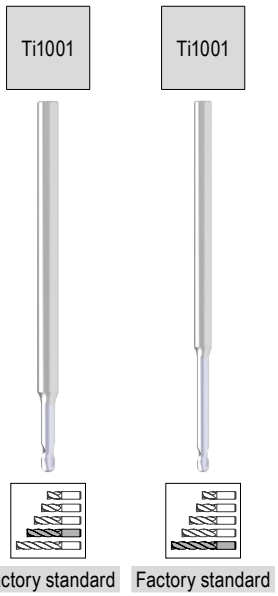
Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

W | λ_s=45° γ_s=18°







DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 903 ... £ V0/5A		50 903 ... £ V0/5A	
1.5	1.5	1.44	12.0	65	15	3	2			103.09	154
1.5	1.5	1.44	15.0	65	15	3	2			105.73	153
1.6	1.6	1.52	5.0	55	15	3	2	89.77	161		
1.6	1.6	1.52	8.0	55	15	3	2	89.77	162		
1.6	1.6	1.52	13.0	65	15	3	2			99.47	163
1.6	1.6	1.52	16.0	65	15	3	2			105.73	164
1.8	1.8	1.72	5.5	55	15	3	2	89.43	181		
1.8	1.8	1.72	9.0	55	15	3	2	89.77	182		
1.8	1.8	1.72	14.5	65	15	3	2			99.47	183
1.8	1.8	1.72	18.0	65	15	3	2			105.73	184
2.0	2.0	1.92	6.0	55	15	3	2	89.43	201		
2.0	2.0	1.92	10.0	55	15	3	2	89.43	202		
2.0	2.0	1.92	14.0	55	15	3	2	94.55	203		
2.0	2.0	1.92	16.0	65	15	3	2			105.73	204
2.0	2.0	1.92	20.0	65	15	3	2			103.09	205
2.3	2.3	2.22	7.0	55	15	3	2	89.43	231		
2.3	2.3	2.22	11.5	55	15	3	2	89.43	232		
2.3	2.3	2.22	18.5	65	15	3	2			94.55	233
2.3	2.3	2.22	20.0	65	15	3	2			103.09	234
2.3	2.3	2.22	23.0	65	15	3	2			105.73	235
3.0	3.0	2.90	9.0	65	15	6	2	94.55	301		
3.0	3.0	2.90	15.0	65	15	6	2	105.73	302		
3.0	3.0	2.90	24.0	100	15	6	2			114.65	303
3.0	3.0	2.90	30.0	100	15	6	2			119.23	304
4.0	4.0	3.90	12.0	65	15	6	2	105.73	401		
4.0	4.0	3.90	20.0	65	15	6	2	105.73	402		
4.0	4.0	3.90	32.0	100	15	6	2			119.23	403
4.0	4.0	3.90	40.0	100	15	6	2			123.21	404
5.0	5.0	4.90	15.0	65	15	6	2	105.73	501		
5.0	5.0	4.90	25.0	65	15	6	2	105.73	502		
5.0	5.0	4.90	40.0	100	15	6	2			123.21	503
5.0	5.0	4.90	50.0	100	15	6	2			127.01	504
6.0	6.0	5.90	18.0	65	15	6	2	105.73	601		
6.0	6.0	5.90	30.0	100	15	6	2			119.23	602
6.0	6.0	5.90	48.0	100	15	6	2			127.01	603
6.0	6.0	5.90	60.0	100	15	6	2			130.73	604

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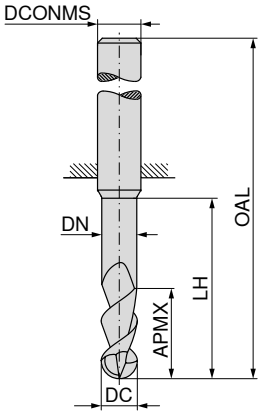
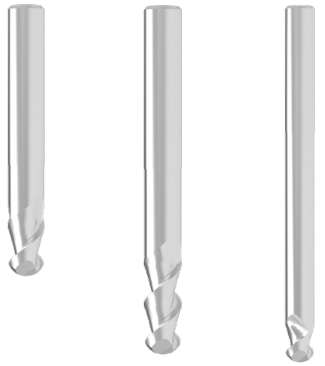
Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

W | λ_s=55° γ_s= 7° | HPC











Factory standard | Factory standard | Factory standard





DC h6 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	54 640 ... £ V0/5A		54 640 ... £ V0/5A		54 640 ... £ V0/5A	
3	5.0	2.8	12	55	6	2	81.81	031				
3	3.5	2.8	15	58	6	2			89.22	034		
3	8.0	2.8	15	58	6	2			93.58	032		
3	3.5	2.8	24	67	6	2					108.96	035
4	6.5	3.8	12	55	6	2	81.81	041				
4	4.5	3.8	20	62	6	2			89.22	044		
4	10.5	3.8	20	62	6	2			93.58	042		
4	4.5	3.8	32	74	6	2					108.96	045
5	8.0	4.8	15	58	6	2	81.81	051				
5	5.5	4.8	25	70	6	2			89.22	054		
5	13.0	4.8	25	70	6	2			93.58	052		
5	5.5	4.8	40	88	6	2					108.96	055
6	10.0	5.8	18	58	6	2	81.81	061				
6	7.0	5.8	30	70	6	2			89.22	064		
6	16.0	5.8	30	70	6	2			93.58	062		
6	7.0	5.8	48	88	6	2					106.87	065
8	13.0	7.7	24	64	8	2	104.69	081				
8	9.0	7.7	40	80	8	2			116.56	084		
8	21.0	7.7	40	80	8	2			122.26	082		
8	9.0	7.7	64	104	8	2					139.88	085
10	16.0	9.7	30	74	10	2	140.60	101				
10	11.0	9.7	50	94	10	2			156.43	104		
10	26.0	9.7	50	94	10	2			161.06	102		
10	11.0	9.7	80	124	10	2					187.35	105
12	19.0	11.6	36	85	12	2	199.33	121				
12	13.0	11.6	60	109	12	2			261.17	124		
12	31.0	11.6	60	109	12	2			273.16	122		
12	13.0	11.6	96	145	12	2					360.89	125
14	22.0	13.6	42	91	14	2	249.26	141				
14	15.0	13.6	70	119	14	2			326.87	144		
14	36.0	13.6	70	119	14	2			342.82	142		
14	15.0	13.6	112	161	14	2					470.38	145
16	25.0	15.5	48	100	16	2	328.97	161				
16	17.0	15.5	80	132	16	2			428.61	164		
16	41.0	15.5	80	132	16	2			450.47	162		
16	17.0	15.5	128	180	16	2					643.87	165
18	29.0	17.5	54	106	18	2	456.52	181				
18	20.0	17.5	90	142	18	2			597.92	184		
18	47.0	17.5	90	142	18	2			627.93	182		
18	20.0	17.5	144	196	18	2					898.99	185
20	32.0	19.5	60	114	20	2	460.48	201				
20	52.0	19.5	100	154	20	2			633.82	202		
20	22.0	19.5	100	154	20	2			604.01	204		
20	22.0	19.5	160	214	20	2					904.89	205

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→ v_c/f_z Page 460+461

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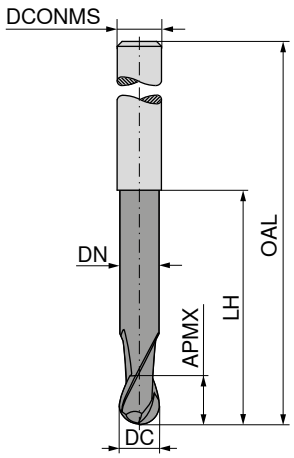
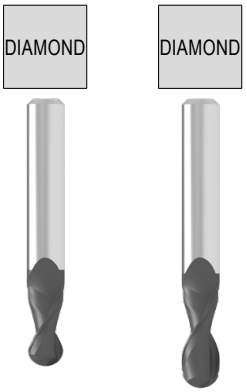
Ball Nosed Cutter

W | λ_s=30° γ_s=12°








Factory standard | Factory standard




DC h10 mm	APMX mm	LH mm	DN mm	OAL mm	DCONMS h6 mm	ZEFP	52 766 ... £ V1		52 768 ... £ V1	
0.5	1.5			38	3	2	213.19	005		
1.0	2.0			38	3	2	207.29	010		
2.0	3.0			38	3	2	207.29	020		
2.0	3.0			50	6	2	317.97	021		
2.0	8.0	31	1.8	60	2	2			250.96	020
3.0	5.0			38	3	2	207.29	030		
3.0	5.0			50	6	2	317.97	031		
3.0	12.0	41	2.8	70	3	2			235.20	030
4.0	8.0			54	6	2	317.97	040		
4.0	15.0	51	3.8	80	4	2			332.39	040
5.0	9.0			54	6	2	317.97	050		
5.0	20.0	71	4.8	100	5	2			385.34	050
6.0	10.0			54	6	2	312.48	060		
6.0	20.0	63	5.8	100	6	2			426.87	060
8.0	12.0			58	8	2	428.61	080		
8.0	20.0	83	7.8	120	8	2			567.55	080
10.0	14.0			66	10	2	544.98	100		
10.0	25.0	99	9.8	140	10	2			728.71	100
12.0	25.0	104	11.8	150	12	2			957.04	120

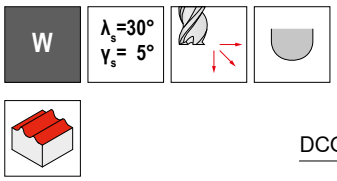
P		
M		
K		
N	●	●
S		
H		
O	●	●

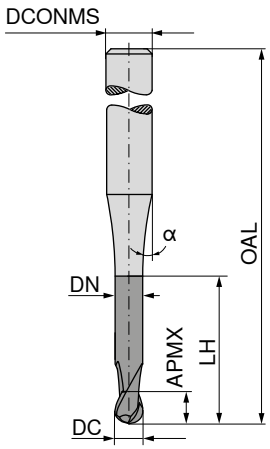
→ v_c/f_z Page 418

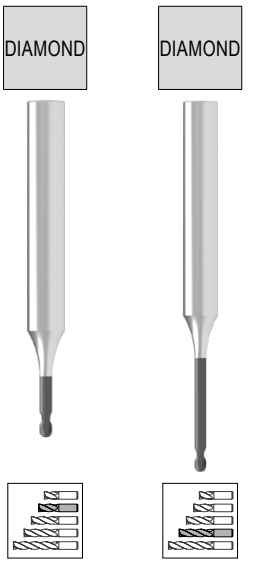
Micro-ball nosed cutter

▲ Radius accuracy: ± 0,01 mm

W | λ_s=30° γ_s= 5°







Factory standard | Factory standard

DC f8 mm	APMX mm	LH mm	DN mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 912 ... £ V0/5A		50 912 ... £ V0/5A	
0.6	1.2	3.0	0.58	55	15	6	2	195.90	**906**		
0.6	1.2	6.0	0.58	65	15	6	2			214.50	**006**
0.8	1.2	4.0	0.77	55	15	6	2	195.90	**908**		
0.8	1.2	8.0	0.77	65	15	6	2			214.50	**008**
1.0	1.5	5.0	0.95	55	15	6	2	195.90	**910**		
1.0	1.5	12.0	0.95	65	15	6	2			214.50	**010**
1.2	1.6	6.0	1.15	55	15	6	2	195.90	**912**		
1.2	1.6	12.0	1.15	65	15	6	2			214.50	**012**
1.5	1.8	7.5	1.44	55	15	6	2	195.90	**915**		
1.5	1.8	15.0	1.44	65	15	6	2			214.50	**015**
2.0	2.0	10.0	1.92	55	15	6	2	195.90	**920**		
2.0	2.0	20.0	1.92	65	15	6	2			214.50	**020**

P		
M		
K		
N	●	●
S		
H		
O	●	●

→ v_c/f_z Page 418

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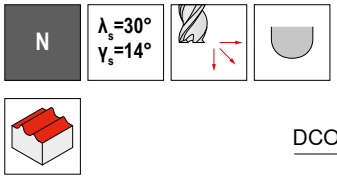
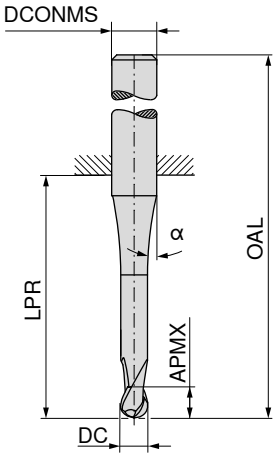
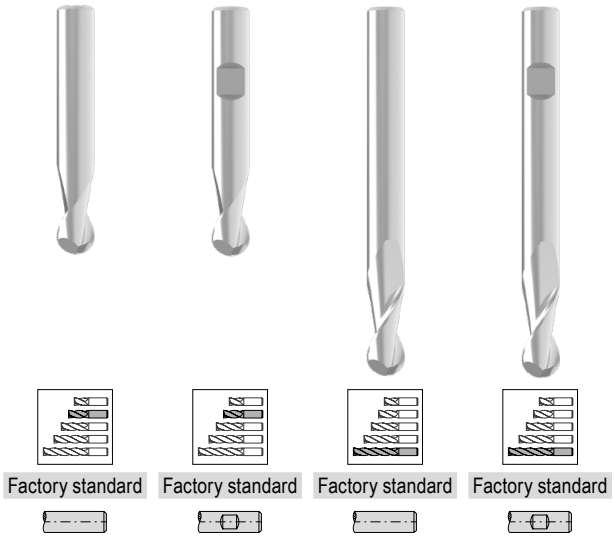
Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm







Factory standard | Factory standard | Factory standard | Factory standard

DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 050 ... £ V1/5B		52 052 ... £ V1/5B		52 051 ... £ V1/5B		52 053 ... £ V1/5B	
0.10	0.2	12.5	38	8	3	2	103.63	**91000**						
0.15	0.3	11.5	38	8	3	2	89.98	**91500**						
0.20	0.4	12.0	38	8	3	2	82.70	**92000**						
0.25	0.5	12.5	38	8	3	2	79.77	**92500**						
0.30	1.0	11.3	38	8	3	2	73.93	**93000**						
0.35	1.0	11.1	38	8	3	2	65.43	**93500**						
0.40	1.0	10.9	38	8	3	2	47.58	**94000**						
0.50	1.5	11.7	38	7	3	2	37.94	**95000**						
0.50	1.5	18.0	54	11	6	2	45.46	**95100**						
0.50	1.5	47.0	75	7	3	2					52.44	**95000**		
0.50	1.5	44.0	80	11	6	2					60.66	**95100**		
0.60	1.5	11.3	38	7	3	2	41.71	**96000**						
0.70	2.0	11.4	38	7	3	2	37.94	**97000**						
0.80	2.0	11.7	38	7	3	2	37.94	**98000**						
0.90	2.5	11.7	38	7	3	2	37.94	**99000**						
1.00	2.0	22.0	50	7	3	2	39.18	**31000**						
1.00	2.0	18.0	54	10	6	2	41.99	**01000**	41.99	**01000**				
1.00	3.0	47.0	75	7	3	2					57.76	**31000**		
1.00	3.0	44.0	80	10	6	2					65.55	**01000**	65.55	**01000**
1.10	3.0	22.0	50	6	3	2	37.94	**31100**						
1.20	3.0	22.0	50	5	3	2	37.94	**31200**						
1.40	3.0	22.0	50	5	3	2	37.94	**31400**						
1.50	3.0	22.0	50	6	3	2	37.94	**31500**						
1.50	3.0	18.0	54	10	6	2	41.99	**01500**	41.99	**01500**				
1.50	4.0	47.0	75	5	3	2					57.19	**31500**		
1.50	4.0	44.0	80	10	6	2					65.55	**01500**	65.55	**01500**
1.60	4.0	22.0	50	6	3	2	37.94	**31600**						
1.80	4.0	22.0	50	6	3	2	37.94	**31800**						
2.00	4.0	22.0	50	5	3	2	39.18	**32000**						
2.00	4.0	18.0	54	9	6	2	41.99	**02000**	41.99	**02000**				
2.00	6.0	47.0	75	5	3	2					53.56	**32000**		
2.00	6.0	44.0	80	10	6	2					64.02	**02000**	64.02	**02000**
2.50	5.0	22.0	50	3	3	2	37.94	**32500**						
2.50	5.0	18.0	54	9	6	2	41.99	**02500**	41.99	**02500**				
2.50	8.0	47.0	75	3	3	2					52.29	**32500**		
2.50	8.0	44.0	80	10	6	2					64.43	**02500**	64.43	**02500**
3.00	6.0	22.0	50		3	2	39.18	**33000**						
3.00	6.0	18.0	54	9	6	2	41.99	**03000**	41.99	**03000**				
3.00	10.0	47.0	75		3	2					51.46	**33000**		
3.00	10.0	44.0	80	9	6	2					62.63	**03000**	62.63	**03000**

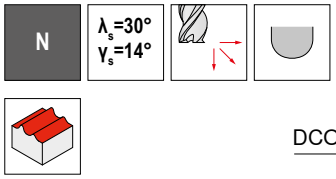
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

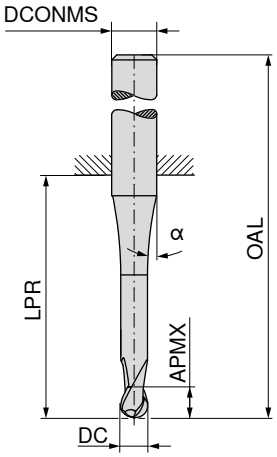
→ v_c/f_z Page 480–486

Continued on next page

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm









Factory standard | Factory standard | Factory standard | Factory standard



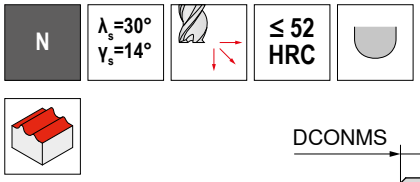
DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 050 ... £ V1/5B		52 052 ... £ V1/5B		52 051 ... £ V1/5B		52 053 ... £ V1/5B	
4.00	7.0	18.0	54	7	6	2	41.99	**04000**	41.99	**04000**				
4.00	7.0	26.0	54		4	2	39.88	**44000**						
4.00	13.0	47.0	75		4	2					48.67	**44000**		
4.00	13.0	44.0	80	8	6	2					62.63	**04000**	62.63	**04000**
5.00	8.0	18.0	54	6	6	2	41.99	**05000**	41.99	**05000**				
5.00	8.0	26.0	54		5	2	41.99	**55000**						
5.00	14.0	47.0	75		5	2					54.66	**55000**		
5.00	14.0	64.0	100	5	6	2					62.63	**05000**	62.63	**05000**
6.00	10.0	18.0	54		6	2	41.99	**06000**	41.99	**06000**				
6.00	16.0	64.0	100		6	2					59.28	**06000**	59.28	**06000**
8.00	12.0	23.0	59		8	2	48.67	**08000**	48.67	**08000**				
8.00	22.0	64.0	100		8	2					69.32	**08000**	69.32	**08000**
10.00	13.0	27.0	67		10	2	62.90	**10000**	62.90	**10000**				
10.00	25.0	60.0	100		10	2					93.04	**10000**	93.04	**10000**
12.00	16.0	28.0	73		12	2	90.67	**12000**	90.67	**12000**				
12.00	26.0	55.0	100		12	2					123.99	**12000**	123.99	**12000**
14.00	16.0	30.0	75		14	2	117.44	**14000**	117.44	**14000**				
14.00	26.0	55.0	100		14	2					175.63	**14000**	175.63	**14000**
16.00	20.0	35.0	83		16	2	130.85	**16000**	130.85	**16000**				
16.00	30.0	102.0	150		16	2					284.61	**16000**	284.61	**16000**
20.00	25.0	43.0	93		20	2	227.29	**20000**	227.29	**20000**				
20.00	40.0	100.0	150		20	2					343.08	**20000**	343.08	**20000**

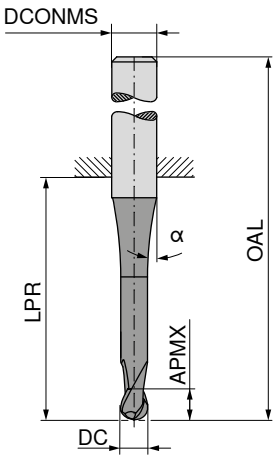
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

→ v_c/f_z Page 480–486

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm











Factory standard | Factory standard | Factory standard





DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 054 ... £ V1/5B		52 056 ... £ V1/5B		52 055 ... £ V1/5B	
0.10	0.2	12.5	38	8	3	2	108.93	**91000**				
0.15	0.3	11.5	38	8	3	2	95.54	**91500**				
0.20	0.4	12.0	38	8	3	2	90.67	**92000**				
0.25	0.5	12.5	38	8	3	2	105.18	**92500**				
0.30	1.0	11.3	38	8	3	2	97.91	**93000**				
0.35	1.0	11.1	38	8	3	2	87.58	**93500**				
0.40	1.0	10.9	38	8	3	2	65.27	**94000**				
0.50	1.5	11.7	38	7	3	2	53.82	**95000**				
0.50	1.5	47.0	75	7	3	2					61.10	**95000**
0.50	1.5	44.0	80	11	6	2					91.65	**95100**
0.50	1.5	18.0	54	11	6	2	56.36	**95100**				
0.60	1.5	11.3	38	7	3	2	57.87	**96000**				
0.70	2.0	11.4	38	7	3	2	53.82	**97000**				
0.80	2.0	11.7	38	7	3	2	53.82	**98000**				
0.90	2.5	11.7	38	7	3	2	53.82	**99000**				
1.00	2.0	22.0	50	7	3	2	57.34	**31000**				
1.00	2.0	18.0	54	10	6	2	63.07	**01000**	63.07	**01000**		
1.00	3.0	44.0	80	10	6	2					97.63	**01000**
1.00	3.0	47.0	75	7	3	2					81.45	**31000**
1.10	3.0	22.0	50	6	3	2	53.82	**31100**				
1.20	3.0	22.0	50	5	3	2	53.82	**31200**				
1.40	3.0	22.0	50	5	3	2	53.82	**31400**				
1.50	3.0	22.0	50	6	3	2	57.34	**31500**				
1.50	3.0	18.0	54	10	6	2	57.34	**01500**	57.34	**01500**		
1.50	4.0	44.0	80	10	6	2					97.63	**01500**
1.50	4.0	47.0	75	5	3	2					80.89	**31500**
1.60	4.0	22.0	50	6	3	2	53.82	**31600**				
1.80	4.0	22.0	50	6	3	2	53.82	**31800**				
2.00	4.0	18.0	54	9	6	2	63.07	**02000**	63.07	**02000**		
2.00	4.0	22.0	50	5	3	2	57.34	**32000**				
2.00	6.0	44.0	80	10	6	2					95.41	**02000**
2.00	6.0	47.0	75	5	3	2					76.02	**32000**
2.50	5.0	18.0	54	9	6	2	66.25	**02500**	66.25	**02500**		
2.50	5.0	22.0	50	3	3	2	53.82	**32500**				
2.50	8.0	44.0	80	10	6	2					96.38	**02500**
2.50	8.0	47.0	75	3	3	2					74.63	**32500**
3.00	6.0	18.0	54	9	6	2	63.07	**03000**	63.07	**03000**		

P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H	○	○	○
O	○	○	○

→ v_c/f_z Page 480–486

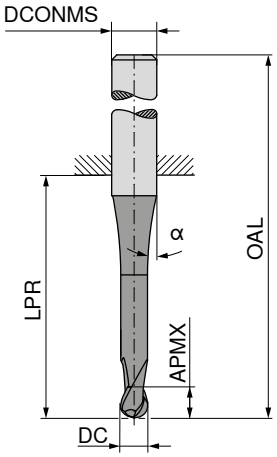
Continued on next page

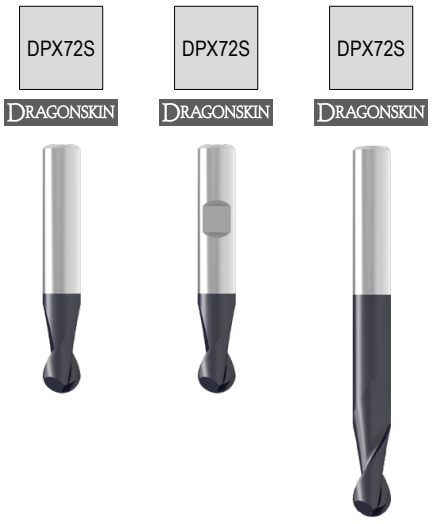
Ball Nosed Cutter

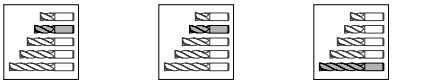
▲ Radius accuracy: ± 0,01 mm

N | λ_s=30° γ_s=14° | ≤ 52 HRC









Factory standard | Factory standard | Factory standard



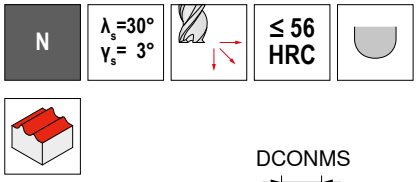
DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 054 ... £ V1/5B		52 056 ... £ V1/5B		52 055 ... £ V1/5B	
3.00	6.0	22.0	50		3	2	57.34	**33000**				
3.00	10.0	47.0	75		3	2					73.50	**33000**
3.00	10.0	44.0	80	9	6	2					93.86	**03000**
4.00	7.0	18.0	54	10	6	2	63.07	**04000**	63.07	**04000**		
4.00	7.0	26.0	54		4	2	60.53	**44000**				
4.00	13.0	47.0	75		4	2					70.44	**44000**
4.00	13.0	44.0	80	8	6	2					93.86	**04000**
5.00	8.0	18.0	54	6	6	2	63.07	**05000**	63.07	**05000**		
5.00	8.0	26.0	54		5	2	63.07	**55000**				
5.00	14.0	47.0	75		5	2					80.07	**55000**
5.00	14.0	64.0	100	5	6	2					93.86	**05000**
6.00	10.0	18.0	54		6	2	63.07	**06000**	63.07	**06000**		
6.00	16.0	64.0	100		6	2					94.28	**06000**
8.00	12.0	23.0	59		8	2	76.71	**08000**	76.71	**08000**		
8.00	22.0	64.0	100		8	2					113.40	**08000**
10.00	13.0	27.0	67		10	2	100.99	**10000**	100.99	**10000**		
10.00	25.0	60.0	100		10	2					149.20	**10000**
12.00	16.0	28.0	73		12	2	143.77	**12000**	143.77	**12000**		
12.00	26.0	55.0	100		12	2					196.79	**12000**
14.00	16.0	30.0	75		14	2	182.74	**14000**	182.74	**14000**		
14.00	26.0	55.0	100		14	2					263.60	**14000**
16.00	20.0	35.0	83		16	2	209.32	**16000**	209.32	**16000**		
16.00	30.0	102.0	150		16	2					433.80	**16000**
18.00	22.0	45.0	93		18	2	284.61	**18000**	284.61	**18000**		
20.00	25.0	43.0	93		20	2	343.08	**20000**	343.08	**20000**		
20.00	40.0	100.0	150		20	2					529.98	**20000**

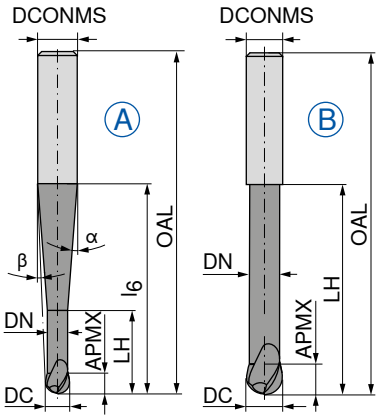
P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H	○	○	○
O	○	○	○

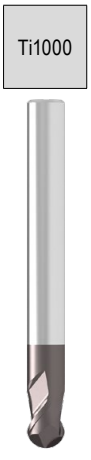
→ v_c/f_z Page 480–486

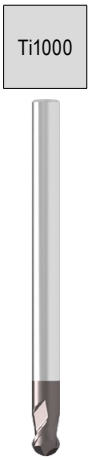
Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm
▲ For Ø DC ≤ 5.0 mm, angle tolerance α and β: ± 0.5°













Factory standard

Factory standard





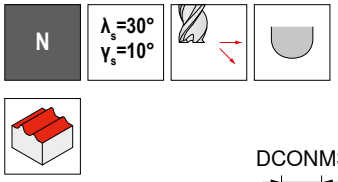
DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 714 ... £ V1		52 717 ... £ V1	
0.5	1.0	0.45	2.0	20	57	10	8,5	6	2	A	249.26	**005**		
1.0	2.0	0.95	4.0	20	57	10	8	6	2	A	219.26	**010**		
1.0	2.0	0.95	4.0	40	80	4,5	4	6	2	A			190.56	**010**
1.5	2.5	1.40	7.5	20	57	12,5	7	6	2	A	209.01	**015**		
1.5	2.5	1.40	7.5	40	80	4,5	3,5	6	2	A			182.02	**015**
2.0	3.0	1.80	8.0	20	57	12	6,5	6	2	A	176.81	**020**		
2.0	3.0	1.80	8.0	40	80	4	3	6	2	A			161.71	**020**
3.0	3.5	2.80	10.0	20	57	11,5	5	6	2	A	168.67	**030**		
3.0	3.5	2.80	12.0	40	80	3,5	2,5	6	2	A			152.64	**030**
4.0	4.0	3.80	12.0	20	57	11	3,5	6	2	A	158.36	**040**		
4.0	4.0	3.80	20.0	40	80	4	1,5	6	2	A			145.99	**040**
5.0	5.0	4.70	14.0	20	57	10	2	6	2	A	203.02	**050**		
5.0	5.0	4.70	25.0	40	80	3	1	6	2	A			148.28	**050**
6.0	6.0	5.60	20.0		57			6	2	B	208.83	**060**		
6.0	6.0	5.60	40.0		80			6	2	B			183.68	**060**
6.0	6.0	5.60	25.0	60	100	2	1	8	2	A			210.73	**061**
8.0	7.0	7.60	25.0		63			8	2	B	225.09	**080**		
8.0	7.0	7.60	60.0		100			8	2	B			214.11	**080**
8.0	7.0	7.60	30.0	75	120	2	1	10	2	A			281.69	**081**
10.0	8.0	9.60	30.0		72			10	2	B	258.15	**100**		
10.0	8.0	9.60	50.0		100			10	2	B			248.30	**102**
10.0	8.0	9.60	75.0		120			10	2	B			242.21	**100**
10.0	8.0	9.60	40.0	110	160	1	1	12	2	A			374.33	**101**
12.0	10.0	11.50	35.0		83			12	2	B	370.14	**120**		
12.0	10.0	11.50	35.0	40	92	35	3,5	16	2	A	475.69	**121**		
12.0	10.0	11.50	70.0		120			12	2	B			396.93	**122**
12.0	10.0	11.50	70.0		160			12	2	B			413.44	**120**
12.0	10.0	11.50	50.0	150	200	1,5	1	16	2	A			759.09	**121**
16.0	12.0	15.50	40.0		92			16	2	B	468.67	**160**		
16.0	12.0	15.50	80.0		200			16	2	B			743.14	**160**

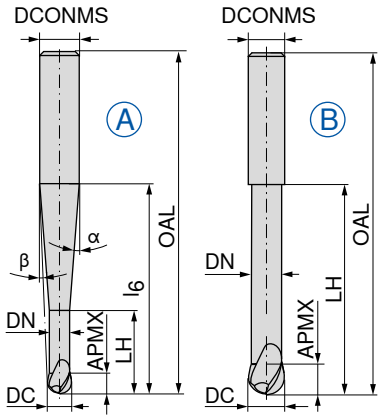
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

→ v_c/f_z Page 480–486

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °









Factory standard



52 320 ...

DC e8 mm	APMX mm	DN mm	LH mm	l6 mm	OAL mm	α°	β°	DCONMS h6 mm	ZEFP	Fig.	£ V1	
2	3	1.8	8	40	100	3,6	3	6	2	A	129.67	**020**
3	4	2.8	12	40	100	3,1	2,1	6	2	A	129.67	**030**
4	5	3.8	16	40	100	2,4	1,2	6	2	A	125.17	**040**
5	6	4.7	20	40	100	1,4	0,7	6	2	A	125.86	**050**
6	6	5.7	25	50	100	2,3	1,2	8	2	A	173.34	**061**
6	6	5.7	25		100			6	2	B	105.99	**060**
8	7	7.7	32		100			8	2	B	160.82	**080**
8	7	7.7	32	60	120	2	1	10	2	A	241.63	**081**
10	9	9.6	40	81	160	1,4	0,7	12	2	A	389.16	**101**
10	9	9.6	40		120			10	2	B	229.32	**100**
12	11	11.6	50		160			12	2	B	355.17	**120**
12	11	11.6	50	101	200	2,3	1,2	16	2	A	670.44	**121**
16	14	15.6	60		200			16	2	B	605.36	**160**

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c/f_z Page 480–486

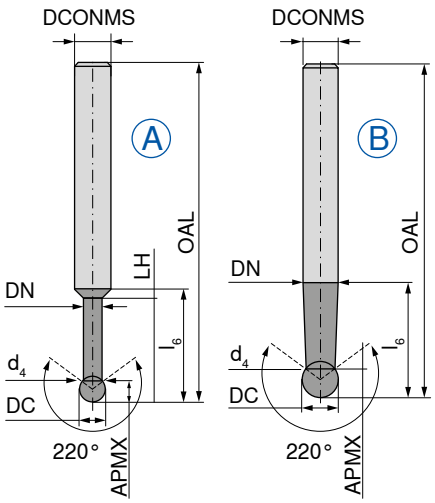
Ball Nosed Cutter 220°

▲ Radius accuracy: ± 0,005 mm

N

λ_s=30°
γ_s= 3°

Ti1000





Factory standard

52 323 ...

DC $_{f8}$ mm	APMX mm	DN mm	d_4 mm	LH mm	l_6 mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	Fig.	£ V1	
1.0	0.7	0.80	0.8	5	17	58	6	2	A	191.34	**010**
1.5	1.2	1.20	1.2	8	20	58	6	2	A	191.34	**015**
2.0	1.5	1.40	1.4	10	21	58	6	2	A	191.34	**020**
3.0	2.3	2.40	2.4	15	22	65	6	2	A	193.24	**030**
4.0	3.0	3.40	3.4	20	25	70	6	2	A	197.62	**040**
5.0	3.5	4.30	4.3	25	28	80	6	2	A	205.76	**050**
6.0	4.0	5.90	5.3	30	30	100	6	2	A	238.04	**060**
8.0	6.5	7.90	6.2		40	100	8	2	B	315.49	**080**
10.0	8.2	9.90	7.6		50	100	10	2	B	414.55	**100**
12.0	9.9	11.90	9.2		110	160	12	2	B	608.33	**121**
12.0	9.9	11.90	9.2		70	120	12	2	B	571.67	**120**

P	●
M	○
K	●
N	○
S	○
H	○
O	○

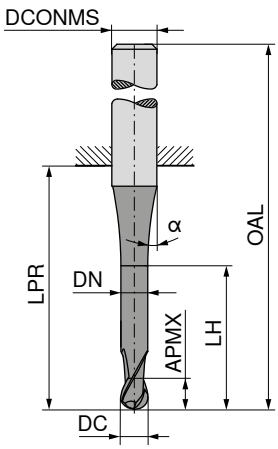
→ v_c/f_z Page 480–486

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

N | λ_s=30° γ_s=13° | HPC | Ti1000









≈DIN 6527



54 073 ...

DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	α°	ZEFP	£ V3/5C	
3	5	2.9	9	14	50	6	15	2	20.30	**03115**
4	8	3.9	12	18	54	6	45	2	20.30	**04120**
5	9	4.9	15	18	54	6	45	2	20.30	**05125**
6	10	5.9	17	18	54	6	45	2	21.56	**06130**
8	12	7.8	20	22	58	8	45	2	27.90	**08140**
10	14	9.8	26	26	66	10	45	2	35.52	**10150**
12	16	11.8	28	28	73	12	45	2	50.75	**12160**
16	22	15.7	32	34	82	16	45	2	83.73	**16180**
20	26	19.7	40	42	92	20	45	2	119.26	**20110**

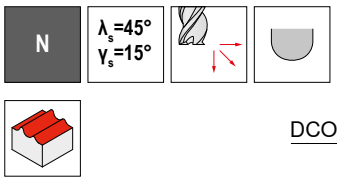
P	●
M	○
K	●
N	●
S	○
H	
O	

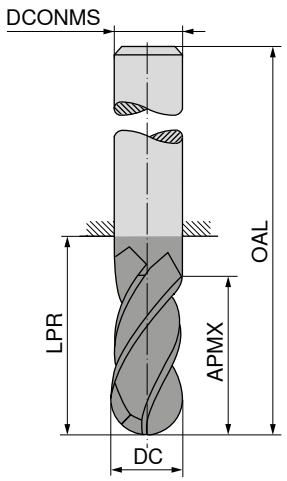
→ v_c/f_z Page 476+477

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

N | λ_s=45° γ_s=15°







Factory standard | Factory standard

DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 400 ... £ V1		52 402 ... £ V1	
3	5	22	50	3	4	76.50	030		
3	5	47	75	3	4			92.45	030
4	8	26	54	4	4	76.72	040		
4	8	47	75	4	4			102.80	040
5	9	26	54	5	4	80.31	050		
5	9	47	75	5	4			106.87	050
6	10	18	54	6	4	84.65	060		
6	10	64	100	6	4			109.76	060
8	12	23	59	8	4	104.62	080		
8	12	64	100	8	4			138.77	080
10	14	27	67	10	4	138.75	100		
10	14	60	100	10	4			176.74	100
12	16	29	74	12	4	177.90	120		
12	16	55	100	12	4			228.16	120
14	18	30	75	14	4	222.45	140		
14	18	55	100	14	4			280.76	140
16	22	35	83	16	4	291.94	160		
16	22	102	150	16	4			419.31	160
20	26	43	93	20	4	447.59	200		
20	26	100	150	20	4			619.00	200

P	○	○
M	●	●
K	○	○
N	●	●
S	●	●
H		
O	●	●

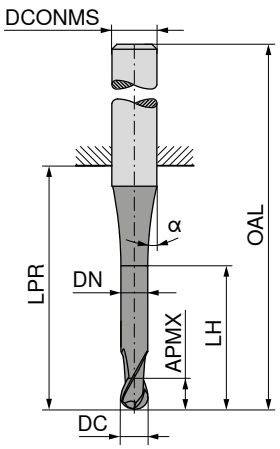
→ v_c/f_z Page 480–486

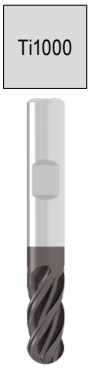
Ball Nosed Cutter

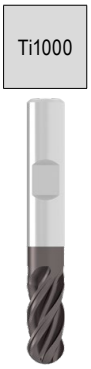
▲ Radius accuracy: ± 0,01 mm

N | λ_s 35° 38° γ_s 7° | HPC













≈DIN 6527 | ≈DIN 6527





DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	α°	ZEFP	54 074 ... £ V3/5C		54 074 ... £ V3/5C	
3	8			21	57	6	30	4	20.30	**03115**		
3	8	2.9	15	21	57	6	45	4			20.30	**03215**
4	11			21	57	6	30	4	20.30	**04120**		
4	11	3.9	16	21	57	6	45	4			20.30	**04220**
5	13			21	57	6	30	4	20.30	**05125**		
5	13	4.9	19	21	57	6	45	4			20.30	**05225**
6	13			21	57	6	30	4	21.56	**06130**		
6	13	5.9	19	21	57	6	45	4			24.11	**06430**
8	19			36	72	8	30	4	27.90	**08140**		
8	19	7.8	25	27	72	8	45	4			29.17	**08440**
10	22			32	72	10	30	4	35.52	**10150**		
10	22	9.7	30	32	72	10	45	4			38.06	**10450**
12	26			38	83	12	30	4	50.75	**12160**		
12	26	11.7	36	38	83	12	45	4			59.63	**12460**
16	32			44	92	16	30	4	83.73	**16180**		
16	32	15.5	42	44	92	16	45	4			87.54	**16480**
20	38			54	104	20	30	4	119.26	**20110**		
20	38	19.5	52	54	104	20	45	4			126.87	**20410**

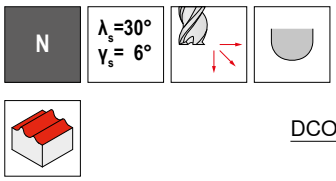
P	●	●
M	●	●
K	●	●
N	○	○
S		
H		
O		

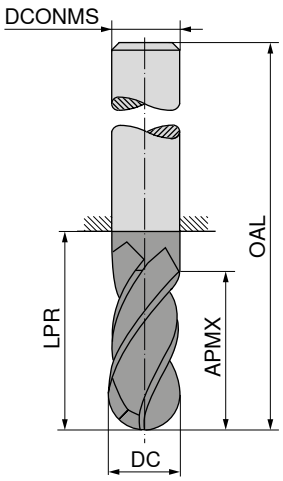
→ v_c/f_z Page 478+479

14

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm







DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP		50 643 ... £ V0/5A		50 643 ... £ V0/5A	
							DIN 6527		DIN 6527	
3	8	21	57	6	4		63.39	**030**		
4	11	21	57	6	4		63.39	**040**		
6	13	21	57	6	4		63.39	**060**		
6	40	64	100	6	4				81.81	**061**
8	19	27	63	8	4		69.28	**080**		
8	40	64	100	8	4				90.75	**081**
10	22	32	72	10	4		110.83	**100**		
10	40	60	100	10	4				151.49	**101**
12	26	38	83	12	4		147.30	**120**		
12	45	55	100	12	4				201.05	**121**
12	75	105	150	12	4				304.47	**122**
14	26	38	83	14	4		179.70	**140**		
14	45	55	100	14	4				273.36	**141**
16	32	44	92	16	4		253.63	**160**		
16	75	102	150	16	4				370.14	**161**
20	38	54	104	20	4		326.51	**200**		
20	75	100	150	20	4				579.91	**201**
P							●		●	
M							○		○	
K							●		●	
N							○		○	
S							○		○	
H							○		○	
O							○		○	

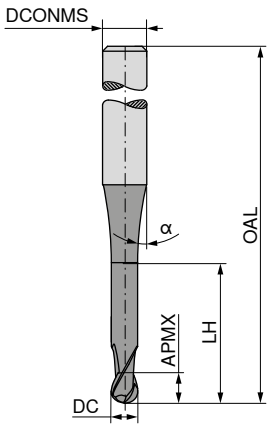
→ v_c/f_z Page 480–486

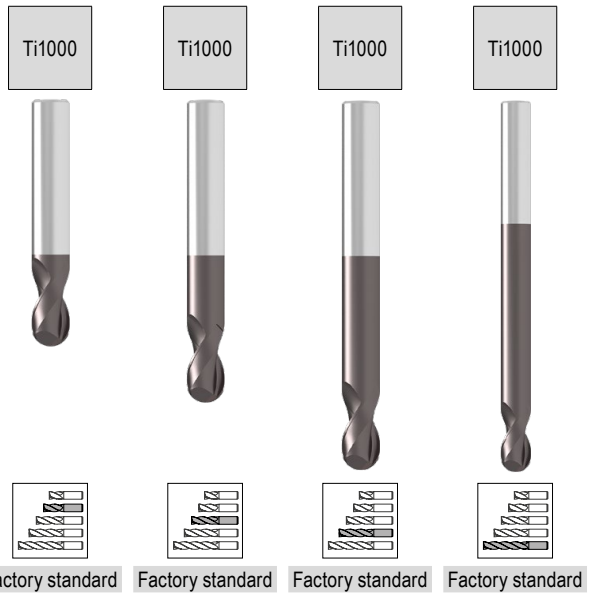
Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm

H | λ_s=30° γ_s= 4° | ≤ 68 HRC







Factory standard | Factory standard | Factory standard | Factory standard

DC mm	DC Tol.	APMX mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	ZEFP	50 906 ... £ V0/5A		50 906 ... £ V0/5A		50 906 ... £ V0/5A		50 906 ... £ V0/5A	
0.20	0/-0,015	0.3	0.6	40	15	4	2	111.18	**002**						
0.25	0/-0,015	0.3	0.6	40	15	4	2	111.18	**925**						
0.30	0/-0,015	0.3	0.6	40	15	4	2	111.18	**003**						
0.35	0/-0,015	0.4	0.7	40	15	4	2	111.18	**935**						
0.40	0/-0,015	0.4	0.7	40	15	4	2	111.18	**004**						
0.50	0/-0,015	0.5	0.8	40	15	4	2	111.18	**005**						
0.50	0/-0,015	0.5	0.8	54	15	6	2	127.83	**951**						
0.60	0/-0,015	0.6	0.9	40	15	4	2	111.18	**006**						
0.70	0/-0,015	0.8	1.1	40	15	4	2	111.18	**007**						
0.80	0/-0,015	0.8	1.1	40	15	4	2	111.18	**008**						
0.90	0/-0,015	0.9	1.2	40	15	4	2	111.18	**009**						
1.00	0/-0,015	1.0	1.3	54		4	2					111.18	**010**		
1.00	0/-0,015	1.0	1.3	54	15	6	2	127.83	**011**						
1.00	0/-0,015	1.0	1.3	64		6	2					133.79	**012**		
1.00	0/-0,015	1.0	1.3	80		6	2							139.37	**013**
1.00	0/-0,015	1.0	1.3	100		6	2							145.16	**014**
1.20	0/-0,015	1.2	1.5	54		4	2					111.18	**112**		
1.40	0/-0,015	1.4	1.8	54		4	2					111.18	**114**		
1.50	0/-0,015	1.5	1.9	54		4	2					111.18	**115**		
1.50	0/-0,015	1.5	1.9	54	15	6	2	127.83	**215**						
1.50	0/-0,015	1.5	1.9	80		6	2							139.37	**315**
1.60	0/-0,015	1.8	2.3	54		4	2					111.18	**116**		
1.80	0/-0,015	1.8	2.3	54		4	2					111.18	**118**		
2.00	0/-0,015	2.0	2.5	54		4	2					118.59	**206**		
2.00	0/-0,015	4.0	5.0	54		6	2					127.83	**202**		
2.00	0/-0,015	4.0	5.0	64		6	2					142.64	**207**		
2.00	0/-0,015	4.0	5.0	82		6	2							139.37	**204**
2.00	0/-0,015	4.0	5.0	100		6	2							145.16	**205**
2.50	0/-0,02	5.0	6.6	54		4	2					111.18	**251**		
2.50	0/-0,02	5.0	6.3	54	15	6	2	127.83	**252**						
2.50	0/-0,02	5.0	6.3	64		6	2					133.79	**253**		
2.50	0/-0,02	5.0	6.3	82		6	2							139.37	**254**
2.50	0/-0,02	5.0	6.3	100		6	2							145.16	**255**
3.00	0/-0,02	5.0	6.3	54		4	2					111.18	**030**		
3.00	0/-0,02	5.0	6.3	82		4	2							111.18	**032**
3.00	0/-0,02	5.0	6.3	100		4	2							111.18	**033**
3.00	0/-0,02	5.0	6.3	54	15	6	2	127.83	**035**						
3.00	0/-0,02	5.0	6.3	64		6	2					133.79	**036**		
3.00	0/-0,02	5.0	6.3	82		6	2							139.37	**037**
3.00	0/-0,02	8.0	10.0	100		6	2							145.16	**038**
4.00	0/-0,02	8.0		54	15	4	2					111.18	**040**		
4.00	0/-0,02	8.0	10.0	82	15	4	2							131.79	**042**
4.00	0/-0,02	8.0	10.0	100	15	4	2							140.29	**043**

P	●	●	●	●
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H	○	○	○	○
O	○	○	○	○

→ v_c/f_z Page 480–486

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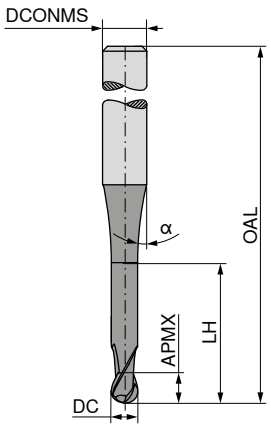
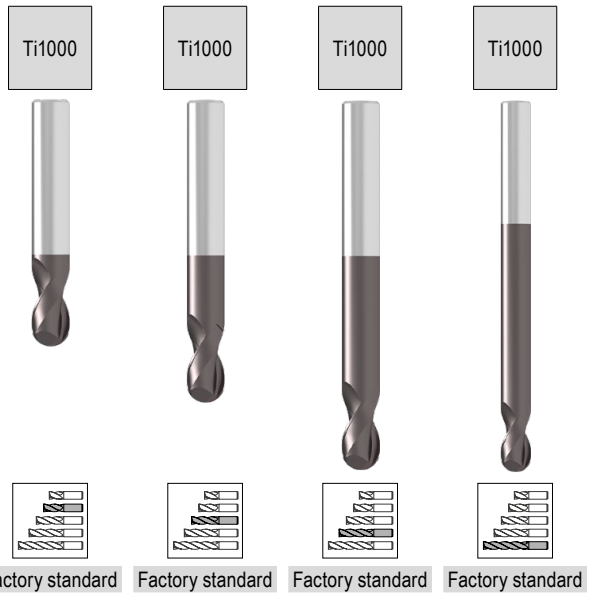
Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm

H | λ_s=30° γ_s= 4° | ≤ 68 HRC







Factory standard | Factory standard | Factory standard | Factory standard

DC mm	DC Tol.	APMX mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	ZEFP	50 906 ... £ V0/5A		50 906 ... £ V0/5A		50 906 ... £ V0/5A		50 906 ... £ V0/5A	
4.00	0/-0,02	8.0	10.0	54	15	6	2	111.18	**045**						
4.00	0/-0,02	8.0	10.0	64		6	2					133.79	**046**		
4.00	0/-0,02	8.0	10.0	82		6	2							139.37	**047**
4.00	0/-0,02	8.0	10.0	100		6	2							145.16	**048**
5.00	0/-0,02	9.0		54	15	5	2					111.18	**050**		
5.00	0/-0,02	9.0		64	15	5	2					133.79	**051**		
5.00	0/-0,02	9.0	11.3	82	15	5	2							139.37	**052**
5.00	0/-0,02	9.0	11.3	100	15	5	2							145.16	**053**
5.00	0/-0,02	9.0	11.3	54	15	6	2	111.18	**055**						
5.00	0/-0,02	9.0	11.3	64		6	2					133.79	**056**		
5.00	0/-0,02	9.0	11.3	82		6	2							139.37	**057**
5.00	0/-0,02	9.0	11.3	100		6	2							145.16	**058**
6.00	0/-0,02	10.0		54	15	6	2	111.18	**060**						
6.00	0/-0,02	10.0		64	15	6	2					133.79	**061**		
6.00	0/-0,02	10.0		82	15	6	2							139.37	**062**
6.00	0/-0,02	10.0		100	15	6	2							145.16	**063**
6.00	0/-0,02	10.0		120	15	6	2							151.53	**064**
8.00	0/-0,025	12.0		64	15	8	2					121.50	**081**		
8.00	0/-0,025	12.0		82	15	8	2			155.30	**082**				
8.00	0/-0,025	12.0		100	15	8	2							188.73	**083**
8.00	0/-0,025	12.0		120	15	8	2							221.99	**084**
10.00	0/-0,025	14.0		67	15	10	2	151.66	**101**						
10.00	0/-0,025	14.0		82	15	10	2			204.27	**102**				
10.00	0/-0,025	14.0		100	15	10	2							257.78	**103**
10.00	0/-0,025	14.0		127	15	10	2							309.14	**104**
12.00	0/-0,025	16.0		75	15	12	2	220.74	**121**						
12.00	0/-0,025	16.0		100	15	12	2			331.73	**122**				
12.00	0/-0,025	16.0		150	15	12	2							438.94	**123**
14.00	0/-0,025	18.0		80	15	14	2	275.52	**141**						
14.00	0/-0,025	18.0		100	15	14	2			400.95	**142**				
14.00	0/-0,025	18.0		150	15	14	2							528.81	**143**
16.00	0/-0,025	22.0		85	15	16	2	327.23	**161**						
16.00	0/-0,025	22.0		150	15	16	2							712.30	**163**
20.00	0/-0,025	26.0		90	15	20	2	537.46	**201**						
20.00	0/-0,025	26.0		150	15	20	2							942.77	**203**

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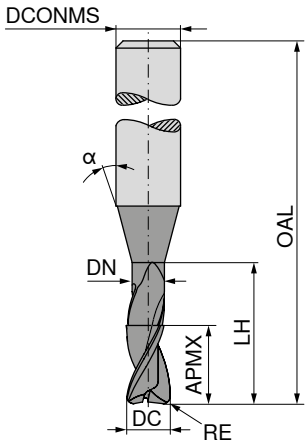
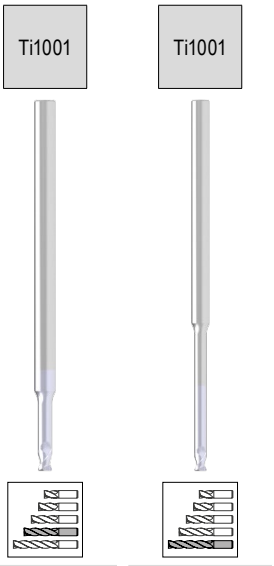
Torus Cutter

W

λ_s=45°
γ_s=18°





Factory standard | Factory standard

DC f8 mm	RE -0.015 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 901 ... £ V0/5A		50 901 ... £ V0/5A	
0.2	0.02	0.2	0.18	0.6	55	15	3	2	108.78	021		
0.2	0.02	0.2	0.18	1.0	55	15	3	2	110.31	022		
0.2	0.02	0.2	0.18	1.6	55	15	3	2	111.44	023		
0.2	0.02	0.2	0.18	2.0	55	15	3	2	112.75	024		
0.3	0.03	0.3	0.28	0.9	55	15	3	2	108.78	031		
0.3	0.03	0.3	0.28	1.5	55	15	3	2	110.31	032		
0.3	0.03	0.3	0.28	2.4	55	15	3	2	111.44	033		
0.3	0.03	0.3	0.28	3.0	55	15	3	2	112.75	034		
0.4	0.04	0.4	0.37	1.2	55	15	3	2	108.78	041		
0.4	0.04	0.4	0.37	2.0	55	15	3	2	110.31	042		
0.4	0.04	0.4	0.37	3.2	55	15	3	2	111.44	043		
0.4	0.04	0.4	0.37	4.0	55	15	3	2	112.75	044		
0.5	0.05	0.5	0.45	1.5	55	15	3	2	106.52	051		
0.5	0.05	0.5	0.45	2.5	55	15	3	2	107.65	052		
0.5	0.05	0.5	0.45	4.0	55	15	3	2	108.78	053		
0.5	0.05	0.5	0.45	5.0	55	15	3	2	110.31	054		
0.6	0.06	0.6	0.58	2.0	55	15	3	2	89.77	061		
0.6	0.06	0.6	0.58	3.0	55	15	3	2	89.77	062		
0.6	0.06	0.6	0.58	4.2	55	15	3	2	89.43	063		
0.6	0.06	0.6	0.58	5.0	65	15	3	2			105.73	064
0.6	0.06	0.6	0.58	6.0	65	15	3	2			103.09	065
0.8	0.08	0.8	0.77	2.5	55	15	3	2	89.43	081		
0.8	0.08	0.8	0.77	4.0	55	15	3	2	89.43	082		
0.8	0.08	0.8	0.77	6.5	65	15	3	2			99.47	083
0.8	0.08	0.8	0.77	8.0	65	15	3	2			103.09	084
1.0	0.10	1.0	0.95	3.0	55	15	3	2	89.43	101		
1.0	0.10	1.0	0.95	5.0	55	15	3	2	89.43	102		
1.0	0.10	1.0	0.95	8.0	65	15	3	2			94.55	103
1.0	0.10	1.0	0.95	10.0	65	15	3	2			103.09	104
1.0	0.10	1.0	0.95	12.0	65	15	3	2			105.73	105
1.2	0.12	1.2	1.15	3.0	55	15	3	2	89.43	121		
1.2	0.12	1.2	1.15	6.0	55	15	3	2	89.43	122		
1.2	0.12	1.2	1.15	10.0	65	15	3	2			99.47	123
1.2	0.12	1.2	1.15	12.0	65	15	3	2			103.09	124
1.3	0.13	1.3	1.25	4.0	55	15	3	2	89.43	131		
1.3	0.13	1.3	1.25	7.0	55	15	3	2	89.77	132		
1.3	0.13	1.3	1.25	11.0	65	15	3	2			99.47	133
1.3	0.13	1.3	1.25	13.0	65	15	3	2			105.73	134
1.5	0.15	1.5	1.44	5.0	55	15	3	2	89.77	151		
1.5	0.15	1.5	1.44	7.5	55	15	3	2	89.43	152		
1.5	0.15	1.5	1.44	12.0	65	15	3	2			105.73	153
1.5	0.15	1.5	1.44	15.0	65	15	3	2			103.09	154
1.6	0.16	1.6	1.52	5.0	55	15	3	2	89.77	161		
1.6	0.16	1.6	1.52	8.0	55	15	3	2	89.77	162		
1.6	0.16	1.6	1.52	13.0	65	15	3	2			99.47	163

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→ v_c/f_z Page 480–486

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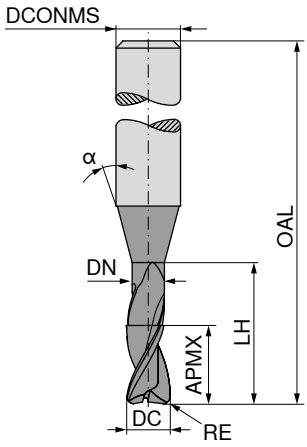
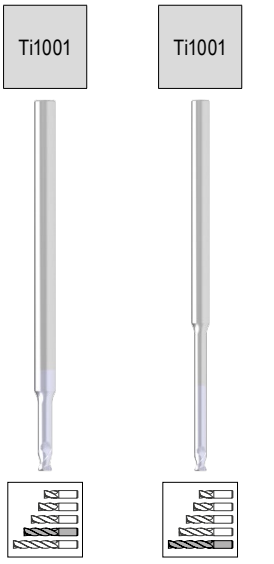
Torus Cutter

W

λ_s=45°
γ_s=18°





Factory standard | Factory standard

DC f8 mm	RE -0.015 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 901 ... £ V0/5A		50 901 ... £ V0/5A	
1.6	0.16	1.6	1.52	16.0	65	15	3	2			105.73	164
1.8	0.18	1.8	1.72	5.5	55	15	3	2	89.43	181		
1.8	0.18	1.8	1.72	9.0	55	15	3	2	89.77	182		
1.8	0.18	1.8	1.72	14.5	65	15	3	2			99.47	183
1.8	0.18	1.8	1.72	18.0	65	15	3	2			105.73	184
2.0	0.20	2.0	1.92	6.0	55	15	3	2	89.43	201		
2.0	0.20	2.0	1.92	10.0	55	15	3	2	89.77	202		
2.0	0.20	2.0	1.92	14.0	55	15	3	2	89.43	203		
2.0	0.20	2.0	1.92	16.0	65	15	3	2			105.73	204
2.0	0.20	2.0	1.92	20.0	65	15	3	2			103.09	205
2.3	0.23	2.3	2.22	7.0	55	15	3	2	89.43	231		
2.3	0.23	2.3	2.22	11.5	55	15	3	2	89.77	232		
2.3	0.23	2.3	2.22	14.0	55	15	3	2	94.55	233		
2.3	0.23	2.3	2.22	18.5	65	15	3	2			105.73	234
2.3	0.23	2.3	2.22	20.0	65	15	3	2			105.73	235
2.3	0.23	2.3	2.22	23.0	65	15	3	2			105.73	236
3.0	0.30	3.0	2.90	9.0	65	15	6	2	94.55	301		
3.0	0.30	3.0	2.90	15.0	65	15	6	2	105.73	302		
3.0	0.30	3.0	2.90	24.0	100	15	6	2			114.65	303
3.0	0.30	3.0	2.90	30.0	100	15	6	2			119.23	304
4.0	0.40	4.0	3.90	12.0	65	15	6	2	105.73	401		
4.0	0.40	4.0	3.90	20.0	65	15	6	2	105.73	402		
4.0	0.40	4.0	3.90	32.0	100	15	6	2			119.23	403
4.0	0.40	4.0	3.90	40.0	100	15	6	2			123.21	404
5.0	0.50	5.0	4.90	15.0	65	15	6	2	105.73	501		
5.0	0.50	5.0	4.90	25.0	65	15	6	2	105.73	502		
5.0	0.50	5.0	4.90	40.0	100	15	6	2			123.21	503
5.0	0.50	5.0	4.90	50.0	100	15	6	2			127.01	504
6.0	0.60	6.0	5.90	18.0	65	15	6	2	105.73	601		
6.0	0.60	6.0	5.90	30.0	100	15	6	2			119.23	602
6.0	0.60	6.0	5.90	48.0	100	15	6	2			127.01	603
6.0	0.60	6.0	5.90	60.0	100	15	6	2			130.73	604

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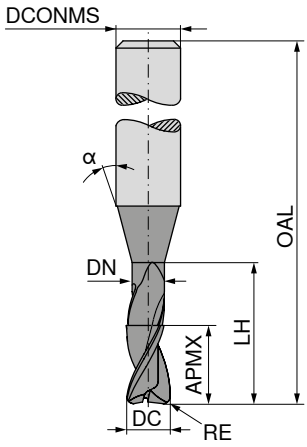
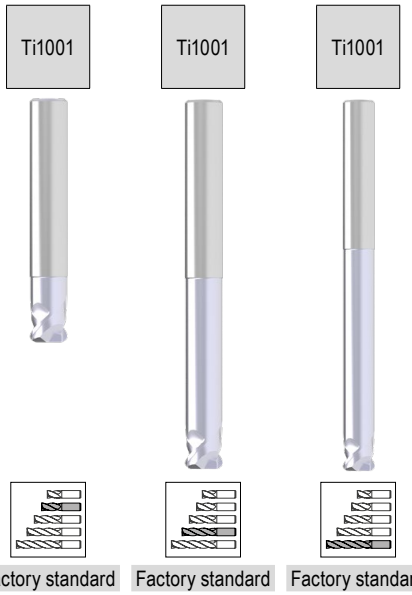
→ v_c/f_z Page 480–486

Torus Cutter

W

λ_s=45°
γ_s=15°





Factory standard | Factory standard | Factory standard

DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 902 ... £ V0/5A		50 902 ... £ V0/5A		50 902 ... £ V0/5A	
2	0.3	2	1.8	12	50	45	6	2	95.47	020				
2	0.5	2	1.8	12	50	45	6	2	95.47	023				
2	0.3	2	1.8	22	60	45	6	2			95.47	021		
2	0.5	2	1.8	22	60	45	6	2			95.47	024		
2	0.3	2	1.8	47	85	45	6	2					138.77	022
2	0.5	2	1.8	47	85	45	6	2					138.77	025
3	0.3	2	2.8	12	50	45	6	2	95.47	030				
3	0.5	2	2.8	12	50	45	6	2	95.47	033				
3	0.3	2	2.8	22	60	45	6	2			95.47	031		
3	0.5	2	2.8	22	60	45	6	2			95.47	034		
3	0.3	2	2.8	47	85	45	6	2					138.77	032
3	0.5	2	2.8	47	85	45	6	2					138.77	035
4	0.3	3	3.8	16	54	45	6	2	95.47	040				
4	0.5	3	3.8	16	54	45	6	2	95.47	043				
4	1.0	3	3.8	16	54	45	6	2	95.47	046				
4	0.3	3	3.8	37	75	45	6	2			130.73	041		
4	0.5	3	3.8	37	75	45	6	2			130.73	044		
4	1.0	3	3.8	37	75	45	6	2			130.73	047		
4	0.3	3	3.8	47	85	45	6	2					138.77	042
4	0.5	3	3.8	47	85	45	6	2					138.77	045
4	1.0	3	3.8	47	85	45	6	2					138.77	048
5	0.5	3	4.6	16	54	45	6	2	95.47	050				
5	1.0	3	4.6	16	54	45	6	2	95.47	052				
5	1.5	3	4.6	16	54	45	6	2	95.47	054				
5	0.5	3	4.6	37	75	45	6	2			130.73	051		
5	1.0	2	4.6	37	75	45	6	2			130.73	053		
5	1.5	3	4.6	37	75	45	6	2			130.73	055		
6	0.5	4	5.6	16	54	45	6	2	95.47	060				
6	1.0	4	5.6	16	54	45	6	2	95.47	063				
6	2.0	4	5.6	16	54	45	6	2	95.47	066				
6	0.5	4	5.6	47	85	45	6	2			130.73	061		
6	1.0	4	5.6	47	85	45	6	2			130.73	064		
6	2.0	4	5.6	47	85	45	6	2			130.73	067		
6	0.5	4	5.6	47	85	45	8	2			179.75	069		
6	1.0	4	5.6	47	85	45	8	2			179.75	070		
6	2.0	4	5.6	47	85	45	8	2			179.75	071		
6	0.5	4	5.6	62	100	45	6	2					154.32	062
6	1.0	4	5.6	62	100	45	6	2					154.32	065
6	2.0	4	5.6	62	100	45	6	2					154.32	068
8	0.5	4	7.6	20	58	45	8	2	116.56	080				

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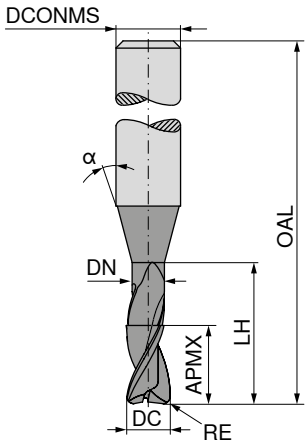
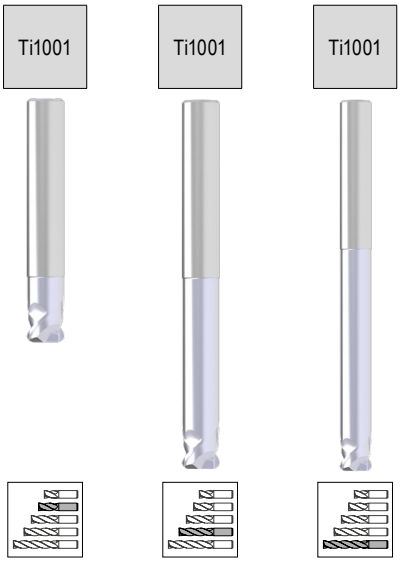
Torus Cutter

W | λ_s=45° γ_s=15°





Factory standard | Factory standard | Factory standard

DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 902 ... £ V0/5A		50 902 ... £ V0/5A		50 902 ... £ V0/5A	
8	1.0	4	7.6	20	58	45	8	2	116.56	082				
8	2.0	4	7.6	20	58	45	8	2	116.56	084				
8	0.5	4	7.6	62	100	45	8	2					180.55	081
8	1.0	4	7.6	62	100	45	8	2					180.55	083
8	2.0	4	7.6	62	100	45	8	2					180.55	085
8	2.0	4	7.6	62	100	45	10	2					249.62	086
10	1.0	6	9.6	18	66	45	10	2	142.44	100				
10	2.0	6	9.6	18	66	45	10	2	142.44	103				
10	3.0	6	9.6	18	66	45	10	2	142.44	106				
10	1.0	6	9.6	58	100	45	10	2			246.98	101		
10	2.0	6	9.6	58	100	45	10	2			246.98	104		
10	3.0	6	9.6	58	100	45	10	2			246.98	107		
10	1.0	6	9.6	78	120	45	10	2					296.53	102
10	2.0	6	9.6	78	120	45	10	2					296.53	105
10	3.0	6	9.6	78	120	45	10	2					296.53	108
10	1.0	6	9.6	78	120	45	12	2					381.18	109
10	2.0	6	9.6	78	120	45	12	2					381.18	110
10	3.0	6	9.6	78	120	45	12	2					381.18	111
12	1.0	8	11.5	26	73	45	12	2	211.29	120				
12	2.0	8	11.5	26	73	45	12	2	211.29	123				
12	3.0	8	11.5	26	73	45	12	2	211.29	126				
12	1.0	8	11.5	53	100	45	12	2			317.58	121		
12	2.0	8	11.5	53	100	45	12	2			317.58	124		
12	3.0	8	11.5	53	100	45	12	2			317.58	127		
12	1.0	8	11.5	73	120	45	12	2					381.18	122
12	2.0	8	11.5	73	120	45	12	2					381.18	125
12	3.0	8	11.5	73	120	45	12	2					381.18	128
12	4.0	8	11.5	73	120	45	12	2					381.18	131
12	1.0	8	11.5	103	150	45	16	2					773.69	132
12	2.0	8	11.5	103	150	45	16	2					773.69	133
12	3.0	8	11.5	103	150	45	16	2					773.69	134
P														
M														
K														
N									●		●		●	
S														
H														
O														

→ v_c/f_z Page 480–486

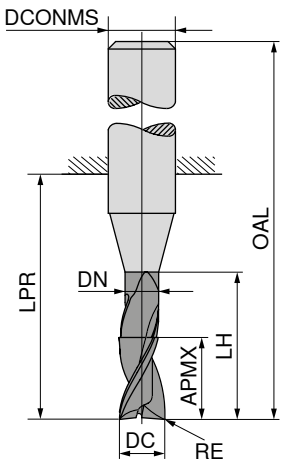
Torus Cutter

W

λ_s=30°
γ_s=12°







DIAMOND





Factory standard



52 765 ...

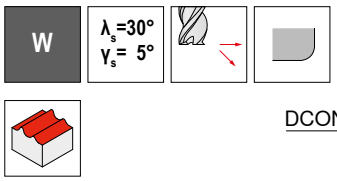
DC h10 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
2	0.3	8	1.8	31	32	60	2	2	268.40	**021**
3	0.5	12	2.8	41	42	70	3	2	285.11	**032**
4	0.5	15	3.8	51	52	80	4	2	349.28	**042**
5	0.5	20	4.8	71	72	100	5	2	405.10	**052**
6	0.8	20	5.8	63	64	100	6	2	446.48	**063**
8	1.0	20	7.8	83	84	120	8	2	587.32	**084**
10	1.0	25	9.8	99	100	140	10	2	751.09	**104**
12	1.5	25	11.8	104	105	150	12	2	993.13	**125**

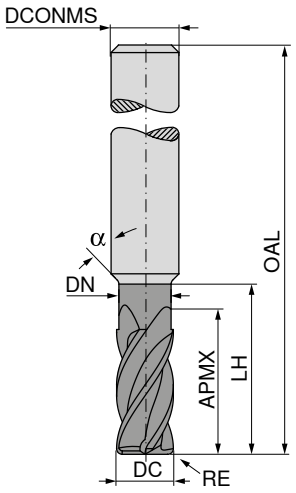
P	
M	
K	
N	●
S	
H	
O	●

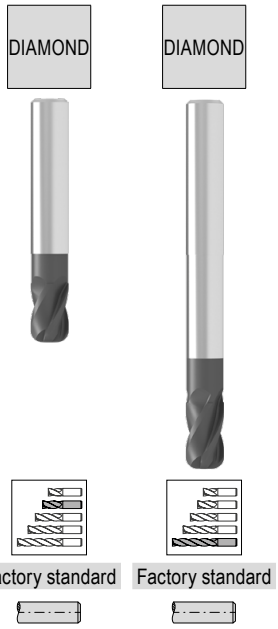
→ v_c/f_z Page 418

14

Torus Cutter







Factory standard | Factory standard

DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 911 ... £ V0/5A		50 911 ... £ V0/5A	
4	0.5	8	3.8	12	54	45	6	4	190.56	040		
4	1.0	8	3.8	12	54	45	6	4	190.56	041		
4	0.5	10	3.8	37	75	45	6	4			228.76	042
4	1.0	10	3.8	37	75	45	6	4			228.76	043
5	0.5	9	4.8	16	54	45	6	4	190.56	050		
5	1.0	9	4.8	16	54	45	6	4	190.56	051		
5	1.5	9	4.8	16	54	45	6	4	190.56	052		
5	0.5	12	4.8	37	75	45	6	4			228.76	053
5	1.0	12	4.8	37	75	45	6	4			228.76	054
5	1.5	12	4.8	37	75	45	6	4			228.76	055
6	0.5	10	5.6	16	54	45	6	4	190.56	060		
6	1.0	10	5.6	16	54	45	6	4	190.56	061		
6	1.5	10	5.6	16	54	45	6	4	190.56	062		
6	2.0	10	5.6	16	54	45	6	4	190.56	063		
6	0.5	12	5.6	62	100	45	6	4			249.62	064
6	1.0	12	5.6	62	100	45	6	4			249.62	065
6	1.5	12	5.6	62	100	45	6	4			249.62	066
6	2.0	12	5.6	62	100	45	6	4			249.62	067
7	0.5	11	6.6	20	58	45	8	4	249.62	070		
7	1.0	11	6.6	20	58	45	8	4	249.62	071		
7	1.5	11	6.6	20	58	45	8	4	249.62	072		
7	2.0	11	6.6	20	58	45	8	4	249.62	073		
7	0.5	14	6.6	62	100	45	8	4			313.02	074
7	1.0	14	6.6	62	100	45	8	4			313.02	075
7	1.5	14	6.6	62	100	45	8	4			313.02	076
7	2.0	14	6.6	62	100	45	8	4			313.02	077
8	0.5	12	7.6	20	58	45	8	4	249.62	080		
8	1.0	12	7.6	20	58	45	8	4	249.62	081		
8	1.5	12	7.6	20	58	45	8	4	249.62	086		
8	2.0	12	7.6	20	58	45	8	4	249.62	083		
8	0.5	14	7.6	62	100	45	8	4			313.02	084
8	1.0	14	7.6	62	100	45	8	4			313.02	085
8	1.5	14	7.6	62	100	45	8	4			313.02	082
8	2.0	14	7.6	62	100	45	8	4			313.02	087
10	0.5	14	9.6	24	66	45	10	4	315.30	100		
10	1.0	14	9.6	24	66	45	10	4	315.30	101		
10	1.5	14	9.6	24	66	45	10	4	315.30	107		
10	2.0	14	9.6	24	66	45	10	4	315.30	103		
10	3.0	14	9.6	24	66	45	10	4	315.30	104		
10	0.5	18	9.6	58	100	45	10	4			413.82	105
10	1.0	18	9.6	58	100	45	10	4			413.82	106

P		
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K		
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S		
H		
O	●	●

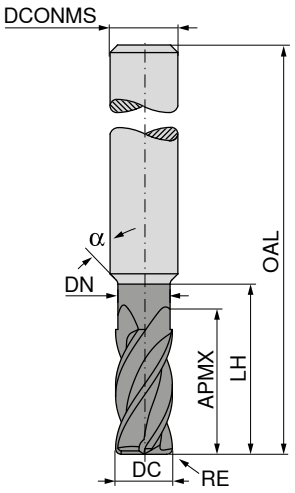
→ v_c/f_z Page 418

Continued on next page

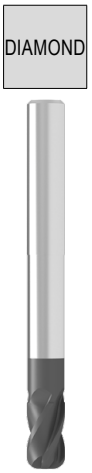
Torus Cutter

W

λ_s=30°
γ_s= 5°











Factory standard

Factory standard





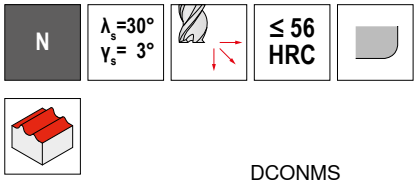
DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 911 ... £ V0/5A		50 911 ... £ V0/5A	
10	1.5	18	9.6	58	100	45	10	4			413.82	**102**
10	2.0	18	9.6	58	100	45	10	4			413.82	**108**
10	3.0	18	9.6	58	100	45	10	4			413.82	**109**
12	0.5	16	11.5	26	73	45	12	4	418.60	**120**		
12	1.0	16	11.5	26	73	45	12	4	418.60	**121**		
12	1.5	16	11.5	26	73	45	12	4	418.60	**127**		
12	2.0	16	11.5	26	73	45	12	4	418.60	**123**		
12	4.0	16	11.5	26	73	45	12	4	418.60	**124**		
12	0.5	22	11.5	53	100	45	12	4			524.47	**125**
12	1.0	22	11.5	53	100	45	12	4			524.47	**126**
12	1.5	22	11.5	53	100	45	12	4			524.47	**122**
12	2.0	22	11.5	53	100	45	12	4			524.47	**128**
12	4.0	22	11.5	53	100	45	12	4			524.47	**129**

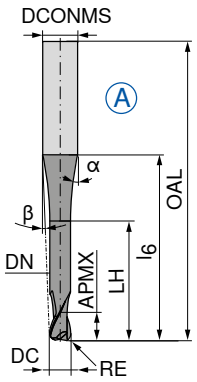
P		
M		
K		
N	●	●
S		
H		
O	●	●

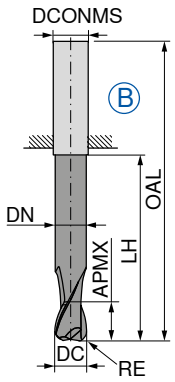
→ v_c/f_z Page 418

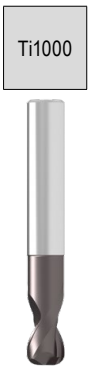
Torus Cutter

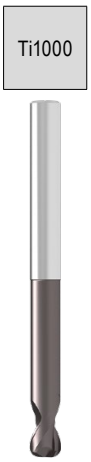
▲ Radius accuracy: ± 0,005 mm
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °















Factory standard | Factory standard





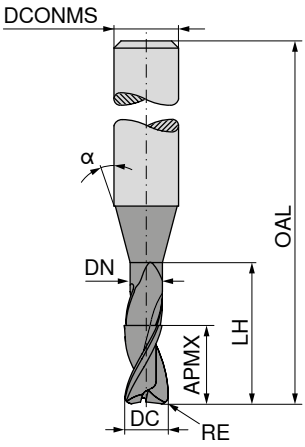
DC ±0,01	RE ±0,005	APMX	DN	LH	l_6	OAL	α°	β°	DCONMS h5	ZEFP	Fig.	52 730 ... £ V1		52 734 ... £ V1	
mm	mm	mm	mm	mm	mm	mm			mm						
0.5	0.10	1.0	0.45	2.0	20	57	10	8,5	6	2	A	273.96	**005**		
1.0	0.25	2.0	0.95	4.0	20	57	10	8	6	2	A	219.26	**010**		
1.0	0.25	2.0	0.95	4.0	40	80	4,5	4	6	2	A			209.01	**010**
1.5	0.30	2.5	1.40	7.5	20	57	12,5	7	6	2	A	209.01	**015**		
1.5	0.30	2.5	1.40	7.5	40	80	4,5	3,5	6	2	A			197.62	**015**
2.0	0.50	3.0	1.80	8.0	20	57	12	6,5	6	2	A	185.66	**020**		
2.0	0.50	3.0	1.80	8.0	40	80	4	3	6	2	A			172.94	**020**
3.0	0.50	3.5	2.80	10.0	20	57	11,5	5	6	2	A	177.11	**030**		
3.0	0.50	3.5	2.80	12.0	40	80	3,5	2,5	6	2	A			164.02	**030**
4.0	0.50	4.0	3.80	12.0	20	57	11	3,5	6	2	A	163.09	**041**		
4.0	0.50	4.0	3.80	20.0	40	80	4	1,5	6	2	A			193.82	**041**
4.0	1.00	4.0	3.80	12.0	20	57	11	3,5	6	2	A	166.28	**040**		
4.0	1.00	4.0	3.80	20.0	40	80	4	1,5	6	2	A			184.34	**040**
5.0	1.00	5.0	4.70	14.0	20	57	10	2	6	2	A	160.05	**051**		
5.0	1.00	5.0	4.70	25.0	40	80	3	1	6	2	A			190.56	**051**
5.0	1.50	5.0	4.70	14.0	20	57	10	2	6	2	A	203.02	**050**		
5.0	1.50	5.0	4.70	25.0	40	80	3	1	6	2	A			205.58	**050**
6.0	1.00	6.0	5.60	20.0		57			6	2	B	149.20	**961**		
6.0	1.00	6.0	5.60	40.0		80			6	2	B			181.47	**961**
6.0	2.00	6.0	5.60	20.0		57			6	2	B	208.83	**060**		
6.0	2.00	6.0	5.60	40.0		80			6	2	B			199.03	**060**
6.0	2.00	6.0	5.60	25.0	60	100	2	1	8	2	A			226.26	**061**
8.0	1.00	7.0	7.60	25.0		63			8	2	B	206.14	**082**		
8.0	1.00	7.0	7.60	60.0		100			8	2	B			239.95	**082**
8.0	2.00	7.0	7.60	25.0		63			8	2	B	225.09	**080**		
8.0	2.00	7.0	7.60	60.0		100			8	2	B			230.64	**080**
8.0	2.00	7.0	7.60	30.0	75	120	2	1	10	2	A			304.47	**081**
8.0	2.50	7.0	7.60	60.0		100			8	2	B			245.84	**083**
10.0	1.50	8.0	9.60	30.0		72			10	2	B	304.86	**102**		
10.0	1.50	8.0	9.60	75.0		120			10	2	B			329.37	**102**
10.0	2.50	8.0	9.60	75.0		120			10	2	B			337.48	**104**
10.0	3.00	8.0	9.60	30.0		72			10	2	B	258.15	**100**		
10.0	3.00	8.0	9.60	50.0		100			10	2	B			310.76	**103**
10.0	3.00	8.0	9.60	75.0		120			10	2	B			313.19	**100**
10.0	3.00	8.0	9.60	40.0	110	160	1	0,5	12	2	A			478.33	**101**
12.0	1.50	10.0	11.50	35.0		83			12	2	B	372.03	**122**		
12.0	1.50	10.0	11.50	70.0		160			12	2	B			481.76	**122**
12.0	4.00	10.0	11.50	35.0		83			12	2	B	370.14	**120**		
12.0	4.00	10.0	11.50	35.0	40	92	37	3,5	16	2	A	475.69	**121**		
12.0	4.00	10.0	11.50	70.0		160			12	2	B			428.83	**120**
12.0	4.00	10.0	11.50	50.0	150	200	1,5	1	16	2	A			793.08	**121**
16.0	5.00	12.0	15.50	40.0		92			16	2	B	468.67	**160**		
16.0	5.00	12.0	15.50	80.0		200			16	2	B			777.32	**160**

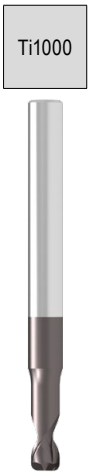
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

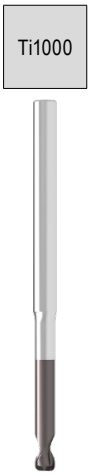
→ v_c/f_z Page 480–486

Torus Cutter

H | λ_s=30° γ_s= 3° | ≤ 54 HRC











Factory standard | Factory standard





DC f8 mm	RE -0.015 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 649 ... £ V0/5A		50 649 ... £ V0/5A	
0.4	0.04	0.4	0.37	1.2	55	15	6	2	109.33	**041**		
0.4	0.04	0.4	0.37	2.0	55	15	6	2	110.31	**042**		
0.4	0.04	0.4	0.37	3.2	55	15	6	2	111.44	**043**		
0.4	0.04	0.4	0.45	4.0	55	15	6	2	112.75	**044**		
0.5	0.05	0.5	0.45	1.5	55	15	6	2	106.52	**051**		
0.5	0.05	0.5	0.45	2.5	55	15	6	2	107.65	**052**		
0.5	0.05	0.5	0.45	4.0	55	15	6	2	109.33	**053**		
0.5	0.05	0.5	0.45	5.0	55	15	6	2	110.31	**054**		
0.6	0.06	0.6	0.58	2.0	55	15	6	2	89.77	**061**		
0.6	0.06	0.6	0.58	3.0	55	15	6	2	80.98	**960**		
0.6	0.06	0.6	0.58	5.0	65	15	6	2			97.41	**063**
0.6	0.06	0.6	0.58	6.0	65	15	6	2	93.48	**961**		
0.8	0.08	0.8	0.77	2.5	55	15	6	2	89.43	**081**		
0.8	0.08	0.8	0.77	4.0	55	15	6	2	80.98	**980**		
0.8	0.08	0.8	0.77	6.5	65	15	6	2			99.47	**083**
0.8	0.08	0.8	0.77	8.0	65	15	6	2	93.48	**981**		
1.0	0.10	1.0	0.95	3.0	55	15	6	2	89.43	**101**		
1.0	0.10	1.0	0.95	5.0	55	15	6	2	80.98	**010**		
1.0	0.10	1.0	0.95	8.0	65	15	6	2			94.55	**103**
1.0	0.10	1.0	0.95	10.0	65	15	6	2			93.48	**011**
1.0	0.10	1.0	0.95	12.0	65	15	6	2			105.73	**105**
1.2	0.12	1.2	1.15	3.0	55	15	6	2	89.43	**121**		
1.2	0.12	1.2	1.15	6.0	55	15	6	2	80.98	**012**		
1.2	0.12	1.2	1.15	10.0	65	15	6	2	99.47	**123**		
1.2	0.12	1.2	1.15	12.0	65	15	6	2			93.48	**013**
1.3	0.13	1.3	1.25	4.0	55	15	6	2	89.43	**131**		
1.3	0.13	1.3	1.25	7.0	55	15	6	2	89.77	**132**		
1.3	0.13	1.3	1.25	11.0	65	15	6	2			99.47	**133**
1.3	0.13	1.3	1.25	13.0	65	15	6	2			105.73	**134**
1.5	0.15	1.5	1.44	5.0	55	15	6	2	89.77	**151**		
1.5	0.15	1.5	1.44	7.5	55	15	6	2	80.98	**015**		
1.5	0.15	1.5	1.44	12.0	65	15	6	2			105.73	**153**
1.5	0.15	1.5	1.44	15.0	65	15	6	2			93.48	**016**
1.6	0.16	1.6	1.52	5.0	55	15	6	2	89.77	**161**		
1.6	0.16	1.6	1.52	8.0	55	15	6	2	89.77	**162**		
1.6	0.16	1.6	1.52	13.0	65	15	6	2			99.47	**163**
1.6	0.16	1.6	1.52	16.0	65	15	6	2			105.73	**164**
1.8	0.18	1.8	1.72	5.5	55	15	6	2	89.43	**181**		
1.8	0.18	1.8	1.72	9.0	55	15	6	2	89.77	**182**		
1.8	0.18	1.8	1.72	14.5	65	15	6	2			99.47	**183**

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→ v_c/f_z Page 480–486

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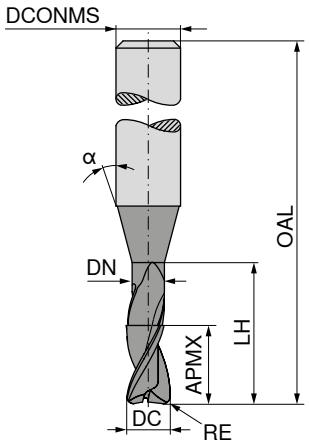
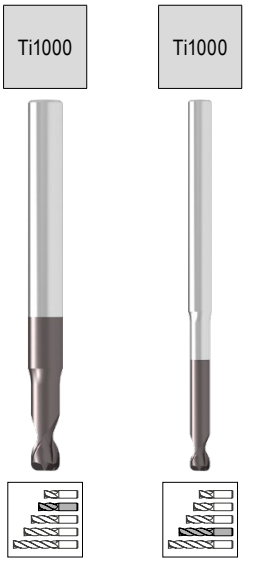
Continued on next page

Torus Cutter

H | λ_s=30° γ_s= 3° | ≤ 54 HRC





Factory standard | Factory standard

DC f8 mm	RE -0.015 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 649 ... £ V0/5A		50 649 ... £ V0/5A	
1.8	0.18	1.8	1.72	18.0	65	15	6	2			105.73	**184**
2.0	0.20	2.0	1.92	6.0	55	15	6	2	89.43	**201**		
2.0	0.20	2.0	1.92	10.0	55	15	6	2	89.77	**202**		
2.0	0.20	2.0	1.92	14.0	55	15	6	2	80.98	**020**		
2.0	0.20	2.0	1.92	16.0	65	15	6	2			105.73	**204**
2.0	0.20	2.0	1.92	20.0	65	15	6	2			93.48	**021**
2.3	0.23	2.3	2.22	7.0	55	15	6	2	89.77	**231**		
2.3	0.23	2.3	2.22	11.5	55	15	6	2	94.55	**232**		
2.3	0.23	2.3	2.22	18.5	65	15	6	2			105.73	**233**
2.3	0.23	2.3	2.22	23.0	65	15	6	2			105.73	**234**
3.0	0.30	3.0	2.90	9.0	65	15	6	2	94.55	**301**		
3.0	0.30	3.0	2.90	15.0	65	15	6	2	105.73	**302**		
3.0	0.30	3.0	2.90	24.0	100	15	6	2			114.65	**303**
3.0	0.30	3.0	2.90	30.0	100	15	6	2			119.23	**304**
4.0	0.40	4.0	3.90	12.0	65	15	6	2	105.73	**401**		
4.0	0.40	4.0	3.90	20.0	65	15	6	2	105.73	**402**		
4.0	0.40	4.0	3.90	32.0	100	15	6	2			119.23	**403**
4.0	0.40	4.0	3.90	40.0	100	15	6	2			123.21	**404**
5.0	0.50	5.0	4.90	15.0	65	15	6	2	105.73	**501**		
5.0	0.50	5.0	4.90	25.0	65	15	6	2	105.73	**502**		
5.0	0.50	5.0	4.90	40.0	100	15	6	2			123.21	**503**
5.0	0.50	5.0	4.90	50.0	100	15	6	2			127.01	**504**
6.0	0.60	6.0	5.90	18.0	65	15	6	2	105.73	**601**		
6.0	0.60	6.0	5.90	30.0	100	15	6	2			119.23	**602**
6.0	0.60	6.0	5.90	48.0	100	15	6	2			127.01	**603**
6.0	0.60	6.0	5.90	60.0	100	15	6	2			130.73	**604**

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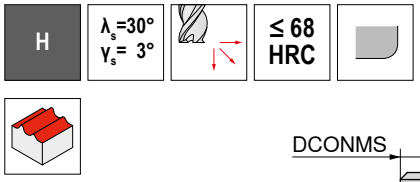
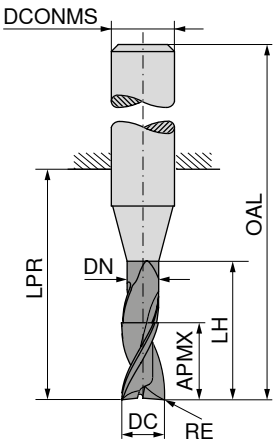
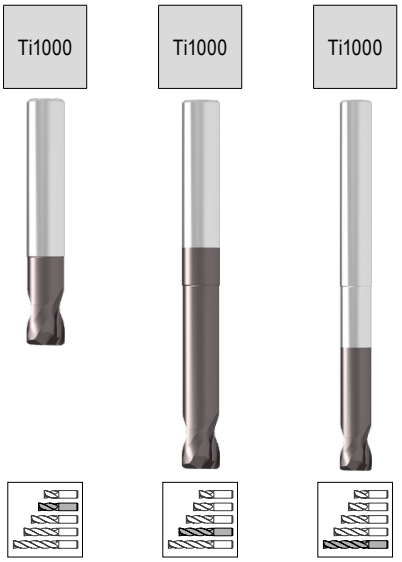
→ v_c/f_z Page 480–486

Torus Cutter







Factory standard | Factory standard | Factory standard



DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 651 ... £ V0/5A		50 651 ... £ V0/5A		50 651 ... £ V0/5A	
2	0.3	2	1.8	7	14	50	6	2	69.85	020				
2	0.5	2	1.8	7	14	50	6	2	69.85	021				
2	0.3	2	1.8	7	24	60	6	2			69.85	022		
2	0.5	2	1.8	7	24	60	6	2			69.85	023		
2	0.3	2	1.8	7	49	85	6	2					101.39	024
2	0.5	2	1.8	7	49	85	6	2					101.39	025
3	0.3	2	2.8	7	14	50	6	2	69.85	030				
3	0.5	2	2.8	7	14	50	6	2	69.85	031				
3	0.3	2	2.8	12	24	60	6	2			69.85	032		
3	0.5	2	2.8	12	24	60	6	2			69.85	033		
3	0.3	2	2.8	12	49	85	6	2					101.39	034
3	0.5	2	2.8	12	49	85	6	2					101.39	035
4	0.3	3	3.8	13	18	54	6	2	69.85	040				
4	0.5	3	3.8	13	18	54	6	2	69.85	041				
4	1.0	3	3.8	13	18	54	6	2	69.85	042				
4	0.3	3	3.8	20	39	75	6	2			97.41	043		
4	0.5	3	3.8	20	39	75	6	2			97.41	044		
4	1.0	3	3.8	20	39	75	6	2			97.41	045		
4	0.3	3	3.8	20	49	85	6	2					101.39	046
4	0.5	3	3.8	20	49	85	6	2					101.39	047
4	1.0	3	3.8	20	49	85	6	2					101.39	048
5	0.5	3	4.6	13	18	54	6	2	69.85	050				
5	1.0	3	4.6	13	18	54	6	2	69.85	051				
5	1.5	3	4.6	13	18	54	6	2	69.85	052				
5	1.0	3	4.6	20	39	75	6	2			97.41	053		
5	1.5	3	4.6	20	39	75	6	2			97.41	054		
6	0.5	4	5.6	14	18	54	6	2	69.85	060				
6	1.0	4	5.6	14	18	54	6	2	69.85	061				
6	2.0	4	5.6	14	18	54	6	2	69.85	062				
6	0.5	4	5.6	45	49	85	6	2			97.41	066		
6	1.0	4	5.6	45	49	85	6	2			130.80	067		
6	2.0	4	5.6	45	49	85	6	2			97.41	068		
6	0.5	4	5.6	25	64	100	6	2					112.75	069
6	1.0	4	5.6	25	64	100	6	2					112.75	070
6	2.0	4	5.6	25	64	100	6	2					112.75	071
6	0.5	4	5.6	25	49	85	8	2			130.80	063		
6	1.0	4	5.6	25	49	85	8	2			97.41	064		
6	2.0	4	5.6	25	49	85	8	2			130.80	065		
8	0.5	4	7.6	16	22	58	8	2	85.04	080				
8	1.0	4	7.6	16	22	58	8	2	85.04	081				

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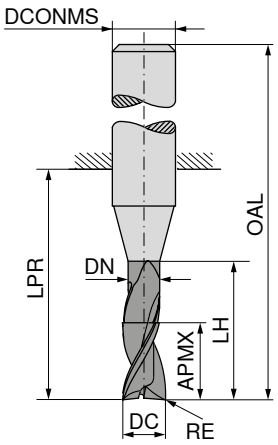
N	○	○	○
S	○	○	○
H	○	○	○
O	○	○	○

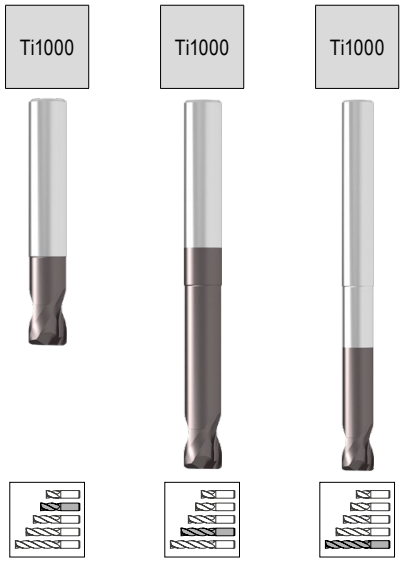
→ v_c/f_z Page 480–486

Continued on next page

Torus Cutter

H | λ_s=30° γ_s= 3° | ≤ 68 HRC





Factory standard | Factory standard | Factory standard

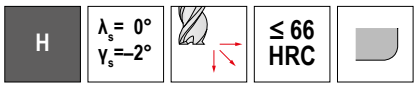
DC f8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 651 ... £ V0/5A		50 651 ... £ V0/5A		50 651 ... £ V0/5A	
8	2.0	4	7.6	16	22	58	8	2	85.04	082				
8	0.5	4	7.6	50	64	100	8	2					181.47	083
8	2.0	4	7.6	50	64	100	8	2					129.45	084
8	1.0	4	7.6	30	60	100	10	2					181.47	085
8	2.0	4	7.6	30	60	100	10	2					177.90	086
10	1.0	6	9.6	18	26	66	10	2	105.54	100				
10	3.0	6	9.6	18	26	66	10	2	105.54	101				
10	1.0	6	9.6	50	60	100	10	2			179.01	102		
10	2.0	6	9.6	50	60	100	10	2			105.54	103		
10	3.0	6	9.6	50	60	100	10	2			179.01	104		
10	1.0	6	9.6	60	80	120	10	2					214.88	105
10	2.0	6	9.6	60	80	120	10	2					179.01	106
10	3.0	6	9.6	60	80	120	10	2					214.88	107
10	1.0	6	9.6	30	75	120	12	2					276.97	108
10	2.0	6	9.6	30	75	120	12	2					276.97	109
10	3.0	6	9.6	30	75	120	12	2					276.97	110
12	1.0	8	11.5	18	28	73	12	2	154.32	120				
12	2.0	8	11.5	18	28	73	12	2	154.32	121				
12	3.0	8	11.5	18	28	73	12	2	154.32	122				
12	4.0	8	11.5	18	28	73	12	2	154.32	123				
12	1.0	8	11.5	45	55	100	12	2			230.82	124		
12	2.0	8	11.5	45	55	100	12	2			230.82	125		
12	3.0	8	11.5	45	55	100	12	2			230.82	126		
12	4.0	8	11.5	45	55	100	12	2			230.82	127		
12	1.0	8	11.5	70	75	120	12	2					277.15	128
12	2.0	8	11.5	70	75	120	12	2					277.15	129
12	3.0	8	11.5	70	75	120	12	2					277.15	130
12	4.0	8	11.5	70	75	120	12	2					277.15	131
12	1.0	8	11.5	35	102	150	16	2					563.96	132
12	2.0	8	11.5	35	102	150	16	2					563.96	133
12	3.0	8	11.5	35	102	150	16	2					563.96	134
12	4.0	8	11.5	35	102	150	16	2					563.96	135

P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H	○	○	○
O	○	○	○

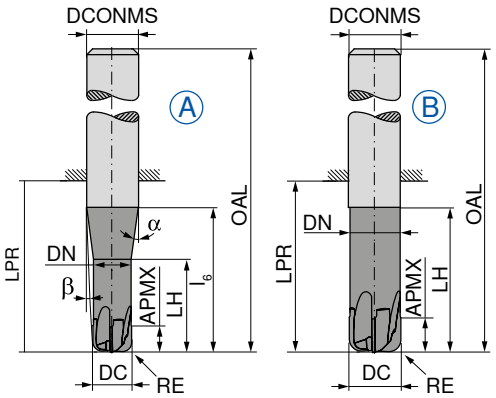
→ v_c/f_z Page 480–486

Torus Cutter

▲ Radius accuracy: ± 0,005 mm
▲ High-performance tool for clearing
▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °













Factory standard



52 732 ...

DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	£ V1	
3	0.75	2.0	2.8	10	20	21	57	11,5	5	6	4	A	177.90	**033**
4	1.00	2.5	3.8	12	20	21	57	11	3,5	6	4	A	177.90	**044**
5	1.25	3.0	4.7	14	20	21	57	10	2	6	4	A	183.00	**055**
6	1.50	4.0	5.6	20		21	57			6	4	B	185.45	**065**
8	1.00	5.0	7.6	25		27	63			8	4	B	262.33	**084**
8	2.00	5.0	7.6	25		27	63			8	4	B	256.25	**086**
10	1.00	6.0	9.6	30		32	72			10	4	B	299.73	**104**
10	1.00	6.0	9.6	30		32	72			10	6	B	315.49	**105**
10	2.50	6.0	9.6	30		32	72			10	4	B	292.72	**107**
10	2.50	6.0	9.6	30		32	72			10	6	B	315.49	**108**
12	1.00	7.0	11.5	35		38	83			12	4	B	385.34	**124**
12	1.00	7.0	11.5	35		38	83			12	8	B	444.77	**125**
12	3.00	7.0	11.5	35		38	83			12	4	B	376.22	**128**
12	3.00	7.0	11.5	35		38	83			12	8	B	444.77	**129**
16	4.00	8.0	15.5	40		44	92			16	4	B	564.51	**169**

P	●
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K	○
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S	
H	●
O	

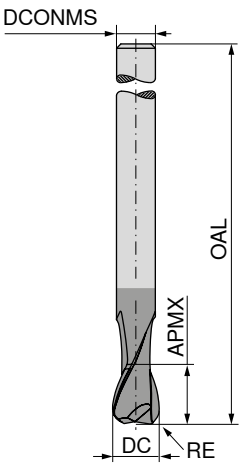
→ v_c/f_z Page 480–486

Intermediate Size Torus Cutter

▲ Reduced shank Ø for flexible application in various overhang lengths!

H | λ_s=45° γ_s=12° | ≤ 56 HRC | Ti1000









Factory standard



52 107 ...

DC e8 mm	RE ±0.01 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
7	0.5	9	120	6	4	209.76	**075**
7	1.0	9	120	6	4	209.76	**076**
7	1.5	9	120	6	4	209.76	**077**
9	0.5	12	135	8	4	272.02	**095**
9	1.0	12	135	8	4	272.02	**096**
9	1.5	12	135	8	4	272.02	**097**
11	1.0	15	150	10	4	353.64	**115**
11	1.5	15	150	10	4	353.64	**116**
11	2.0	15	150	10	4	353.64	**117**
13	1.0	18	160	12	4	451.01	**135**
13	1.5	18	160	12	4	451.01	**136**
13	2.0	18	160	12	4	451.01	**137**
15	1.0	21	160	14	4	511.57	**156**
15	1.5	21	160	14	4	511.57	**157**
15	2.0	21	160	14	4	511.57	**158**
17	1.0	24	180	16	4	615.60	**176**
17	1.5	24	180	16	4	615.60	**177**
17	2.0	24	180	16	4	615.60	**178**
17	3.0	24	180	16	4	615.60	**179**

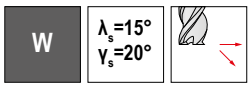
P	○
M	●
K	○
N	●
S	●
H	
O	●

→ v_c/f_z Page 480–486

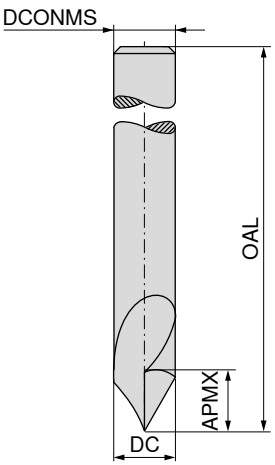
Engraving cutter 60°

W

λ_s=15°
γ_s=20°









Factory standard



52 195 ...

DC h6 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
3	15	50	3	1	67.74	**030**
4	18	50	4	1	71.12	**040**
6	20	54	6	1	77.45	**060**

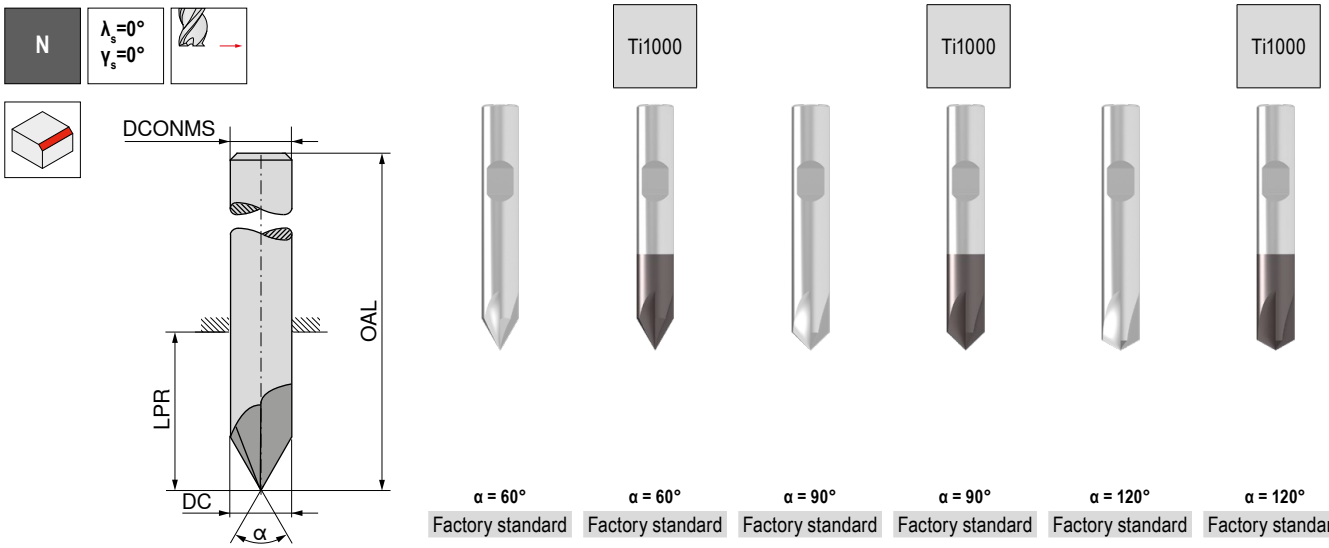
P	○
M	○
K	○
N	●
S	○
H	
O	●

→ v_c/f_z Page 480–483

14

NC deburring cutter

▲ 50 940 ... / 50 943 ... Point angle α = 60°
▲ 50 941 ... / 50 944 ... Point angle α = 90°
▲ 50 942 ... / 50 945 ... Point angle α = 120°

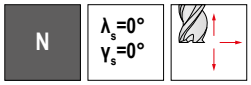


DC h6 mm	OAL mm	LPR mm	DCONMS h6 mm	ZEFP	α = 60° Factory standard 50 940 ... £ V0/5A		α = 60° Factory standard 50 943 ... £ V0/5A		α = 90° Factory standard 50 941 ... £ V0/5A		α = 90° Factory standard 50 944 ... £ V0/5A		α = 120° Factory standard 50 942 ... £ V0/5A		α = 120° Factory standard 50 945 ... £ V0/5A	
4	54	26	4	4	34.64	040 1)	47.10	040 1)	34.64	040 1)	47.10	040 1)	34.64	040 1)	47.10	040 1)
6	54	18	6	4	44.48	060	62.86	060	44.48	060	62.86	060	44.48	060	62.86	060
8	58	22	8	4	53.73	080	76.50	080	53.73	080	76.50	080	53.73	080	76.50	080
10	66	26	10	4	66.07	100	92.99	100	66.07	100	92.99	100	66.07	100	92.99	100
12	73	28	12	4	92.68	120	126.81	120	92.68	120	126.81	120	92.68	120	126.81	120
P					●		●		●		●		●		●	
M					○		○		○		○		○		○	
K					●		●		●		●		●		●	
N					○		○		○		○		○		○	
S					○		○		○		○		○		○	
H							○				○				○	
O					●		●		●		●		●		●	

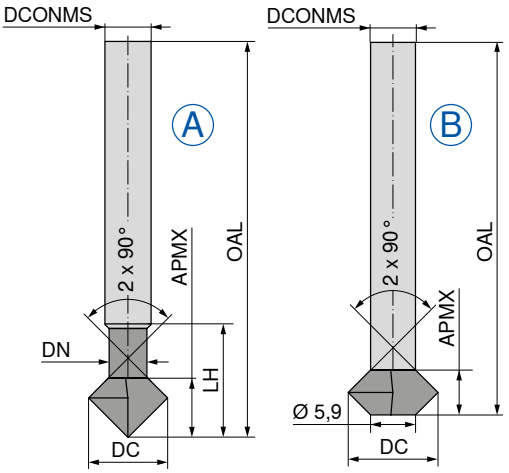
1) DIN 6535 HA Shank

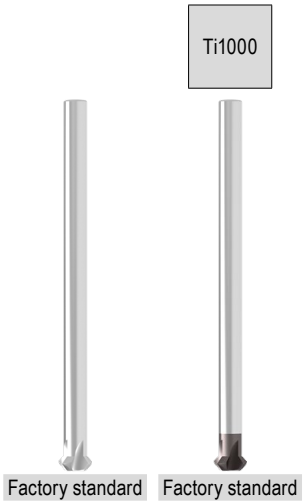
→ v_c/f_z Page 480–483

NC front and rear chamfer milling cutter







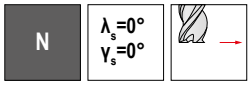


DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	Fig.	52 158 ... £ V1		52 159 ... £ V1	
3	2.0	2.2	12.0	75	4	4	A	111.27	**030**	126.44	**030**
4	2.7	2.9	17.7	75	4	4	A	111.27	**040**	125.73	**040**
5	3.0	3.9	18.0	75	5	4	A	114.10	**050**	130.61	**050**
6	4.0	3.9	19.0	100	6	4	A	118.46	**060**	130.73	**060**
8	2.0			100	6	4	B	153.95	**080**	173.13	**080**
10	4.0			100	6	4	B	192.32	**100**	213.74	**100**
12	6.0			100	6	4	B	230.64	**120**	254.76	**120**

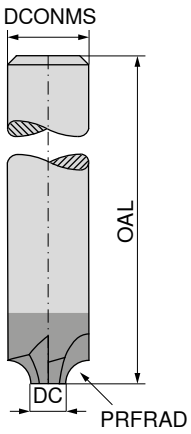
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		○
O	●	●

→ v_c/f_z Page 480–483

Quarter-round profile milling cutter, concave









Factory standard



52 249 ...

PRFRAD +/-0,02 mm	DC mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
0.50	7.0	70	8	4	206.73	**005**
1.00	6.0	70	8	4	206.52	**010**
1.25	7.5	75	10	4	210.61	**012**
1.50	7.0	75	10	4	219.81	**015**
2.00	6.0	75	10	4	219.81	**020**
2.50	7.0	73	12	4	246.78	**025**
3.00	6.0	73	12	4	246.78	**030**
3.50	9.0	80	16	4	310.76	**035**
4.00	8.0	80	16	4	310.76	**040**
4.50	7.0	80	16	4	310.76	**045**
5.00	10.0	80	20	4	441.15	**050**
6.00	8.0	80	20	4	441.15	**060**

P	●
M	○
K	●
N	○
S	○
H	○
O	●

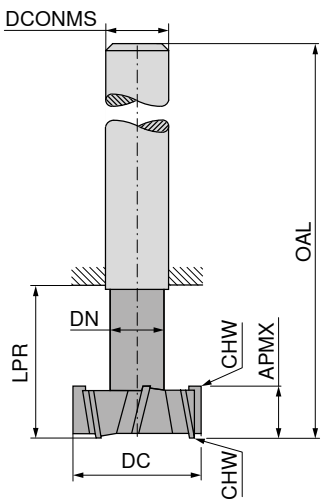
→ v_c/f_z Page 480–483

T-slot milling cutters

▲ Solid carbide cutting head with soldered steel shank
▲ For slots according to DIN 650
▲ **until the tool is fully in use, the feed rate fz must be reduced by 50%**







Ti1000



DIN 851 A



54 065 ...

DC e9 mm	APMX d11 mm	DN mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V3	
11.0	4	4	13.5	53.5	10	0.10	6	224.53	**11000**
12.5	6	5	17.0	57.0	10	0.10	6	235.04	**12500**
16.0	8	7	22.0	62.0	10	0.20	6	280.94	**16000**
18.0	8	8	25.0	70.0	12	0.20	6	293.91	**18000**
19.0	9	8	26.0	71.0	12	0.20	6	302.38	**19000**
21.0	9	10	29.0	74.0	12	0.25	6	312.31	**21000**
22.0	10	10	30.0	75.0	12	0.25	6	337.26	**22000**
25.0	11	12	34.0	82.0	16	0.30	8	369.35	**25000**
28.0	12	13	37.0	85.0	16	0.30	8	415.84	**28000**
32.0	14	15	42.0	90.0	16	0.35	8	459.68	**32000**
36.0	16	17	47.0	103.0	25	0.40	8	529.44	**36000**
40.0	18	19	52.0	108.0	25	0.40	10	610.82	**40000**

P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 455

Information on applications can be found in the Technical Information on → **page 488.**

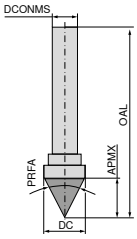
Carbide burrs, similar to DIN 8033


Teeth **Z3**: Application "medium"


Teeth **Z6**: Application "medium"

v_c in min = 300–600

KSJ



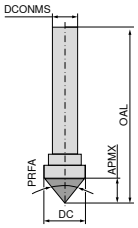

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 928 ... £ U9		50 928 ... £ U9	
6	5	52	6	60°	23.14	606	25.14	706
12	10	60	6	60°	30.86	612 1)	33.85	712 1)

1) Steel shank / carbide head – shank tolerance h9

KSK



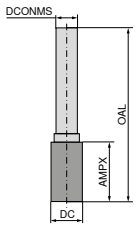

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 927 ... £ U9		50 927 ... £ U9	
6	3	52	6	90°	22.17	606	24.16	706
12	6	56	6	90°	26.63	612 1)	29.36	712 1)

1) Steel shank / carbide head – shank tolerance h9

ZYA



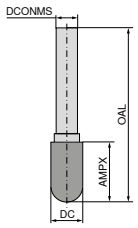

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 921 ... £ U9		50 921 ... £ U9	
3	13	40	3	11.18	303	12.20	403
6	13	48	3	19.90	306 1)	22.17	406 1)
6	16	55	6	22.64	606	24.89	706
8	20	65	6	28.87	608 1)	31.38	708 1)
10	20	65	6	32.58	610 1)	35.60	710 1)
12	25	70	6	41.79	612 1)	45.77	712 2)

1) Steel shank / carbide head – shank tolerance h9
2) Steel shank / carbide head – shank tolerance h7

WRC



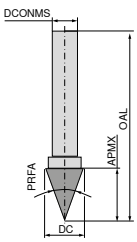

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	50 922 ... £ U9		50 922 ... £ U9	
3	13	40	3	14.21	303	15.44	403
6	13	48	3	22.64	306 1)	24.66	406 1)
6	16	50	6	25.14	606	27.87	706
8	18	63	6	32.33	608 1)	35.60	708 1)
10	20	65	6	37.33	610 1)	40.82	710 1)
12	25	70	6	50.28	612 1)	55.25	712 1)
16	25	70	6	66.66	616 1)	73.14	716 1)

1) Steel shank / carbide head – shank tolerance h9

SKM



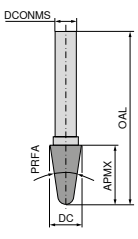

Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 926 ... £ U9		50 926 ... £ U9	
3	14	40	3	9.5°	13.42	303	14.94	403
6	13	48	3	23.0°	18.89	306 1)	20.40	406 1)
6	18	50	6	16.0°	23.64	606	25.88	706
8	20	65	6	20.0°	22.64	608 1)	24.66	708 1)
10	20	65	6	25.0°	26.63	610 1)	29.36	710 1)
12	25	70	6	25.0°	36.11	612 1)	39.81	712 1)

1) Steel shank / carbide head – shank tolerance h9

KEL




Z3


Z6

DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 923 ... £ U9		50 923 ... £ U9	
3	14	40	3	6°	13.42	303	14.94	403
6	20	55	3	12°	23.14	306 1)	25.14	406 1)
6	20	50	6	10°	25.14	606	27.87	706
8	20	65	6	14°	35.60	608 1)	39.06	708 1)
10	20	65	6	14°	44.30	610 1)	48.77	710 1)
12	30	75	6	14°	52.76	612 1)	58.01	712 1)

1) Steel shank / carbide head – shank tolerance h9

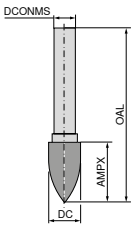
Carbide burrs, similar to DIN 8033


Teeth **Z3**: Application "medium"


Teeth **Z6**: Application "medium"

v_c in min = 300–600

SPG



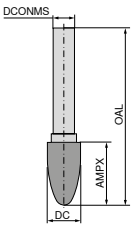

Z3


Z6

DC	APMX	OAL	DCONMS	50 925 ... £ U9		50 925 ... £ U9	
mm	mm	mm	mm				
3	13	40	3	13.23	303	14.43	403
6	13	48	3	19.40	306 1)	21.66	406 1)
6	18	50	6	28.65	606	30.86	706
8	20	65	6	28.87	608 1)	31.85	708 1)
10	20	65	6	35.60	610 1)	39.06	710 1)
12	25	70	6	42.31	612 2)	46.04	712 1)

1) Steel shank / carbide head – shank tolerance h9
2) Steel shank / carbide head – shank tolerance h7

RBF



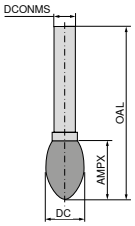

Z3


Z6

DC	APMX	OAL	DCONMS	50 924 ... £ U9		50 924 ... £ U9	
mm	mm	mm	mm				
3	13	40	3	13.42	303	14.94	403
6	13	48	3	21.66	306 1)	23.64	406 1)
6	18	50	6	29.36	606	32.58	706
8	20	65	6	31.38	608 1)	34.60	708 1)
10	20	65	6	36.32	610 1)	39.81	710 1)
12	25	70	6	43.81	612 1)	48.29	712 1)
16	30	75	6	62.45	616 1)	68.94	716 1)

1) Steel shank / carbide head – shank tolerance h9

TRE



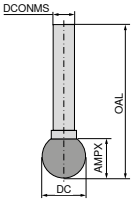

Z3


Z6

DC	APMX	OAL	DCONMS	50 929 ... £ U9		50 929 ... £ U9	
mm	mm	mm	mm				
3	7	40	3	13.42	303	14.94	403
6	10	45	3	19.90	306 1)	21.89	406 1)
6	10	50	6	26.89	606	29.63	706
8	13	58	6	29.85	608 1)	32.83	708 1)
10	16	61	6	33.85	610 1)	37.58	710 1)
12	20	65	6	42.80	612 1)	46.80	712 1)

1) Steel shank / carbide head – shank tolerance h9

KUD



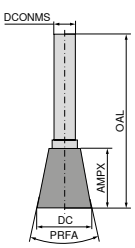

Z3


Z6

DC	APMX	OAL	DCONMS	50 930 ... £ U9		50 930 ... £ U9	
mm	mm	mm	mm				
3	2.7	40.0	3	13.42	303	14.94	403
6	5.4	40.4	3	18.19	306 1)	19.90	406 1)
6	5.0	50.0	6	25.88	606	28.87	706
8	7.2	52.2	6	24.66	608 1)	27.15	708 1)
10	9.0	54.0	6	29.13	610 1)	31.85	710 1)
12	10.8	55.8	6	34.84	612 1)	38.33	712 1)
16	14.4	59.4	6	49.27	616 1)	54.02	716 1)

1) Steel shank / carbide head – shank tolerance h9

WKN




Z3


Z6

DC	APMX	OAL	DCONMS	PRFA	50 931 ... £ U9		50 931 ... £ U9	
mm	mm	mm	mm					
3	7	40	3	10°	13.42	303	14.94	403
6	7	50	6	10°	24.66	606	27.15	706
12	13	58	6	20°	33.12	612 1)	36.11	712 1)

1) Steel shank / carbide head – shank tolerance h9

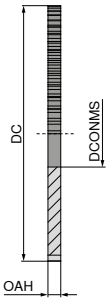
14

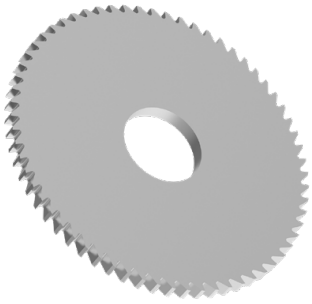
Solid carbide circular saw blades, fine-toothed, DIN 1837A

▲ fine-straight-cut









DIN 1837 A

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 700 ... £ V6	
15	0.20	5	64	23.05	102
15	0.25	5	64	23.05	103
15	0.30	5	64	23.05	104
15	0.35	5	64	23.05	105
15	0.40	5	64	23.05	106
15	0.50	5	48	23.05	107
15	0.60	5	48	23.05	108
15	0.70	5	48	27.37	109
15	0.80	5	40	27.37	110
15	0.90	5	40	28.82	111
15	1.00	5	40	28.82	112
15	1.10	5	40	30.25	113
15	1.20	5	40	30.25	114
15	1.30	5	40	30.25	115
15	1.40	5	40	30.25	116
15	1.50	5	40	33.13	117
15	1.60	5	40	36.00	118
15	1.70	5	40	38.89	119
15	1.80	5	40	38.89	120
15	1.90	5	40	40.33	121
15	2.00	5	40	40.33	122
15	2.50	5	40	56.17	123
15	3.00	5	40	63.38	124
15	3.50	5	40	70.57	125
15	4.00	5	40	87.86	126
15	4.50	5	40	102.27	127
15	5.00	5	40	106.59	128
15	5.50	5	40	126.75	129
15	6.00	5	40	131.08	130
20	0.20	5	80	25.92	152
20	0.25	5	64	25.92	153
20	0.30	5	64	25.92	154
20	0.35	5	64	25.92	155
20	0.40	5	64	25.92	156
20	0.50	5	48	25.92	157
20	0.60	5	48	25.92	158
20	0.70	5	48	28.82	159
20	0.80	5	48	28.82	160
20	0.90	5	40	30.25	161
20	1.00	5	40	33.13	162
20	1.10	5	40	36.00	163
20	1.20	5	40	36.00	164
20	1.30	5	40	37.46	165
20	1.40	5	40	40.33	166
20	1.50	5	40	40.33	167
20	1.60	5	40	43.21	168
20	1.70	5	40	44.66	169
20	1.80	5	32	44.66	170
20	1.90	5	32	47.52	171
20	2.00	5	32	47.52	172
20	2.50	5	32	59.07	173
20	3.00	5	32	67.70	174
20	3.50	5	24	74.90	175
20	4.00	5	24	89.30	176
20	4.50	5	24	106.59	177

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 700 ... £ V6	
20	5.00	5	24	110.91	178
20	5.50	5	24	129.65	179
20	6.00	5	24	133.96	180
25	0.20	8	80	24.48	202
25	0.25	8	80	24.48	203
25	0.30	8	80	24.48	204
25	0.35	8	64	24.48	205
25	0.40	8	64	24.48	206
25	0.50	8	64	28.82	207
25	0.60	8	64	28.82	208
25	0.70	8	48	31.70	209
25	0.80	8	48	36.00	210
25	0.90	8	48	38.89	211
25	1.00	8	48	38.89	212
25	1.10	8	48	44.66	213
25	1.20	8	48	44.66	214
25	1.30	8	40	46.09	215
25	1.40	8	40	47.52	216
25	1.50	8	40	47.52	217
25	1.60	8	40	53.29	218
25	1.70	8	40	53.29	219
25	1.80	8	40	54.74	220
25	1.90	8	40	59.07	221
25	2.00	8	40	60.49	222
25	2.50	8	40	73.47	223
25	3.00	8	32	95.08	224
25	3.50	8	32	105.14	225
25	4.00	8	32	118.12	226
25	4.50	8	32	135.39	227
25	5.00	8	32	142.59	228
25	5.50	8	24	162.77	229
25	6.00	8	24	169.96	230
30	0.20	8	100	31.70	252
30	0.25	8	100	31.70	253
30	0.30	8	80	31.70	254
30	0.35	8	80	31.70	255
30	0.40	8	80	31.70	256
30	0.50	8	80	33.13	257
30	0.60	8	64	33.13	258
30	0.70	8	64	40.33	259
30	0.80	8	64	44.66	260
30	0.90	8	64	47.52	261
30	1.00	8	64	47.52	262
30	1.10	8	64	53.29	263
30	1.20	8	48	53.29	264
30	1.30	8	48	54.74	265
30	1.40	8	48	59.07	266
30	1.50	8	48	59.07	267
30	1.60	8	48	63.38	268
30	1.70	8	48	63.38	269
30	1.80	8	48	64.81	270
30	1.90	8	48	67.70	271
30	2.00	8	48	70.57	272
30	2.50	8	40	83.55	273
30	3.00	8	40	99.39	274
30	3.50	8	40	112.36	275
30	4.00	8	40	126.75	276
30	4.50	8	32	145.48	277
30	5.00	8	32	152.68	278
30	5.50	8	32	172.85	279
30	6.00	8	32	180.05	280

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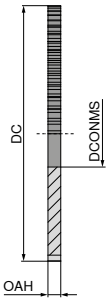
→ v_c/f_z Page 469

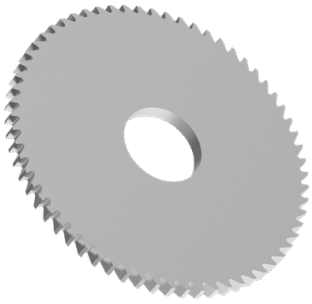
Solid carbide circular saw blades, fine-toothed, DIN 1837A

▲ fine-straight-cut









DIN 1837 A

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 700 ... £ V6	
40	0.20	10	128	38.89	302
40	0.25	10	100	38.89	303
40	0.30	10	100	38.89	304
40	0.35	10	100	38.89	305
40	0.40	10	100	41.77	306
40	0.50	10	80	44.66	307
40	0.60	10	80	44.66	308
40	0.70	10	80	51.85	309
40	0.80	10	80	53.29	310
40	0.90	10	64	53.29	311
40	1.00	10	64	54.74	312
40	1.10	10	64	56.17	313
40	1.20	10	64	59.07	314
40	1.30	10	64	60.49	315
40	1.40	10	64	63.38	316
40	1.50	10	64	66.27	317
40	1.60	10	64	67.70	318
40	1.70	10	48	70.57	319
40	1.80	10	48	73.47	320
40	1.90	10	48	74.90	321
40	2.00	10	48	74.90	322
40	2.50	10	48	96.50	323
40	3.00	10	48	110.91	324
40	3.50	10	48	123.87	325
40	4.00	10	40	138.27	326
40	4.50	10	40	155.57	327
40	5.00	10	40	165.65	328
40	5.50	10	40	185.81	329
40	6.00	10	40	195.89	330
50	0.20	13	128	63.38	352
50	0.25	13	128	61.94	353
50	0.30	13	128	51.85	354
50	0.35	13	100	51.85	355
50	0.40	13	100	51.85	356
50	0.50	13	100	54.74	357
50	0.60	13	100	54.74	358
50	0.70	13	80	56.17	359
50	0.80	13	80	61.94	360
50	0.90	13	80	63.38	361
50	1.00	13	80	66.27	362
50	1.10	13	80	67.70	363
50	1.20	13	80	69.14	364
50	1.30	13	64	77.78	365
50	1.40	13	64	79.21	366
50	1.50	13	64	83.55	367
50	1.60	13	64	84.99	368
50	1.70	13	64	86.42	369
50	1.80	13	64	92.18	370
50	1.90	13	64	92.18	371
50	2.00	13	64	95.08	372
50	2.50	13	64	115.22	373
50	3.00	13	48	133.96	374
50	3.50	13	48	152.68	375
50	4.00	13	48	161.33	376
50	4.50	13	48	187.25	377

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 700 ... £ V6	
50	5.00	13	48	197.34	378
50	5.50	13	40	220.38	379
50	6.00	13	40	229.04	380
63	0.20	16	160	93.62	402
63	0.25	16	160	89.30	403
63	0.30	16	128	83.55	404
63	0.35	16	128	79.21	405
63	0.40	16	128	72.01	406
63	0.50	16	128	70.57	407
63	0.60	16	100	72.01	408
63	0.70	16	100	80.66	409
63	0.80	16	100	89.30	410
63	0.90	16	100	89.30	411
63	1.00	16	100	92.18	412
63	1.10	16	80	95.08	413
63	1.20	16	80	97.95	414
63	1.30	16	80	100.82	415
63	1.40	16	80	102.27	416
63	1.50	16	80	103.70	417
63	1.60	16	80	109.46	418
63	1.70	16	80	115.22	419
63	1.80	16	80	116.67	420
63	1.90	16	80	122.45	421
63	2.00	16	80	125.30	422
63	2.50	16	64	151.24	423
63	3.00	16	64	171.40	424
63	3.50	16	64	195.89	425
63	4.00	16	64	214.61	426
63	4.50	16	64	246.32	427
63	5.00	16	48	256.38	428
63	5.50	16	48	288.07	429
63	6.00	16	48	298.16	430
80	0.30	22	160	127.52	45400
80	0.35	22	160	124.37	45500
80	0.40	22	160	119.06	45600
80	0.50	22	128	89.61	45700
80	0.60	22	128	86.96	45800
80	0.70	22	128	94.03	45900
80	0.80	22	128	94.03	46000
80	0.90	22	100	97.92	46100
80	1.00	22	100	97.92	46200
80	1.10	22	100	100.54	46300
80	1.20	22	100	104.96	46400
80	1.30	22	100	109.35	46500
80	1.40	22	100	113.44	46600
80	1.50	22	100	116.09	46700
80	1.60	22	100	119.06	46800
80	1.70	22	80	128.71	46900
80	1.80	22	80	130.16	47000
80	1.90	22	80	132.81	47100
80	2.00	22	80	137.28	47200
80	2.50	22	80	162.22	47300
80	3.00	22	80	194.53	47400
80	3.50	22	64	215.13	47500
80	4.00	22	64	233.33	47600
80	4.50	22	64	275.15	47700
80	5.00	22	64	283.60	47800
80	5.50	22	64	314.44	47900
80	6.00	22	64	322.64	48000

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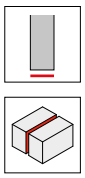
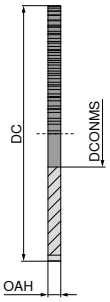
→ v_c/f_z Page 469

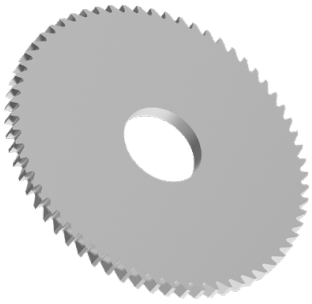
14

Solid carbide circular saw blades, fine-toothed, DIN 1837A

▲ fine-straight-cut







DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 700 ... £ V6	
200	1.5	32	160	904.64	71700
200	1.6	32	160	920.19	71800
200	2.0	32	160	1,089.41	72200
200	2.5	32	160	1,260.67	72300
200	3.0	32	128	1,429.40	72400
200	4.0	32	128	1,786.14	72600

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K	●
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O	●

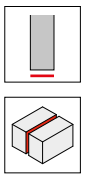
→ v_c/f_z Page 469

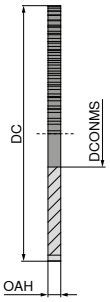
DIN 1837 A

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 700 ... £ V6	
100	0.5	22	160	169.21	50700
100	0.6	22	160	161.98	50800
100	0.7	22	128	155.60	50900
100	0.8	22	128	142.22	51000
100	0.9	22	128	139.46	51100
100	1.0	22	128	133.90	51200
100	1.1	22	128	140.29	51300
100	1.2	22	128	147.89	51400
100	1.3	22	100	157.15	51500
100	1.4	22	100	163.68	51600
100	1.5	22	100	168.49	51700
100	1.6	22	100	177.78	51800
100	1.7	22	100	187.06	51900
100	1.8	22	100	187.06	52000
100	1.9	22	100	203.93	52100
100	2.0	22	100	208.63	52200
100	2.5	22	100	246.00	52300
100	3.0	22	80	289.25	52400
100	3.5	22	80	328.42	52500
100	4.0	22	80	360.84	52600
100	4.5	22	80	421.59	52700
100	5.0	22	80	436.29	52800
100	5.5	22	64	498.00	52900
100	6.0	22	64	512.70	53000
125	0.6	22	160	257.44	55800
125	0.7	22	160	252.74	55900
125	0.8	22	160	248.15	56000
125	0.9	22	160	246.23	56100
125	1.0	22	160	226.10	56200
125	1.1	22	128	233.94	56300
125	1.2	22	128	248.76	56400
125	1.3	22	128	273.23	56500
125	1.4	22	128	273.23	56600
125	1.5	22	128	285.03	56700
125	1.6	22	128	294.92	56800
125	1.7	22	128	319.51	56900
125	1.8	22	128	319.51	57000
125	1.9	22	128	344.09	57100
125	2.0	22	128	344.09	57200
125	2.5	22	100	417.62	57300
125	3.0	22	100	493.30	57400
125	3.5	22	100	566.10	57500
125	4.0	22	100	644.91	57600
125	4.5	22	100	722.78	57700
125	5.0	22	80	746.04	57800
125	5.5	22	80	887.64	57900
125	6.0	22	80	912.96	58000
160	1.0	32	160	449.79	66200
160	1.2	32	160	475.57	66400
160	1.5	32	160	495.96	66700
160	1.6	32	160	506.19	66800
160	2.0	32	128	653.12	67200
160	2.5	32	128	744.95	67300
160	3.0	32	128	854.01	67400
160	4.0	32	128	1,119.17	67600

Solid carbide circular saw blades, coarse-toothed, DIN 1838B

▲ coarse straight-cut







DIN 1838 B

54 701 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	£ V6	
15	0.20	5	20	17.41	10200
15	0.25	5	20	17.41	10300
15	0.30	5	20	17.41	10400
15	0.35	5	20	17.41	10500
15	0.40	5	20	17.41	10600
15	0.50	5	20	17.41	10700
15	0.60	5	20	17.41	10800
15	0.70	5	20	20.73	10900
15	0.80	5	20	20.73	11000
15	0.90	5	20	21.25	11100
15	1.00	5	20	22.06	11200
15	1.10	5	20	22.99	11300
15	1.20	5	20	22.99	11400
15	1.30	5	20	22.99	11500
15	1.40	5	20	22.99	11600
15	1.50	5	20	24.97	11700
15	1.60	5	20	26.83	11800
15	1.70	5	20	29.10	11900
15	1.80	5	20	29.10	12000
15	1.90	5	20	30.28	12100
15	2.00	5	20	30.68	12200
15	2.50	5	20	42.38	12300
15	3.00	5	20	47.95	12400
15	3.50	5	20	54.20	12500
15	4.00	5	20	66.81	12600
15	4.50	5	20	78.37	12700
15	5.00	5	20	81.56	12800
15	5.50	5	20	97.37	12900
15	6.00	5	20	100.28	13000
20	0.20	5	20	18.85	15200
20	0.25	5	20	18.85	15300
20	0.30	5	20	18.85	15400
20	0.35	5	20	18.85	15500
20	0.40	5	20	18.85	15600
20	0.50	5	20	18.85	15700
20	0.60	5	20	18.85	15800
20	0.70	5	20	22.06	15900
20	0.80	5	20	22.06	16000
20	0.90	5	20	22.99	16100
20	1.00	5	20	24.97	16200
20	1.10	5	20	26.83	16300
20	1.20	5	20	26.83	16400
20	1.30	5	20	28.30	16500
20	1.40	5	20	30.68	16600
20	1.50	5	20	30.68	16700
20	1.60	5	20	32.16	16800
20	1.70	5	20	33.87	16900
20	1.80	5	20	33.87	17000
20	1.90	5	20	35.48	17100
20	2.00	5	20	35.48	17200
20	2.50	5	20	44.75	17300
20	3.00	5	20	51.01	17400
20	3.50	5	20	57.38	17500
20	4.00	5	20	68.29	17600
20	4.50	5	20	81.56	17700

54 701 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	£ V6	
20	5.00	5	20	84.87	17800
20	5.50	5	20	98.70	17900
20	6.00	5	20	101.89	18000
25	0.20	8	20	18.59	20200
25	0.25	8	20	18.59	20300
25	0.30	8	20	18.59	20400
25	0.35	8	20	18.59	20500
25	0.40	8	20	18.59	20600
25	0.50	8	20	21.64	20700
25	0.60	8	20	21.64	20800
25	0.70	8	20	24.05	20900
25	0.80	8	20	26.83	21000
25	0.90	8	20	29.10	21100
25	1.00	8	20	29.10	21200
25	1.10	8	20	33.48	21300
25	1.20	8	20	33.48	21400
25	1.30	8	20	34.93	21500
25	1.40	8	20	36.40	21600
25	1.50	8	20	36.40	21700
25	1.60	8	20	40.11	21800
25	1.70	8	20	40.11	21900
25	1.80	8	20	41.71	22000
25	1.90	8	20	44.63	22100
25	2.00	8	20	45.96	22200
25	2.50	8	20	55.80	22300
25	3.00	8	20	72.66	22400
25	3.50	8	20	80.12	22500
25	4.00	8	20	90.48	22600
25	4.50	8	20	103.61	22700
25	5.00	8	20	109.45	22800
25	5.50	8	20	124.61	22900
25	6.00	8	20	130.53	23000
30	0.20	8	30	24.05	25200
30	0.25	8	30	24.05	25300
30	0.30	8	30	24.05	25400
30	0.35	8	30	24.05	25500
30	0.40	8	30	24.05	25600
30	0.50	8	30	25.23	25700
30	0.60	8	30	25.23	25800
30	0.70	8	30	30.56	25900
30	0.80	8	24	33.48	26000
30	0.90	8	24	36.40	26100
30	1.00	8	24	36.40	26200
30	1.10	8	24	40.92	26300
30	1.20	8	24	40.26	26400
30	1.30	8	24	41.59	26500
30	1.40	8	24	45.32	26600
30	1.50	8	24	45.32	26700
30	1.60	8	24	48.22	26800
30	1.70	8	24	48.22	26900
30	1.80	8	24	49.53	27000
30	1.90	8	24	51.01	27100
30	2.00	8	24	54.20	27200
30	2.50	8	24	63.62	27300
30	3.00	8	24	75.71	27400
30	3.50	8	24	85.94	27500
30	4.00	8	24	96.45	27600
30	4.50	8	24	111.18	27700
30	5.00	8	24	117.17	27800
30	5.50	8	24	131.97	27900
30	6.00	8	24	138.11	28000

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→ v_c/f_z Page 469

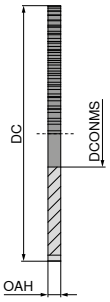
14

Solid carbide circular saw blades, coarse-toothed, DIN 1838B

▲ coarse straight-cut









DIN 1838 B

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 701 ... £ V6	
40	0.20	10	40	29.49	30200
40	0.25	10	40	29.49	30300
40	0.30	10	40	29.49	30400
40	0.35	10	40	29.49	30500
40	0.40	10	40	31.23	30600
40	0.50	10	40	34.01	30700
40	0.60	10	40	34.01	30800
40	0.70	10	40	38.92	30900
40	0.80	10	32	40.51	31000
40	0.90	10	32	40.51	31100
40	1.00	10	32	41.84	31200
40	1.10	10	32	43.17	31300
40	1.20	10	32	44.75	31400
40	1.30	10	32	45.57	31500
40	1.40	10	32	48.50	31600
40	1.50	10	32	49.94	31700
40	1.60	10	32	51.14	31800
40	1.70	10	32	54.20	31900
40	1.80	10	32	55.51	32000
40	1.90	10	32	57.12	32100
40	2.00	10	32	57.12	32200
40	2.50	10	32	73.44	32300
40	3.00	10	32	85.01	32400
40	3.50	10	32	94.97	32500
40	4.00	10	32	105.33	32600
40	4.50	10	32	119.55	32700
40	5.00	10	32	126.92	32800
40	5.50	10	32	142.10	32900
40	6.00	10	32	150.17	33000
50	0.20	13	48	48.50	35200
50	0.25	13	48	46.89	35300
50	0.30	13	48	39.85	35400
50	0.35	13	48	39.85	35500
50	0.40	13	48	39.85	35600
50	0.50	13	48	41.16	35700
50	0.60	13	48	41.16	35800
50	0.70	13	40	43.17	35900
50	0.80	13	40	46.89	36000
50	0.90	13	40	48.50	36100
50	1.00	13	40	49.94	36200
50	1.10	13	40	51.14	36300
50	1.20	13	40	52.73	36400
50	1.30	13	32	59.12	36500
50	1.40	13	32	60.42	36600
50	1.50	13	32	63.51	36700
50	1.60	13	32	64.84	36800
50	1.70	13	32	65.75	36900
50	1.80	13	32	70.01	37000
50	1.90	13	32	70.01	37100
50	2.00	13	32	72.12	37200
50	2.50	13	32	88.06	37300
50	3.00	13	24	102.28	37400
50	3.50	13	24	116.77	37500
50	4.00	13	24	123.89	37600
50	4.50	13	24	143.55	37700

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 701 ... £ V6	
50	5.00	13	24	151.50	37800
50	5.50	13	20	168.73	37900
50	6.00	13	20	175.36	38000
63	0.30	16	64	63.77	40400
63	0.35	16	64	60.31	40500
63	0.40	16	64	54.60	40600
63	0.50	16	64	53.26	40700
63	0.60	16	48	54.60	40800
63	0.70	16	48	61.49	40900
63	0.80	16	48	67.74	41000
63	0.90	16	48	68.54	41100
63	1.00	16	48	69.85	41200
63	1.10	16	40	72.66	41300
63	1.20	16	40	75.19	41400
63	1.30	16	40	77.03	41500
63	1.40	16	40	78.23	41600
63	1.50	16	40	79.58	41700
63	1.60	16	40	83.55	41800
63	1.70	16	40	87.80	41900
63	1.80	16	40	89.28	42000
63	1.90	16	40	93.12	42100
63	2.00	16	40	96.31	42200
63	2.50	16	32	115.68	42300
63	3.00	16	32	131.01	42400
63	3.50	16	32	150.17	42500
63	4.00	16	32	164.88	42600
63	4.50	16	32	188.62	42700
63	5.00	16	24	196.58	42800
63	5.50	16	24	220.55	42900
63	6.00	16	24	228.51	43000
80	0.30	22	64	127.52	45400
80	0.35	22	64	124.37	45500
80	0.40	22	64	119.06	45600
80	0.50	22	64	89.61	45700
80	0.60	22	64	86.96	45800
80	0.70	22	64	94.03	45900
80	0.80	22	64	94.03	46000
80	0.90	22	48	97.92	46100
80	1.00	22	48	97.92	46200
80	1.10	22	48	100.54	46300
80	1.20	22	48	104.96	46400
80	1.30	22	48	109.35	46500
80	1.40	22	48	113.44	46600
80	1.50	22	48	116.09	46700
80	1.60	22	48	119.06	46800
80	1.70	22	40	128.71	46900
80	1.80	22	40	130.16	47000
80	1.90	22	40	132.81	47100
80	2.00	22	40	137.28	47200
80	2.50	22	40	162.22	47300
80	3.00	22	40	194.53	47400
80	3.50	22	32	215.13	47500
80	4.00	22	32	233.33	47600
80	4.50	22	32	275.15	47700
80	5.00	22	32	283.60	47800
80	5.50	22	32	314.44	47900
80	6.00	22	32	322.64	48000

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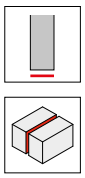
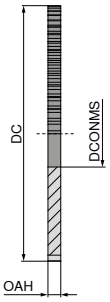
→ v_c/f_z Page 469

Solid carbide circular saw blades, coarse-toothed, DIN 1838B

▲ coarse straight-cut







DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 701 ... £ V6	
200	1.5	32	80	904.64	71700
200	1.6	32	80	920.19	71800
200	2.0	32	80	1,089.41	72200
200	2.5	32	80	1,260.67	72300
200	3.0	32	64	1,429.40	72400
200	4.0	32	64	1,786.14	72600

P	●
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K	●
N	●
S	●
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O	●

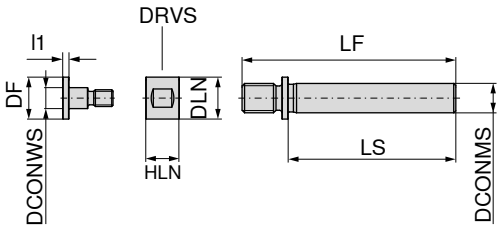
→ v_c/f_z Page 469

DIN 1838 B

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 701 ... £ V6	
100	0.5	22	80	169.21	50700
100	0.6	22	80	161.98	50800
100	0.7	22	80	155.60	50900
100	0.8	22	64	142.22	51000
100	0.9	22	64	139.46	51100
100	1.0	22	64	133.90	51200
100	1.1	22	64	140.29	51300
100	1.2	22	64	147.89	51400
100	1.3	22	48	157.15	51500
100	1.4	22	48	163.68	51600
100	1.5	22	48	168.49	51700
100	1.6	22	48	177.78	51800
100	1.7	22	48	187.06	51900
100	1.8	22	48	187.06	52000
100	1.9	22	48	203.93	52100
100	2.0	22	48	208.63	52200
100	2.5	22	48	246.00	52300
100	3.0	22	40	289.25	52400
100	3.5	22	40	328.42	52500
100	4.0	22	40	360.84	52600
100	4.5	22	40	421.59	52700
100	5.0	22	40	436.29	52800
100	5.5	22	32	498.00	52900
100	6.0	22	32	512.70	53000
125	0.6	22	80	257.44	55800
125	0.7	22	80	252.74	55900
125	0.8	22	80	248.15	56000
125	0.9	22	80	246.23	56100
125	1.0	22	80	226.10	56200
125	1.1	22	64	233.94	56300
125	1.2	22	64	248.76	56400
125	1.3	22	64	273.23	56500
125	1.4	22	64	273.23	56600
125	1.5	22	64	285.03	56700
125	1.6	22	64	294.92	56800
125	1.7	22	64	319.51	56900
125	1.8	22	64	319.51	57000
125	1.9	22	64	344.09	57100
125	2.0	22	64	344.09	57200
125	2.5	22	48	417.62	57300
125	3.0	22	48	493.30	57400
125	3.5	22	48	566.10	57500
125	4.0	22	48	644.91	57600
125	4.5	22	40	722.78	57700
125	5.0	22	40	746.04	57800
125	5.5	22	40	887.64	57900
125	6.0	22	40	912.96	58000
160	1.0	32	80	449.79	66200
160	1.2	32	80	475.57	66400
160	1.5	32	80	495.96	66700
160	1.6	32	80	506.19	66800
160	2.0	32	64	653.12	67200
160	2.5	32	64	744.95	67300
160	3.0	32	64	854.01	67400
160	4.0	32	48	1,119.17	67600

Cylindrical shank adapter for circular saw blades

▲ DCONWS = circular saw blade bore diameter





DCONWS h7 mm	DCONMS h7 mm	DLN mm	DF mm	LF mm	LS mm	HLN mm	l_1 mm	DRVS mm	72 900 ... £ X1	
5	7	10	10	51	40	8	3	9	241.48	**005**
5	10	10	10	61	50	8	3	9	241.48	**105**
8	7	15	15	51	40	8	3	14	241.48	**008**
8	10	15	15	61	50	8	3	14	262.15	**108**
10	7	17	17	53	40	10	3	16	241.48	**010**
10	10	17	17	63	50	10	3	16	262.15	**110**
10	16	17	17	74	55	10	3	16	279.80	**210**
13	10	20	20	66	50	10	3	18	262.15	**113**
13	16	20	20	77	55	10	3	18	279.80	**213**
16	10	24	24	66	50	14	3	22	262.15	**116**
16	16	24	24	79	55	14	3	22	279.80	**216**



Screw – SR



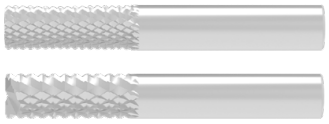
Lock nut – KM

Spare parts for Article no.	72 945 ... £ X1		72 945 ... £ X1	
72 900 005	45.87	**000**	72.09	**005**
72 900 105	45.87	**000**	72.09	**005**
72 900 008	45.87	**001**	72.09	**006**
72 900 108	45.87	**001**	72.09	**006**
72 900 010	48.90	**002**	74.88	**007**
72 900 110	48.90	**002**	74.88	**007**
72 900 210	48.90	**010**	74.88	**012**
72 900 113	51.19	**003**	77.41	**008**
72 900 213	51.19	**003**	77.41	**008**
72 900 116	53.71	**004**	79.66	**009**
72 900 216	53.71	**011**	79.66	**013**

Application data for plastics cutters

Material	Strength N/mm² – HB	50 983 … 50 984 … 50 985 … 50 986 …	50 932 …	50 937 …	50 936 …	50 938 …	50 610 … 50 611 …	50 946 …	50 948 …	50 947 …
Aluminium (non alloyed, low alloyed)	< 350 N/mm²						●			
Aluminium	< 500 N/mm²						●			
Aluminium alloy 0,5–10% Si	< 400 N/mm²						●			
Aluminium alloy 10 - 15% Si	< 400 N/mm²					●		●	●	●
Aluminium	< 400 N/mm²					●		●	●	
Copper (non alloyed, low alloyed)	< 350 N/mm²						●			
Copper wrought alloys	< 700 N/mm²					●		●	●	●
Special copper alloys	< 200 HB					●		●	●	●
Special copper alloys	< 300 HB					●		●	●	●
Special copper alloys	< 300 HB					●		●	●	●
Short-chipping brass, bronze, red bronze	< 600 N/mm²						●			
Long-chipping brass	< 600 N/mm²						●			
Magnesium and Magnesium Alloys	< 850 N/mm²					●		●	●	●
Tungsten and tungsten alloys									●	●
Molybdenum and molybdenum alloys									●	●
Thermoplastics							●			
Duroplastics		●	●	●			●			
Fibre-reinforced plastics		●	●	●	●	●		●	●	●
Graphite		●	●	●	●	●		●		●
Machining direction		↘	↘	↘	↘	↘	↘	↘	↘	↘
		1	2	3	4	5	6	7	8	9

Tips



1 ▲ Very sharp cutting edges for GFK and CFK and to prevent delamination of the component.



2 ▲ For excellent tool life when machining AFK, CFK and Graphite.



3 ▲ Specialist for machining honeycomb materials; Milling of pockets not fully through the workpiece.



4



5 ▲ Specialist for machining honeycomb materials.

▲ Milling of recesses that pass through the material, the lower deck is pushed and upper deck pulled therefore the workpiece material is stabilized.



6 ▲ For machining non fibre-reinforced plastics and non-ferrous metals with low silicon content. (PE, PA, PVC, acrylic glass)



7



8 ▲ For machining fibre-reinforced plastics and non-ferrous metals with high silicon content.

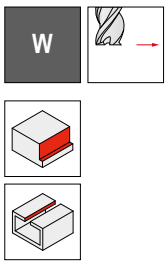


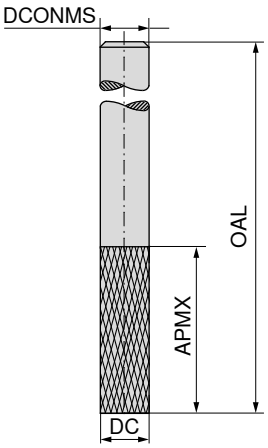
9

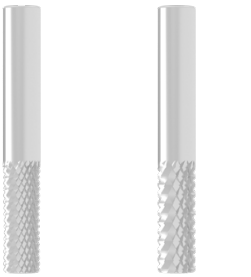
14

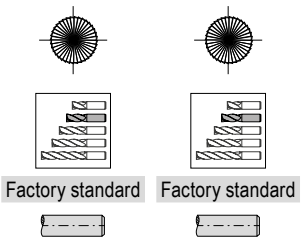
Cutter for plastics

- ▲ right hand cutting
- ▲ cross-pitched
- ▲ Downward chip evacuation
- ▲ 50 983 ... = fine pitch
- ▲ 50 984 ... = medium pitch









Factory standard | Factory standard

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	50 983 ... £ V0		50 984 ... £ V0	
2.0	7	40	2.0	18.67	**020**	21.16	**020**
2.0	7	50	6.0	37.07	**021**	37.07	**021**
3.0	10	40	3.0	18.67	**030**	21.16	**030**
3.0	12	50	6.0	37.07	**031**	37.07	**031**
3.5	12	40	3.5	21.02	**035**	23.35	**035**
4.0	15	40	4.0	23.05	**040**	25.50	**040**
4.0	20	50	6.0	37.07	**041**	37.07	**041**
4.5	15	50	4.5	26.68	**045**	29.49	**045**
5.0	16	50	5.0	30.09	**050**	33.47	**050**
5.0	25	75	6.0	55.33	**051**	55.33	**051**
6.0	18	50	6.0	37.07	**060**	33.68	**060**
6.0	35	75	6.0	55.33	**061**	55.33	**061**
7.0	22	60	7.0	51.00	**070**	45.88	**070**
8.0	25	63	8.0	58.76	**080**	52.86	**080**
8.0	40	100	8.0	76.85	**081**	76.85	**081**
9.0	25	63	9.0	73.41	**090**	65.77	**090**
10.0	30	72	10.0	77.57	**100**	69.60	**100**
12.0	32	83	12.0	109.54	**120**	98.09	**120**
14.0	32	83	14.0	179.52	**140**	160.44	**140**
16.0	36	92	16.0	245.68	**160**	219.68	**160**
18.0	40	92	18.0	332.27	**180**	296.93	**180**
20.0	45	104	20.0	398.80	**200**	356.38	**200**

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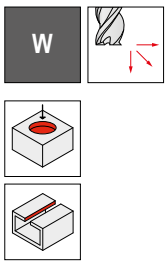
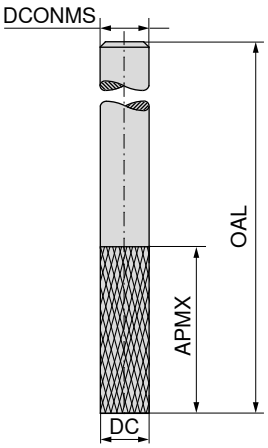
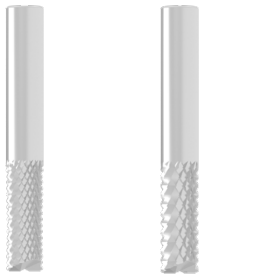
→ v_c/f_z Page 418

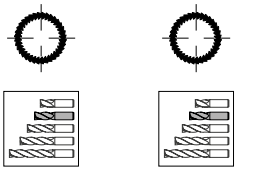
Cutter for plastics

- ▲ right hand cutting
- ▲ cross-pitched
- ▲ Downward chip evacuation
- ▲ 50 985 ... = fine pitch
- ▲ 50 986 ... = medium pitch









Factory standard | Factory standard

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	50 985 ... £ V0		50 986 ... £ V0	
2.0	7	40	2.0	20.33	020	22.25	020
2.0	7	50	6.0	39.41	021	39.41	021
3.0	10	40	3.0	20.33	030	22.25	030
3.0	12	50	6.0	39.41	031	39.41	031
3.5	12	40	3.5	22.41	035	24.77	035
4.0	15	40	4.0	24.42	040	27.13	040
4.0	20	50	6.0	39.41	041	39.41	041
4.5	15	50	4.5	28.25	045	31.27	045
5.0	16	50	5.0	32.07	050	35.61	050
5.0	25	75	6.0	57.66	051	57.66	051
6.0	18	50	6.0	39.41	060	35.50	060
6.0	35	75	6.0	57.66	061	57.66	061
7.0	22	60	7.0	54.25	070	48.57	070
8.0	25	63	8.0	62.03	080	55.58	080
8.0	40	100	8.0	80.27	081	80.27	081
9.0	25	63	9.0	76.85	090	68.94	090
10.0	30	72	10.0	80.97	100	72.53	100
12.0	32	83	12.0	113.72	120	101.70	120
14.0	32	83	14.0	182.98	140	163.62	140
16.0	36	92	16.0	250.19	160	223.71	160
18.0	40	92	18.0	338.45	180	302.12	180
20.0	45	104	20.0	406.39	200	362.91	200

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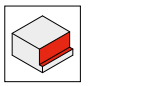
→ v_c/f_z Page 418

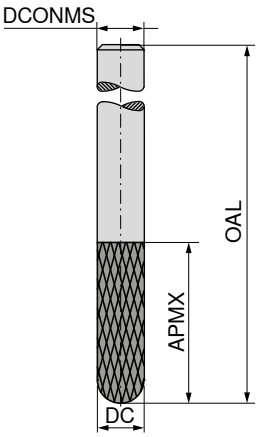
14

Ball nosed cutter for plastics

▲ right hand cutting
▲ cross-pitched

W





DIAMOND





Factory standard



50 932 ...

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	£ V0	
2	7	40	2	67.42	**020**
2	7	50	6	153.69	**022**
3	10	40	3	67.42	**030**
3	12	50	6	153.69	**032**
4	15	40	4	97.80	**040**
4	20	50	6	153.69	**042**
5	16	50	5	124.74	**050**
5	25	75	6	175.74	**052**
6	18	50	6	129.10	**060**
6	35	75	6	168.31	**062**
8	25	63	8	163.43	**080**
8	40	100	8	238.47	**082**
10	30	72	10	260.87	**100**
12	32	83	12	331.37	**120**
16	36	92	16	669.06	**160**
20	40	104	20	785.66	**200**

P	
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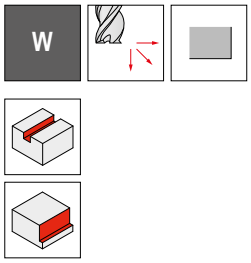
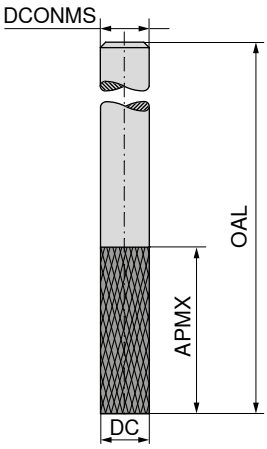
O	●

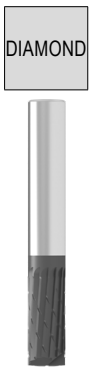
→ v_c/f_z Page 418

Cutter for plastics

▲ right hand cutting
▲ cross-pitched









Factory standard



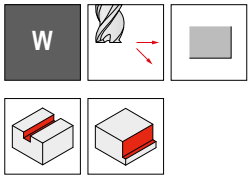
50 937 ...

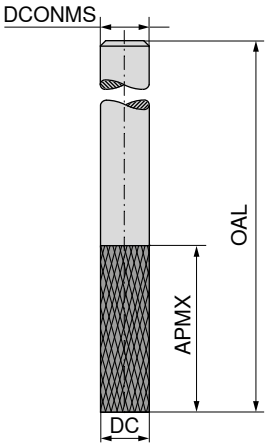
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	£ V0	
5	16	60	6	154.05	**050**
5	28	75	6	130.33	**052**
6	20	60	6	154.05	**060**
6	35	75	6	136.70	**062**
8	22	63	8	160.91	**080**
8	40	100	8	166.30	**082**
10	25	72	10	197.96	**100**
10	50	100	10	277.87	**102**
12	30	83	12	348.73	**120**
12	50	100	12	408.93	**122**
16	35	92	16	614.81	**160**
16	60	125	16	747.00	**162**

P	
M	
K	
N	
S	
H	
O	●

→ v_c/f_z Page 418

Cutter for honeycomb materials











Factory standard



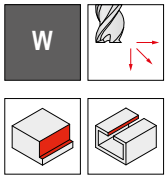
50 936 ...

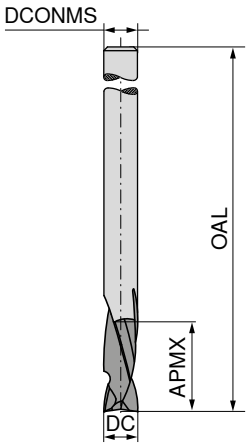
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	£ V0	
6	16	50	6	89.12	**006**
8	19	63	8	131.09	**008**
10	22	72	10	164.51	**010**
12	26	83	12	225.99	**012**
16	17	100	12	407.84	**016**
20	17	100	12	560.04	**020**
24	10	100	12	664.37	**024**
24	17	100	12	714.45	**025**

P	
M	
K	
N	
S	
H	
O	●

→ v_c/f_z Page 418

Right and left hand helix cutter for fibre re-inforced plastics





Ti28





Factory standard



50 938 ...

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0	
2	6	40	6	2	148.95	**020**
3	12	40	3	2	72.71	**030**
3	12	50	6	2	148.95	**032**
4	14	40	4	2	82.47	**040**
5	16	50	5	2	103.41	**050**
6	18	50	6	2	126.19	**060**
8	20	63	8	2	152.59	**080**
10	25	72	10	2	182.77	**100**
12	30	83	12	2	265.20	**120**

P	
M	
K	
N	●
S	
H	
O	●

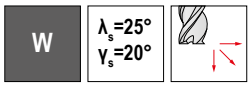
→ v_c/f_z Page 418

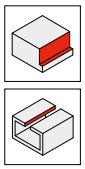
Single flute cutter

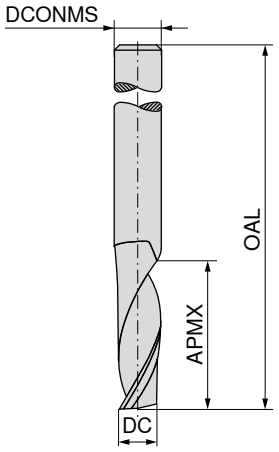
▲ With polished chip flutes

W

λ_s=25°
γ_s=25°













Right-hand helix
right-hand cutting

Factory standard





Left-hand helix
right-hand cutting

Factory standard



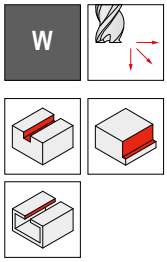
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	50 610 ... £ V0		50 611 ... £ V0	
1.5	6	40	3.0	1	31.47	015	31.47	015
2.0	10	40	2.0	1	25.50	020	25.50	020
2.0	6	40	3.0	1	31.47	019	31.47	019
2.0	10	60	6.0	1	46.50	022	46.50	022
2.0	12	60	6.0	1	47.94	024	47.94	024
2.5	6	40	2.5	1	31.47	025	31.47	025
3.0	12	60	6.0	1	46.50	034	46.50	034
3.0	12	40	3.0	1	25.31	030	25.31	030
3.0	10	40	6.0	1	45.75	032	45.75	032
3.0	15	60	6.0	1	46.50	036	46.50	036
4.0	20	75	6.0	1	75.38	044	75.38	044
4.0	15	40	4.0	1	30.91	040	30.91	040
4.0	15	60	6.0	1	46.50	042	46.50	042
5.0	16	60	6.0	1	46.50	052	46.50	052
5.0	16	50	5.0	1	39.51	050	39.51	050
5.0	28	75	6.0	1	84.42	054	84.42	054
6.0	20	60	6.0	1	46.15	060	46.15	060
6.0	30	60	6.0	1	45.75	062	45.75	062
6.0	35	75	6.0	1	68.52	064	68.52	064
8.0	22	63	8.0	1	74.78	080	74.78	080
8.0	40	100	8.0	1	109.54	084	109.54	084
10.0	55	100	10.0	1	182.42	105	182.42	105
10.0	25	72	10.0	1	110.27	100	110.27	100
12.0	30	83	12.0	1	148.83	120	148.83	120
16.0	35	92	16.0	1	315.70	160	315.70	160

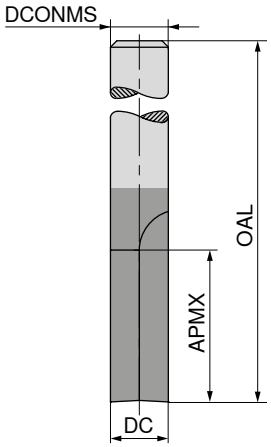
P		
M		
K		
N	●	●
S		
H		
O	●	●

→ v_c/f_z Page 418

Cutter for plastics

▲ With polished flutes









Factory standard



50 946 ...

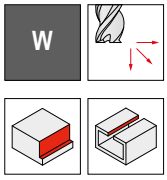
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0	
1.5	6	40	3	1	38.88	**015**
2.0	6	40	3	1	38.88	**020**
2.0	10	40	2	1	27.85	**022**
2.0	10	60	6	1	56.60	**024**
2.0	12	60	6	1	58.04	**026**
3.0	12	40	3	1	29.29	**030**
3.0	12	60	6	1	56.60	**032**
3.0	15	60	6	1	56.60	**034**
4.0	15	60	6	1	56.60	**040**
4.0	20	75	6	1	85.52	**042**
5.0	16	60	6	1	56.60	**050**
5.0	28	75	6	1	94.58	**052**
6.0	20	60	6	1	49.21	**060**
6.0	30	60	6	1	55.87	**062**
6.0	35	75	6	1	78.65	**064**
8.0	22	63	8	1	76.29	**080**
8.0	40	100	8	1	122.55	**082**
10.0	25	72	10	1	113.34	**100**
10.0	55	100	10	1	200.86	**102**
12.0	30	83	12	1	146.81	**120**

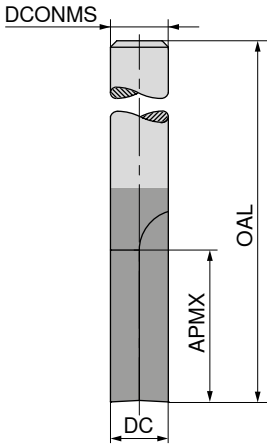
P	
M	
K	
N	●
S	
H	
O	●

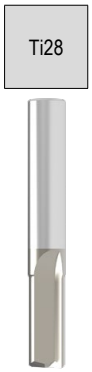
→ v_c/f_z Page 418

Cutter for plastics

▲ with polished flutes









Factory standard



50 948 ...

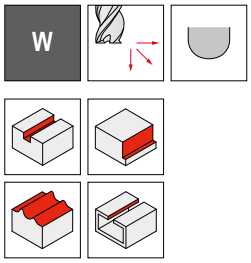
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0	
2	6	40	6	2	58.93	**020**
3	12	40	3	2	34.00	**030**
3	12	50	6	2	58.93	**031**
4	14	40	6	2	58.93	**040**
5	16	50	5	2	44.46	**050**
6	18	50	6	2	53.52	**060**
8	20	63	8	2	77.21	**080**
10	25	72	10	2	100.88	**100**
12	30	83	12	2	133.79	**120**

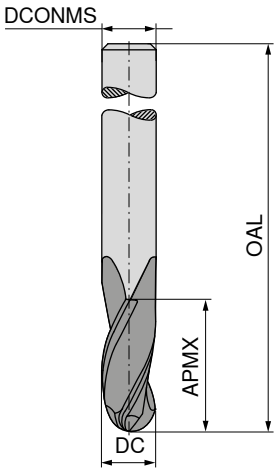
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 418

Ball nosed cutter for plastics

▲ with polished flutes
▲ irregular pitch





Ti40





DIN 6527 L



50 947 ...

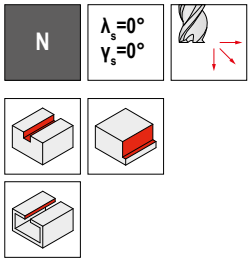
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0	
3	10	57	6	3	80.84	**030**
4	13	57	6	3	80.84	**040**
5	15	57	6	3	80.84	**050**
6	18	57	6	3	69.08	**060**
8	20	63	8	3	94.71	**080**
10	25	72	10	3	127.83	**100**
12	30	83	12	3	164.68	**120**

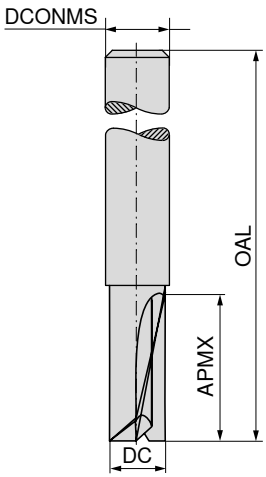
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 418

14

Slot milling cutter









Factory standard



52 168 ...

DC e8 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	£ V1	
2	8	50	3	2	32.29	**020**
3	12	50	3	2	30.91	**030**
4	13	60	4	2	33.04	**040**
5	14	60	5	2	40.04	**050**
6	16	58	6	2	45.62	**060**
8	20	65	8	2	62.08	**080**
10	22	70	10	2	99.47	**100**
12	25	70	12	2	130.98	**120**

P	●
M	○
K	●
N	○
S	○
H	
O	●

→ v_c/f_z Page 480–483

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

* Tensile strength

14

Cutting data standard values – MonsterMill – SCR – End mill, short – long

Index	Emulsion	Compressed air	MMS	Type short	Type long	52 600 ..., 52 601 ..., 52 602 ..., 52 603 ..., 52 604 ..., 52 606 ..., 52 607 ..., 52 608 ..., 52 611 ..., 52 612 ...														
						Ø DC (mm) =								Ø DC (mm) =								
						3,0–3,5			4,0–4,5					5,0–5,5			6,0–7,5			8,0–9,5		
						a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)			$a_{p\,max.}$ x DC		f_z (mm)						$a_{p\,max.}$ x DC		f_z (mm)								
P.1.1	90	160		1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
P.1.2	90	150		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.3	90	150		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.4	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.5	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.1	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.2	90	140		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.3	80	120		1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.2.4	80	120		1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.3.1	90	140		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.2	80	130		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.3	80	110		1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.4.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
P.4.2	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.1.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.2.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.3.1	80			1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
K.1.1		200		1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.1.2		180		1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.2.1		200		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.2.2		180		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.3.1		140		1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
K.3.2		140		1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1	150	280		1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
N.3.2	140	230		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.3.3	140	230		1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.4.1																						
S.1.1	45			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.1.2	45			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.1	30			0,5	0,5	0,018	0,014	0,010	0,025	0,019	0,014	0,5	0,5	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
S.2.2	30			0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.3	30			0,5	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.3.1	80			0,5	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,5	0,5	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
S.3.2	60			0,5	0,5	0,025	0,019	0,014	0,035	0,027	0,019	0,5	0,5	0,050	0,037	0,025	0,066	0,049	0,033	0,09	0,07	0,04
S.3.3	60			0,5	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,5	0,5	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
H.1.1		80		0,3	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,3	0,3	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
H.1.2		60		0,15	0,15	0,016	0,012	0,009	0,022	0,017	0,012	0,15	0,15	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
H.1.3																						
H.1.4																						
H.2.1		120		0,5	0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,5	0,5	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
H.3.1		80		0,3	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,3	0,3	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
O.1.1	180	300		1,0	1,0	0,067	0,052	0,038	0,094	0,073	0,053	1,0	1,0*	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

*= With an a_p of 1.5xD, the feed rate per tooth f_z should be multiplied by 0.8

SCR ball nosed cutters at full slot, reduce f_z by 25%!

Plunging angle for ramping and helical milling:
No. of teeth 4 = 4 °/No. of teeth 6 = 1°

Index	52 600 ..., 52 601 ..., 52 602 ..., 52 603 ..., 52 604 ..., 52 606 ..., 52 607 ..., 52 608 ..., 52 611 ..., 52 612 ...																		● 1st choice ○ suitable		
	Ø DC (mm) =																				
	10,0–11,5			12,0			14,0–15,5			16,0–17,0			18,0–19,5			20,0					
	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																				
P.1.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
P.1.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.3	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.2.4	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.3.1	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.2	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.4.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
P.4.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.1.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.2.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.3.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
K.1.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
K.1.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
K.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
K.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
K.3.1	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
K.3.2	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
N.3.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.4.1																					
S.1.1	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
S.2.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.3	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.3.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
S.3.2	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
S.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
H.1.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
H.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06		●	
H.1.3																					
H.1.4																					
H.2.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
H.3.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
O.1.1	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,36	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

Feed rate guide values for ball nosed and torus cutters on → **Page 486**

Cutting data standard values – MonsterMill – SCR– End mill, extra long

Index	Emulsion	Compressed air	MMS	Type extra long		52 605 ... / 52 608 ...															
						Ø DC (mm) = 3			4			5			6			8			
						a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)			$a_{p\,max.}$ x DC		f_z (mm)															
P.1.1	80	110		1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
P.1.2	80	110		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.3	80	110		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.4	80	110		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.5	80	110		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.1	80	90		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.2	80	90		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.3	70	80		1,0*	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.2.4	70	80		1,0*	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.3.1	70	80		1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.2	70	80		1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.3	70	80		1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.4.1	70			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
P.4.2	70			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.1.1	70			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.2.1	70			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.3.1	70			1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
K.1.1		160		1,0*	0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.1.2		120		1,0*	0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.2.1		160		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.2.2		120		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.3.1		100		1,0*	0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
K.3.2		100		1,0*	0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	120	240		1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
N.3.2	100	200		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.3.3	100	200		1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.4.1																					
S.1.1	40			0,5*	0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.1.2	40			0,5*	0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.1	25			0,5*	0,25	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
S.2.2	25			0,5*	0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.3	25			0,5*	0,25	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.3.1	60			0,5*	0,25	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
S.3.2	50			0,5*	0,25	0,025	0,019	0,014	0,035	0,027	0,019	0,050	0,037	0,025	0,066	0,049	0,033	0,09	0,07	0,04
S.3.3	50			0,5*	0,25	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
H.1.1		60		0,5*	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
H.1.2		50		0,5*	0,15	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
H.1.3																					
H.1.4																					
H.2.1		80		0,5*	0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
H.3.1		60		0,5*	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
O.1.1	120	240		1,0*	0,5	0,067	0,052	0,038	0,094	0,073	0,053	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

* = Trimming and trochoidal slot milling

Plunging angle for ramping and helical milling:
No. of teeth 4 = 4 °/No. of teeth 6 = 1°

Index	52 605 ... / 52 608 ...																		● 1st choice ○ suitable		
	Ø DC (mm) =																				
	10			12			14			16			18			20					
	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC	a_s 0,1–0,2 x DC	a_s 0,3–0,4 x DC	a_s 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																				
P.1.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
P.1.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.3	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.2.4	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.3.1	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.2	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.4.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
P.4.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.1.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.2.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.3.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
K.1.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
K.1.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
K.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
K.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
K.3.1	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
K.3.2	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
N.3.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.4.1																					
S.1.1	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
S.2.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.3	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.3.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
S.3.2	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,12	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
S.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
H.1.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
H.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06		●	
H.1.3																					
H.1.4																					
H.2.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
H.3.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
O.1.1	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,33	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

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Cutting data standard values – MonsterMill – SCR – Torus face cutter, long

Index	v_c (m/min)	Type long $a_{p\,max.}$ x DC	52 609 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)															
P.1.1	150	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03	
P.1.2	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.1.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.1.4	140	1,0	0,019	0,017	0,012	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.1.5	140	1,0	0,019	0,017	0,012	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.2.1	150	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03	
P.2.2	150	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03	
P.2.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.2.4	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.3.1	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.3.2	150	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03	
P.3.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
P.4.1																		
P.4.2																		
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1	170	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05	
K.1.2	170	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05	
K.2.1	150	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04	
K.2.2	150	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04	
K.3.1	80	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
K.3.2	80	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1	80	0,3	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
H.1.2	60	0,15	0,009	0,008	0,006	0,014	0,011	0,008	0,020	0,015	0,010	0,024	0,018	0,012	0,03	0,02	0,02	
H.1.3																		
H.1.4																		
H.2.1	100	0,5	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
H.3.1	80	0,3	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02	
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Index	52 609 ... Ø DC (mm) = 10 a_e 0,1–0,2 x DC	10 a_e 0,3–0,4 x DC	10 a_e 0,6–1,0 x DC	12 a_e 0,1–0,2 x DC	12 a_e 0,3–0,4 x DC	12 a_e 0,6–1,0 x DC	16 a_e 0,1–0,2 x DC	16 a_e 0,3–0,4 x DC	16 a_e 0,6–1,0 x DC	● 1st choice ○ suitable Emulsion	Compressed air	MMS
	f_z (mm)											
P.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.1.2	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.4	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.5	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.4	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.3.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.1.2	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.2.1	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.2.2	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
K.3.2	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.1.2	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03		●	
H.1.3												
H.1.4												
H.2.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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Cutting data standard values – MonsterMill – SCR – Torus face cutter, HSC machining

Index	v_c (m/min)	a_p x DC	a_e x DC	52 609 ... Ø DC (mm) = 3	4	5	6	8	10	12	16	● 1st choice ○ suitable Emulsion	Compressed air	MMS
				f_z (mm)										
P.1.1	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.1.2	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.1.3	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.1.4	190	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
P.1.5	190	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
P.2.1	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.2.2	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.2.3	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.2.4	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.3.1	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.3.2	200	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.3.3	170	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.4.1														
P.4.2														
M.1.1														
M.2.1														
M.3.1														
K.1.1	230	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●	
K.1.2	230	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●	
K.2.1	200	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●	
K.2.2	200	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●	
K.3.1	100	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
K.3.2	100	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
N.1.1														
N.1.2														
N.2.1														
N.2.2														
N.2.3														
N.3.1														
N.3.2														
N.3.3														
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1	100	0,03	0,3	0,060	0,080	0,100	0,120	0,16	0,20	0,24	0,32		●	
H.1.2	90	0,02	0,3	0,048	0,064	0,080	0,096	0,13	0,16	0,19	0,26		●	
H.1.3	80	0,02	0,2	0,024	0,056	0,070	0,084	0,11	0,14	0,17	0,22		●	
H.1.4	60	0,02	0,2	0,036	0,048	0,060	0,072	0,10	0,12	0,14	0,19		●	
H.2.1	130	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38		●	
H.3.1	100	0,03	0,3	0,060	0,080	0,100	0,120	0,16	0,20	0,24	0,32		●	
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

Cutting data standard values – MonsterMill – FRP CR fine pitched

Index	Compressed air	Type long	52 598 ...					● 1st choice ○ suitable		
			Ø DC (mm) =							
			> Ø 5 ≤ Ø 6	> Ø 6 ≤ Ø 8	> Ø 8 ≤ Ø 10	> Ø 10 ≤ Ø 12	> Ø 12 ≤ Ø 14			
			a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC			
	v_c (m/min)	$a_{p\,max.}$ x DC	f (mm/rev)					Emulsion	Compressed air	MMS
O.1.1										
O.1.2										
O.2.1										
O.2.2	200	1,0	0,125	0,150	0,175	0,200	0,225		●	
O.3.1										

For the MonsterMill FRP CR cutters, the feed rate must be selected in mm/rev.

Cutting data standard values – MonsterMill – FRP CR coarse pitched

Index	Compressed air	Type long	52 599 ...					● 1st choice ○ suitable		
			Ø DC (mm) =							
			> Ø 5 ≤ Ø 6	> Ø 6 ≤ Ø 8	> Ø 8 ≤ Ø 10	> Ø 10 ≤ Ø 12	> Ø 12 ≤ Ø 14			
			a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC			
	v_c (m/min)	$a_{p\,max.}$ x DC	f (mm/rev)					Emulsion	Compressed air	MMS
O.1.1										
O.1.2										
O.2.1										
O.2.2	200	1,5	0,100	0,120	0,140	0,160	0,180		●	
O.3.1										

For the MonsterMill FRP CR cutters, the feed rate must be selected in mm/rev.

Cutting data standard values – MonsterMill – FRP

Index	Compressed air	Type long	52 595 ..., 52 596 ..., 52 597 ...					● 1st choice ○ suitable		
			Ø DC (mm) =							
			> Ø 5 ≤ Ø 6	> Ø 6 ≤ Ø 8	> Ø 8 ≤ Ø 10	> Ø 10 ≤ Ø 12	> Ø 12 ≤ Ø 14			
			a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC	a_e 0,6–1,0 x DC			
	v_c (m/min)	$a_{p\,max.}$ x DC	f (mm/rev)					Emulsion	Compressed air	MMS
O.1.1										
O.1.2										
O.2.1										
O.2.2	200	1,0	0,018	0,022	0,026	0,03	0,034		●	
O.3.1										

The optimum usage recommendations may differ from those provided here depending on the machining process and application.
Please get in touch with your contact at CERATIZIT to determine the best recommendation for your application.

Cutting data standard values – MonsterMill – ICR – End mill, short

Index	Emulsion	Compressed air	MMS	Type short	52 784 ... Ø DC (mm) = 1,5			2			2,5			● 1st choice ○ suitable		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	v_c (m/min)			$a_{p\,max.}$ x DC	f_z (mm)											
P.1.1	140	130		0,25	0,014	0,013	0,010	0,020	0,019	0,014	0,029	0,024	0,018	○	●	○
P.1.2	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.3	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.4	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.5	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.1	120			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.2	120	110		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.3	80	90		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	○	●	○
P.2.4	80	90		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	○	●	○
P.3.1	80	90		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.3.2	80	90		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.3.3	100	110		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.4.1	100			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
P.4.2	100			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.1.1	**100**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.2.1	**80**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.3.1	**100**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
K.1.1		180		0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●	
K.1.2		160		0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●	
K.2.1		180		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●	
K.2.2		160		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●	
K.3.1		120		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●	
K.3.2		120		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●	
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1	280	280		0,25	0,007	0,007	0,005	0,020	0,019	0,014	0,029	0,024	0,018	●		○
N.3.2	220	220		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
N.3.3	220	220		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
N.4.1																
S.1.1	45			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.1.2	45			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.2.1	25			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
S.2.2	30			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.2.3	25			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
S.3.1	80			0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	●		
S.3.2	60			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●		
S.3.3	60			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●		
H.1.1		80		0,20	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013		●	
H.1.2		60		0,15	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012		●	
H.1.3																
H.1.4																
H.2.1		80		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015		●	
H.3.1		80		0,20	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013		●	
O.1.1	300	300		0,25	0,029	0,027	0,020	0,043	0,040	0,030	0,051	0,043	0,032	●		○
O.1.2																
O.2.1																
O.2.2																
O.3.1																

Plunging angle for ramping and helical milling:
No. of teeth 3 = 5 °/No. of teeth 4 = 4°/No. of teeth 5 = 3°

Cutting data standard values – MonsterMill – ICR – End mill, short – long

Index	Emulsion	Compressed air	MMS	Type short	Type long	52 784 ..., 52 786 ... Ø DC (mm) = 3 a_e 0,1–0,2 x DC	3 a_e 0,3–0,4 x DC	3 a_e 0,6–1,0 x DC	4 a_e 0,1–0,2 x DC	4 a_e 0,3–0,4 x DC	4 a_e 0,6–1,0 x DC	5 a_e 0,1–0,2 x DC	5 a_e 0,3–0,4 x DC	5 a_e 0,6–1,0 x DC	6 a_e 0,1–0,2 x DC	6 a_e 0,3–0,4 x DC	6 a_e 0,6–1,0 x DC	● 1st choice ○ suitable Emulsion	Compressed air	MMS
	v_c (m/min)			$a_{p\,max.}$ x DC		f_z (mm)														
P.1.1	140	130		1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	○	●	○
P.1.2	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.1.3	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.1.4	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.1.5	140	130		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.2.1	120	110		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.2.2	120	110		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.2.3	80	90		1,0	1,0*	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	○	●	○
P.2.4	80	90		1,0	1,0*	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	○	●	○
P.3.1	80	90		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
P.3.2	80	90		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
P.3.3	100	110		1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
P.4.1	100			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
P.4.2	100			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
M.1.1	**100**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
M.2.1	**80**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
M.3.1	**100**			1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
K.1.1		180		1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●	
K.1.2		160		1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●	
K.2.1		180		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●	
K.2.2		160		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●	
K.3.1		120		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●	
K.3.2		120		1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●	
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	280	280		1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,741	0,572	0,413	●		○
N.3.2	220	220		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○
N.3.3	220	220		1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○
N.4.1																				
S.1.1	45			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
S.1.2	45			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
S.2.1	25			0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●		
S.2.2	30			0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
S.2.3	25			0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●		
S.3.1	80			0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	●		
S.3.2	60			0,5	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●		
S.3.3	60			0,5	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●		
H.1.1		80		0,3	0,3	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030		●	
H.1.2		60		0,15	0,15	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026		●	
H.1.3																				
H.1.4																				
H.2.1		80		0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034		●	
H.3.1		80		0,3	0,3	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030		●	
O.1.1	300	300		1,0	1,0*	0,058	0,045	0,033	0,108	0,083	0,060	0,135	0,104	0,075	0,162	0,125	0,090	●		○
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

* = with an a_p of 1.5 x d_1 the f_z should be multiplied by 0.8

Continued on the next page

Plunging angle for ramping and helical milling:
No. of teeth 3 = 5 °/No. of teeth 4 = 4°/No. of teeth 5 = 3°

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Cutting data standard values – MonsterMill – ICR – End mill, short – long

Index	Emulsion	Compressed air	MMS	Type short	Type long	52 784 ..., 52 786 ... Ø DC (mm) = 8			10			12			14		
						a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)			$a_{p\,max.}$ x DC		f_z (mm)											
P.1.1	140	130		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
P.1.2	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.3	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.4	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.5	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.1	120	110		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.2	120	110		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.3	80	90		1,0	1,0*	0,08	0,06	0,05	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08
P.2.4	80	90		1,0	1,0*	0,08	0,06	0,05	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08
P.3.1	80	90		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.3.2	80	90		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.3.3	100	110		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.4.1	100			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06
P.4.2	100			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06
M.1.1	**100**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
M.2.1	**80**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
M.3.1	**100**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
K.1.1		180		1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12
K.1.2		160		1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12
K.2.1		180		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,14	0,11	0,08	0,19	0,15	0,11
K.2.2		160		1,0	1,0*	0,11	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,19	0,15	0,11
K.3.1		120		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
K.3.2		120		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1	280	280		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
N.3.2	220	220		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
N.3.3	220	220		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
N.4.1																	
S.1.1	45			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.1.2	45			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.2.1	25			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
S.2.2	30			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.2.3	25			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,05	0,06	0,13	0,10	0,07
S.3.1	80			0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
S.3.2	60			0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
S.3.3	60			0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
H.1.1		80		0,3	0,3	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
H.1.2		60		0,15	0,15	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
H.1.3																	
H.1.4																	
H.2.1		80		0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
H.3.1		80		0,3	0,3	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
O.1.1	300	300		1,0	1,0*	0,22	0,17	0,12	0,27	0,21	0,15	0,32	0,25	0,18	0,38	0,29	0,21
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

* = with an a_p of 1.5 x d_1 the f_z should be multiplied by 0.8

Plunging angle for ramping and helical milling:
No. of teeth 3 = 5 °/No. of teeth 4 = 4°/No. of teeth 5 = 3°

Index	52 784 ..., 52 786 ...									● 1st choice ○ suitable		
	Ø DC (mm) =											
	16			18			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z (mm)									Emulsion	Compressed air	MMS
P.1.1	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
P.1.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.3	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.4	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.5	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.1	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.3	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.2.4	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.3.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.2	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.3	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.4.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
P.4.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.1.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.2.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.3.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
K.1.1	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.1.2	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.2.1	0,19	0,16	0,12	0,20	0,17	0,13	0,25	0,22	0,18		●	
K.2.2	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15		●	
K.3.1	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
K.3.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
N.3.2	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.3.3	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.4.1												
S.1.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.1.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.2.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.3	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.3.1	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
S.3.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
S.3.3	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
H.1.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10		●	
H.1.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09		●	
H.1.3												
H.1.4												
H.2.1	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11		●	
H.3.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10		●	
O.1.1	0,38	0,31	0,24	0,41	0,35	0,27	0,43	0,38	0,30	●		○
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – MonsterMill – ICR– End mill, extra long

Index	Emulsion	Compressed air	MMS	Type extra long		52 784 ...															
						Ø DC (mm) =															
						3			4			5			6			8		
						a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)			$a_{p\,max.}$ x DC		f_z (mm)															
P.1.1	120	110		1,0	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	0,10	0,08	0,06
P.1.2	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.3	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.4	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.5	120	110		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.1	100	90		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.2	100	90		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.3	70	70		1,0	0,5	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
P.2.4	70	70		1,0	0,5	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
P.3.1	70	70		1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.3.2	70	70		1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.3.3	85	90		1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.4.1	85			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
P.4.2	85			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.1.1	85			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.2.1	70			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.3.1	85			1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
K.1.1		150		1,0	0,5	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053	0,13	0,10	0,07
K.1.2		140		1,0	0,5	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053	0,13	0,10	0,07
K.2.1		150		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
K.2.2		140		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
K.3.1		105		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
K.3.2		105		1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	240	240		1,0	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,741	0,572	0,413	0,10	0,08	0,06
N.3.2	190	190		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
N.3.3	190	190		1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
N.4.1																					
S.1.1	38			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.1.2	38			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.2.1	23			0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
S.2.2	27			0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.2.3	23			0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
S.3.1	70			0,5	0,25	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
S.3.2	50			0,5	0,25	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
S.3.3	50			0,5	0,25	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
H.1.1		70		0,5*		0,027	0,021		0,036	0,028		0,045	0,035		0,054	0,042		0,07	0,06	
H.1.2		50		0,5*		0,025	0,019		0,031	0,024		0,040	0,031		0,047	0,036		0,06	0,05	
H.1.3																					
H.1.4																					
H.2.1		70		0,5*		0,031	0,024		0,040	0,031		0,052	0,040		0,061	0,047		0,08	0,06	
H.3.1		70		0,5*		0,027	0,021		0,036	0,028		0,045	0,035		0,054	0,042		0,07	0,06	
O.1.1	250	250		1,0	0,5	0,058	0,045	0,033	0,108	0,083	0,060	0,135	0,104	0,075	0,162	0,125	0,090	0,22	0,17	0,12
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

*= Edge Milling and Trochoidal Milling

Plunging angle for ramping and helical milling:
No. of teeth 3 = 5 °/No. of teeth 4 = 4°/No. of teeth 5 = 3°

Index	52 784 ... Ø DC (mm) = 10			12			14			16			18			20			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																				
P.1.1	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
P.1.2	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.3	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.4	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.5	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.1	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.2	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.3	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.2.4	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.3.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.2	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.3	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.4.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
P.4.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.1.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.2.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.3.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
K.1.1	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.1.2	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.2.1	0,14	0,10	0,08	0,14	0,11	0,08	0,19	0,15	0,11	0,19	0,16	0,12	0,20	0,17	0,13	0,25	0,22	0,18		●	
K.2.2	0,12	0,09	0,07	0,14	0,11	0,08	0,19	0,15	0,11	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15		●	
K.3.1	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
K.3.2	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
N.3.2	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.3.3	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.4.1																					
S.1.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.1.2	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.2.2	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.3	0,09	0,07	0,05	0,11	0,05	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.3.1	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
S.3.2	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
S.3.3	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
H.1.1	0,09	0,07		0,11	0,08		0,13	0,10		0,13	0,10		0,14	0,12		0,14	0,13			●	
H.1.2	0,08	0,06		0,09	0,07		0,11	0,09		0,11	0,09		0,12	0,10		0,13	0,11			●	
H.1.3																					
H.1.4																					
H.2.1	0,10	0,08		0,12	0,09		0,14	0,11		0,14	0,12		0,16	0,13		0,16	0,14			●	
H.3.1	0,09	0,07		0,11	0,08		0,13	0,10		0,13	0,10		0,14	0,12		0,14	0,13			●	
O.1.1	0,27	0,21	0,15	0,32	0,25	0,18	0,38	0,29	0,21	0,38	0,31	0,24	0,41	0,35	0,27	0,43	0,38	0,30	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

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Cutting data standard values – MonsterMill – TCR – End mill

Index	Type long	Type extra long	Type long	Type extra long	52 504 ..., 52 508 ...											
					Ø DC (mm) =											
					4			5			6			8		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)		$a_{p\,max.}$ x DC		f_z (mm)											
P.4.1	110	88	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
P.4.2	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.1.1	110	88	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.2.1	80	64	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.3.1	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	**80**	**96**	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,050	0,037	0,025
S.3.2	**70**	**80**	1,0	0,5	0,020	0,015	0,010	0,030	0,022	0,014	0,040	0,029	0,019	0,048	0,035	0,022
S.3.3	**60**	**64**	1,0	0,5	0,150	0,010	0,008	0,025	0,018	0,010	0,035	0,025	0,015	0,040	0,030	0,018

Cutting data standard values – MonsterMill – TCR – End mill

Index	Type long	Type long	52 506 ...											
			Ø DC (mm) =											
			4		5		6		8		10		12	
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.4.1	110	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06
P.4.2	100	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06
M.1.1	110	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06
M.2.1	80	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06
M.3.1	100	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	**80**	**1,0**	0,022	0,017	0,032	0,024	0,042	0,031	0,050	0,037	0,064	0,048	0,080	0,060
S.3.2	**70**	**1,0**	0,020	0,015	0,030	0,022	0,040	0,029	0,048	0,035	0,062	0,046	0,078	0,058
S.3.3	**60**	**1,0**	0,150	0,010	0,025	0,018	0,035	0,025	0,040	0,030	0,055	0,035	0,070	0,050

Index	52 504 ..., 52 508 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	10			12			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.4.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
P.4.2	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.1.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.2.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.3.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	0,064	0,048	0,032	0,080	0,060	0,040	0,085	0,065	0,045	0,111	0,090	0,070	●		
S.3.2	0,062	0,046	0,030	0,078	0,058	0,038	0,083	0,063	0,043	0,109	0,088	0,068	●		
S.3.3	0,055	0,035	0,025	0,070	0,050	0,030	0,075	0,055	0,035	0,100	0,080	0,060	●		

Index	52 506 ...				● 1st choice ○ suitable		
	Ø DC (mm) =						
	16		20				
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	Emulsion	Compressed air	MMS
	f_z (mm)						
P.4.1	0,085	0,065	0,111	0,09	●	○	
P.4.2	0,085	0,065	0,111	0,09	●	○	
M.1.1	0,085	0,065	0,111	0,09	●	○	
M.2.1	0,085	0,065	0,111	0,09	●	○	
M.3.1	0,085	0,065	0,111	0,09	●	○	
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1	0,085	0,065	0,111	0,090	●		
S.3.2	0,083	0,063	0,109	0,088	●		
S.3.3	0,075	0,055	0,100	0,080	●		

Cutting data standard values – MonsterMill – TCR – Ball-nosed end mill

Index	Type long	Type extra long		52 514 ...											
				Ø DC (mm) =											
				2		3		4		5		6		8	
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)											
P.4.1	110	65	0,1 - 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
P.4.2	100	60	0,1 - 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.1.1	110	65	0,1 - 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.2.1	80	55	0,1 - 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.3.1	100	60	0,1 - 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	**80**	**60**	0,1 - 0,2	0,017	0,013	0,02	0,014	0,022	0,017	0,022	0,017	0,034	0,025	0,053	0,042
S.3.2	**70**	**50**	0,1 - 0,2	0,014	0,011	0,017	0,012	0,019	0,014	0,019	0,014	0,029	0,022	0,046	0,036
S.3.3	**60**	**40**	0,1 - 0,2	0,012	0,009	0,014	0,01	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,03

Cutting data standard values – MonsterMill – TCR – Torus face cutter

● 1st choice
○ suitable

Index	Type long	Type extra long		52 512 ...									Emulsion	Compressed air	MMS
				Ø DC (mm) =											
				2	3	4	5	6	8	10	12	16			
				a_e 0,1–1,0 x DC											
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)											
P.4.1	120	110	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
P.4.2	110	100	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.1.1	120	110	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.2.1	100	90	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.3.1	110	100	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	**130**	**120**	0,06	0,025	0,040	0,060	0,070	0,090	0,11	0,13	0,18	0,22	●		
S.3.2	**110**	**100**	0,06	0,020	0,035	0,055	0,065	0,085	0,10	0,12	0,16	0,20	●		
S.3.3	**90**	**80**	0,06	0,015	0,030	0,050	0,060	0,080	0,09	0,11	0,15	0,18	●		

Index	52 514 ...						● 1st choice ○ suitable		
	Ø DC (mm) =								
	10		12		16				
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	Emulsion	Compressed air	MMS
	f_z (mm)								
P.4.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
P.4.2	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.1.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.2.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.3.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1	0,059	0,046	0,066	0,056	0,073	0,063	●		
S.3.2	0,05	0,04	0,056	0,048	0,062	0,054	●		
S.3.3	0,042	0,033	0,047	0,04	0,052	0,045	●		

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Cutting data standard values – MonsterMill – NCR – End mill, long

Index	ZEFP = 4			Type long	53 030 ...											
					Ø DC (mm) =											
					4			5			6			8		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)			$a_{p\,max.}$ x DC	f_z (mm)											
M.1.1	120	100	70	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
M.2.1	100	80	60	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
M.3.1	120	100	70	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.1.1	**50**	**40**	**30**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.1.2	**50**	**40**	**30**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.1	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.2	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.3	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.3.1	**120**	**100**	**80**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04
S.3.2	**100**	**80**	**60**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04
S.3.3	**80**	**70**	**60**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04

Plunging angle for ramping and helical milling: 3°

Index	ZEFP = 5	Type long	53 031 ...												● 1st choice ○ suitable		
			Ø DC (mm) =														
			6		8		10		12		16		20				
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	Emulsion	Compressed air	MMS
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)														
M.1.1	100	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
M.2.1	80	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
M.3.1	100	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
S.1.1	**40**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.1.2	**40**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.1	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.2	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.3	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.3.1	**100**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		
S.3.2	**80**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		
S.3.3	**70**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		

Plunging angle for ramping and helical milling = 1°

Index	53 030 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	10			12			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
M.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
M.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
M.3.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
S.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.1.2	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.2	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.3	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.3.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		
S.3.2	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		
S.3.3	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		

Cutting data standard values – MonsterMill – NCR – End mill, extra long

Index	ZEFP = 4		Type extra long	53 030 ...											
				Ø DC (mm) =											
				4		5		6		8		10		12	
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)											
M.1.1	100	80	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
M.2.1	90	70	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
M.3.1	100	80	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.1.1	**50**	**40**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.1.2	**50**	**40**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.1	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.2	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.3	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.3.1	**100**	**80**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08
S.3.2	**80**	**70**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08
S.3.3	**70**	**60**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08

Plunging angle for ramping and helical milling: 3°

Cutting data standard values – MonsterMill – NCR – ball-nosed end mill

Index	Type long	Type extra long	$a_{p\,max.}$ x DC	53 032 ... / 53 033 ...											
				Ø DC (mm) =											
				2		3		4		5		6		8	
				a_e 0,01–0,02 x DC	a_e 0,03–0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,05 x DC
	v_c (m/min)			f_z (mm)											
M.1.1	120	90	0.02	0.02	0.015	0.03	0.02	0.035	0.025	0.04	0.03	0.055	0.04	0.07	0.05
M.2.1	100	80	0.02	0.02	0.015	0.03	0.02	0.035	0.025	0.04	0.03	0.055	0.04	0.07	0.05
M.3.1	120	90	0.02	0.02	0.015	0.03	0.02	0.035	0.025	0.04	0.03	0.055	0.04	0.07	0.05
S.1.1	**60**	**50**	**0.02**	0.015	0.01	0.025	0.015	0.03	0.02	0.04	0.025	0.05	0.03	0.06	0.04
S.1.2	**60**	**50**	**0.02**	0.015	0.01	0.025	0.015	0.03	0.02	0.04	0.025	0.05	0.03	0.06	0.04
S.2.1	**50**	**40**	**0.02**	0.015	0.01	0.025	0.015	0.03	0.02	0.04	0.025	0.05	0.03	0.06	0.04
S.2.2	**50**	**40**	**0.02**	0.015	0.01	0.025	0.015	0.03	0.02	0.04	0.025	0.05	0.03	0.06	0.04
S.2.3	**50**	**40**	**0.02**	0.015	0.01	0.025	0.015	0.03	0.02	0.04	0.025	0.05	0.03	0.06	0.04
S.3.1	100	80	0.02	0.02	0.015	0.03	0.02	0.035	0.025	0.04	0.03	0.055	0.04	0.07	0.05
S.3.2	90	70	0.02	0.02	0.015	0.03	0.02	0.035	0.025	0.04	0.03	0.055	0.04	0.07	0.05
S.3.3	90	70	0.02	0.02	0.015	0.03	0.02	0.035	0.025	0.04	0.03	0.055	0.04	0.07	0.05

Index	53 030 ... Ø DC (mm) = 16 a_e 0,1–0,2 x DC	16 a_e 0,3–0,4 x DC	20 a_e 0,1–0,2 x DC	20 a_e 0,3–0,4 x DC	Emulsion	Compressed air	MMS
	f_z (mm)				● 1st choice ○ suitable		
M.1.1	0,12	0,09	0,14	0,10	●		○
M.2.1	0,12	0,09	0,14	0,10	●		○
M.3.1	0,12	0,09	0,14	0,10	●		○
S.1.1	0,12	0,09	0,14	0,10	●		
S.1.2	0,12	0,09	0,14	0,10	●		
S.2.1	0,12	0,09	0,14	0,10	●		
S.2.2	0,12	0,09	0,14	0,10	●		
S.2.3	0,12	0,09	0,14	0,10	●		
S.3.1	0,13	0,10	0,16	0,12	●		
S.3.2	0,13	0,10	0,16	0,12	●		
S.3.3	0,13	0,10	0,16	0,12	●		

Index	53 032 ... / 53 033 ... Ø DC (mm) = 10 a_e 0,01–0,02 x DC	10 a_e 0,03–0,05 x DC	12 a_e 0,01–0,02 x DC	12 a_e 0,03–0,05 x DC	16 a_e 0,01–0,02 x DC	16 a_e 0,03–0,05 x DC	Emulsion	Compressed air	MMS
	f_z (mm)						● 1st choice ○ suitable		
M.1.1	0.08	0.06	0.09	0.07	0.12	0.1	●		○
M.2.1	0.08	0.06	0.09	0.07	0.12	0.1	●		○
M.3.1	0.08	0.06	0.09	0.07	0.12	0.1	●		○
S.1.1	0.07	0.05	0.08	0.06	0.1	0.08	●		
S.1.2	0.07	0.05	0.08	0.06	0.1	0.08	●		
S.2.1	0.07	0.05	0.08	0.06	0.1	0.08	●		
S.2.2	0.07	0.05	0.08	0.06	0.1	0.08	●		
S.2.3	0.07	0.05	0.08	0.06	0.1	0.08	●		
S.3.1	0.08	0.06	0.09	0.07	0.12	0.1	●		
S.3.2	0.08	0.06	0.09	0.07	0.12	0.1	●		
S.3.3	0.08	0.06	0.09	0.07	0.12	0.1	●		

Cutting data standard values – MonsterMill – HCR – End mill

Index	$T_x \leq 2,5 \times DC$		53 603 ..., 53 604 ...									
			Ø DC (mm) =									
	Peripheral milling		0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
P.2.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
P.3.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
H.1.1	170	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
H.1.2	160	1,0	0,005	0,005	0,010	0,010	0,014	0,014	0,019	0,024	0,029	0,034
H.1.3	150	1,0	0,004	0,004	0,008	0,008	0,012	0,012	0,016	0,020	0,024	0,028
H.1.4	110	1,0	0,003	0,003	0,006	0,006	0,010	0,010	0,013	0,016	0,019	0,022

Index	$T_x \leq 2,5 \times DC$		53 603 ..., 53 604 ...									
			Ø DC (mm) =									
	Z-layer milling / face milling		0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.2.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.3.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.1	110	0,05	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.2	100	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017
H.1.3	80	0,03	0,002	0,002	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,014
H.1.4	60	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

Index	$T_x \leq 2,5 \times DC$		53 603 ..., 53 604 ...									
			Ø DC (mm) =									
	Full slot		0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.2.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.3.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.1	55	0,05	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.2	45	0,05	0,001	0,001	0,003	0,003	0,004	0,005	0,006	0,007	0,008	0,010
H.1.3												
H.1.4												

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
P.2.3	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
P.3.3	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
H.1.1	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
H.1.2	0,043	0,048	0,067	0,101	0,134	0,168	0,192	○	●	●
H.1.3	0,036	0,040	0,056	0,084	0,112	0,140	0,160	○	●	●
H.1.4	0,029	0,032	0,045	0,067	0,090	0,112	0,128	○	●	●

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	0,018	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	0,014	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
P.2.3	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
P.3.3	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
H.1.1	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
H.1.2	0,012	0,015	0,020	0,030	0,033	0,035	0,040	○	●	●
H.1.3										
H.1.4										

Cutting data standard values – MonsterMill – HCR – End mill

Index	T_x ≤ 2,6–5,0 x DC		53 603 ..., 53 604 ...									
			Ø DC (mm) =									
	Peripheral milling		0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
P.2.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
P.3.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
H.1.1	119	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
H.1.2	112	1,0	0,004	0,004	0,007	0,007	0,011	0,011	0,014	0,018	0,022	0,025
H.1.3	105	1,0	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.4	77	1,0	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017

Index	T_x ≤ 2,6–5,0 x DC		53 603 ..., 53 604 ...									
			Ø DC (mm) =									
	Z-layer milling / face milling		0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,03 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
P.2.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
P.3.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
H.1.1	77	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
H.1.2	70	0,05	0,002	0,002	0,004	0,004	0,005	0,005	0,007	0,009	0,011	0,013
H.1.3	56	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.4	60	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

Index	T_x ≤ 2,6–5,0 x DC		53 603 ..., 53 604 ...									
			Ø DC (mm) =									
	Full slot		0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 1,0 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.2.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.3.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.1	39	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.2	32	0,05	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,005	0,006	0,007
H.1.3												
H.1.4												

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
P.2.3	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
P.3.3	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
H.1.1	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
H.1.2	0,032	0,036	0,050	0,076	0,101	0,126	0,144	○	●	●
H.1.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.4	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,03 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
P.2.3	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
P.3.3	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
H.1.1	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
H.1.2	0,016	0,018	0,025	0,038	0,050	0,063	0,072	○	●	●
H.1.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.4	0,011	0,012	0,017	0,025	0,034	0,042	0,048	○	●	●

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 1,0 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.2.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.3.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.1	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.2	0,009	0,010	0,014	0,021	0,028	0,035	0,040	○	●	●
H.1.3										
H.1.4										

Cutting data standard values – MonsterMill – HCR – End mill

Index	$T_x \leq 5{,}1–10{,}0 \times DC$		53 603 ..., 53 604 ...									
	Peripheral milling		Ø DC (mm) =									
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.2.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.3.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.1	94	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.2	88	0,75	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017
H.1.3	83	0,75	0,002	0,002	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,014
H.1.4	61	0,75	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

Index	$T_x \leq 5{,}1–10{,}0 \times DC$		53 603 ..., 53 604 ...									
	Z-layer milling / face milling		Ø DC (mm) =									
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,3 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.2.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.3.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.1	61	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.2	55	0,05	0,001	0,001	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008
H.1.3	44	0,03	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,005	0,006	0,007
H.1.4	33	0,03	0,001	0,001	0,002	0,002	0,002	0,002	0,003	0,004	0,005	0,006

● 1st choice
○ suitable

Index	$T_x \leq 10{,}1–15{,}0 \times DC$		53 603 ..., 53 604 ...												
	Peripheral milling		Ø DC (mm) =												
			0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2	2,5	3	4	Emulsion	Compressed air	MMS
			a_e 0,05 x DC													
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)													
P.1.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
P.2.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
P.3.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
H.1.1	77	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
H.1.2	72	0,5	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,013	0,017	0,019	0,027	○	●	●
H.1.3	68	0,5	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011	0,014	0,016	0,022	○	●	●
H.1.4	50	0,5	0,003	0,003	0,004	0,004	0,005	0,006	0,008	0,009	0,012	0,013	0,018	○	●	●

● 1st choice
○ suitable

Index	$T_x \leq 10{,}1–15{,}0 \times DC$		53 603 ..., 53 604 ...												
	Z-layer milling / face milling		Ø DC (mm) =												
			0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2	2,5	3	4	Emulsion	Compressed air	MMS
			a_e 0,3 x DC													
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)													
P.1.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
P.2.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
P.3.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
H.1.1	77	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024	0,034	○	●	●
H.1.2	72	0,5	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,013	0,017	0,019	0,027	○	●	●
H.1.3	68	0,5	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011	0,014	0,016	0,022	○	●	●
H.1.4	50	0,5	0,003	0,003	0,004	0,004	0,005	0,006	0,008	0,009	0,012	0,013	0,018	○	●	●

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	0,018	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	0,014	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

Index	53 603 ..., 53 604 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,3 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.2.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.3.3	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.1	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.2	0,011	0,012	0,017	0,025	0,034	0,042	0,048	○	●	●
H.1.3	0,009	0,010	0,014	0,021	0,028	0,035	0,040	○	●	●
H.1.4	0,007	0,008	0,011	0,017	0,022	0,028	0,032	○	●	●

Cutting data standard values – MonsterMill – HCR – End mill

Index	$T_x \leq 2 \times DC$		53 605 ...								● 1st choice ○ suitable		
			Ø DC (mm) =										
	Peripheral milling		1	2	3	4	6	8	10	12	Emulsion	Compressed air	MMS
			a_e 0,05 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)										
P.1.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
P.2.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
P.3.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
H.1.1	160	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
H.1.2	130	2,0	0,014	0,022	0,030	0,041	0,060	0,074	0,096	0,108	○	●	●
H.1.3	120	2,0	0,012	0,018	0,025	0,034	0,050	0,062	0,080	0,090	○	●	●
H.1.4	110	2,0	0,010	0,014	0,020	0,027	0,040	0,050	0,064	0,072	○	●	●

Index	$T_x \leq 2 \times DC$		53 605 ...								● 1st choice ○ suitable		
			Ø DC (mm) =										
	Face milling		1	2	3	4	6	8	10	12	Emulsion	Compressed air	MMS
			a_e 0,05 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)										
P.1.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	110	0,05	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	90	0,05	0,012	0,017	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	75	0,03	0,010	0,014	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	60	0,03	0,008	0,011	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

Index	$T_x \leq 3 \times DC$		53 606 ...								● 1st choice ○ suitable		
			Ø DC (mm) =										
	Peripheral milling		1	2	3	4	6	8	10	12	Emulsion	Compressed air	MMS
			a_e 0,04 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)										
P.1.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
P.2.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
P.3.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
H.1.1	119	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
H.1.2	112	2,0	0,011	0,019	0,026	0,036	0,053	0,066	0,084	0,096	○	●	●
H.1.3	105	2,0	0,009	0,016	0,022	0,030	0,044	0,055	0,070	0,080	○	●	●
H.1.4	77	2,0	0,007	0,013	0,018	0,024	0,035	0,044	0,056	0,064	○	●	●

Index	$T_x \leq 3 \times DC$		53 606 ...								● 1st choice ○ suitable		
			Ø DC (mm) =										
	Face milling		1	2	3	4	6	8	10	12	Emulsion	Compressed air	MMS
			a_e 0,04 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)										
P.1.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
P.2.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
P.3.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
H.1.1	84	0,05	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
H.1.2	77	0,05	0,007	0,011	0,018	0,029	0,043	0,058	0,072	0,084	○	●	●
H.1.3	63	0,03	0,006	0,009	0,015	0,024	0,036	0,048	0,060	0,070	○	●	●
H.1.4	42	0,03	0,005	0,007	0,012	0,019	0,029	0,038	0,048	0,056	○	●	●

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Cutting data standard values – MonsterMill – HCR – Ball-nosed end mill

Index	$T_x \leq 2,5 \times DC$		53 602 ...						● 1st choice ○ suitable		
			Ø DC (mm) =								
			3	4	6	8	10	12			
			a_e 0,05 x DC								
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)						Emulsion	Compressed air	MMS
P.1.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.2.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.3.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.1	180	0,05	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.2	160	0,05	0,030	0,040	0,060	0,081	0,101	0,121	○	●	●
H.1.3	150	0,03	0,025	0,034	0,050	0,067	0,084	0,101	○	●	●
H.1.4	130	0,03	0,020	0,027	0,040	0,054	0,067	0,081	○	●	●

Index	$T_x \leq 2,6–5,0 \times DC$		53 602 ...						● 1st choice ○ suitable		
			Ø DC (mm) =								
			3	4	6	8	10	12			
			a_e 0,05 x DC								
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)						Emulsion	Compressed air	MMS
P.1.3	120	0,07	0,03	0,04	0,053	0,073	0,093	0,113	○	●	●
P.2.3	120	0,07	0,03	0,04	0,053	0,073	0,093	0,113	○	●	●
P.3.3	120	0,07	0,03	0,04	0,053	0,073	0,093	0,113	○	●	●
H.1.1	108	0,05	0,030	0,040	0,053	0,073	0,093	0,113	○	●	●
H.1.2	96	0,05	0,024	0,032	0,042	0,058	0,075	0,091	○	●	●
H.1.3	90	0,03	0,020	0,027	0,035	0,049	0,062	0,076	○	●	●
H.1.4	78	0,03	0,016	0,022	0,028	0,039	0,050	0,060	○	●	●

Index	$T_x \leq 5,1–10,0 \times DC$		53 602 ...						● 1st choice ○ suitable		
			Ø DC (mm) =								
			3	4	6	8	10	12			
			a_e 0,04 x DC								
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)						Emulsion	Compressed air	MMS
P.1.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
P.2.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
P.3.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
H.1.1	81	0,04	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
H.1.2	72	0,04	0,018	0,024	0,024	0,036	0,048	0,060	○	●	●
H.1.3	68	0,02	0,015	0,020	0,020	0,030	0,040	0,050	○	●	●
H.1.4	59	0,02	0,012	0,016	0,016	0,024	0,032	0,040	○	●	●

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For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Cutting data standard values – MonsterMill – HCR – Ball-nosed end mill

Index	$T_x \leq 2,5 \times DC$		53 600 ..., 53 601 ...									
			Ø DC (mm) =									
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
P.2.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
P.3.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
H.1.1	180	0,05	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
H.1.2	160	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.3	150	0,03	0,002	0,004	0,005	0,007	0,010	0,012	0,014	0,018	0,022	0,024
H.1.4	130	0,03	0,002	0,003	0,004	0,006	0,008	0,010	0,011	0,014	0,018	0,019

Index	$T_x \leq 2,6–5,0 \times DC$		53 600 ..., 53 601 ...									
			Ø DC (mm) =									
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
P.2.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
P.3.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.1	108	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.2	96	0,05	0,002	0,004	0,005	0,007	0,010	0,011	0,014	0,017	0,020	0,023
H.1.3	90	0,03	0,002	0,003	0,004	0,006	0,008	0,010	0,012	0,015	0,017	0,019
H.1.4	78	0,03	0,001	0,002	0,003	0,004	0,006	0,008	0,009	0,012	0,014	0,015

Index	$T_x \leq 5,1–10,0 \times DC$		53 600 ..., 53 601 ...									
			Ø DC (mm) =									
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
P.2.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
P.3.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
H.1.1	81	0,04	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
H.1.2	72	0,04	0,001	0,002	0,004	0,005	0,007	0,008	0,011	0,013	0,014	0,017
H.1.3	68	0,02	0,001	0,002	0,003	0,004	0,006	0,007	0,009	0,011	0,012	0,014
H.1.4	59	0,02	0,001	0,002	0,002	0,003	0,005	0,006	0,007	0,009	0,010	0,011

Index	$T_x \leq 10,1–15,0 \times DC$		53 600 ..., 53 601 ...									
			Ø DC (mm) =									
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1	1,2–1,4	1,5	1,6–1,8	2
			a_e 0,04 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.1.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.2.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.3.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.1	63	0,03	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.2	56	0,03	0,001	0,001	0,002	0,004	0,005	0,006	0,007	0,008	0,010	0,012
H.1.3	53	0,01	0,001	0,001	0,002	0,003	0,004	0,005	0,006	0,007	0,008	0,010
H.1.4	46	0,01	0,001	0,001	0,002	0,002	0,003	0,004	0,005	0,006	0,006	0,008

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Index	53 600 ..., 53 601 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
P.2.3	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
P.3.3	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
H.1.1	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
H.1.2	0,036	0,043	0,058	0,086	0,115	0,144	0,173	○	●	●
H.1.3	0,030	0,036	0,048	0,072	0,096	0,120	0,144	○	●	●
H.1.4	0,024	0,029	0,038	0,058	0,077	0,096	0,115	○	●	●

Index	53 600 ..., 53 601 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
P.2.3	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
P.3.3	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
H.1.1	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
H.1.2	0,029	0,035	0,046	0,060	0,084	0,107	0,130	○	●	●
H.1.3	0,024	0,029	0,039	0,050	0,070	0,089	0,108	○	●	●
H.1.4	0,019	0,023	0,031	0,040	0,056	0,071	0,086	○	●	●

Index	53 600 ..., 53 601 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,05 x DC									
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
P.2.3	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
P.3.3	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
H.1.1	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
H.1.2	0,022	0,026	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.3	0,018	0,022	0,029	0,029	0,043	0,058	0,072	○	●	●
H.1.4	0,014	0,018	0,023	0,023	0,035	0,046	0,058	○	●	●

Index	53 600 ..., 53 601 ...							● 1st choice ○ suitable		
	Ø DC (mm) =									
	2,5	3	4	6	8	10	12			
	a_e 0,04 x DC		a_e 0,05 x DC							
	f_z (mm)							Emulsion	Compressed air	MMS
P.1.3	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
P.2.3	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
P.3.3	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.1	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.2	0,017	0,022	0,028	0,028	0,041	0,055	0,069	○	●	●
H.1.3	0,014	0,018	0,023	0,023	0,035	0,046	0,058	○	●	●
H.1.4	0,011	0,014	0,019	0,018	0,028	0,037	0,046	○	●	●

Cutting data standard values – MonsterMill – PCR – End mill, UNI version

Index	Short / long / extra long version		52 613 ..., 52 614 ..., 52 615 ..., 52 619 ...																					
			Ø DC (mm) =																					
			5,0			5,7–6,0			6,7–7,0			7,7–8,0			8,7–9,0			9,7–10,0			11,7–12,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)																					
P.1.1	240	1,0	0,096	0,068	0,043	0,107	0,075	0,048	0,122	0,086	0,054	0,136	0,096	0,061	0,150	0,106	0,067	0,163	0,115	0,073	0,188	0,133	0,084
P.1.2	230	1,0	0,092	0,065	0,041	0,102	0,072	0,046	0,116	0,082	0,052	0,130	0,092	0,058	0,143	0,101	0,064	0,156	0,110	0,070	0,179	0,127	0,080
P.1.3	220	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
P.1.4	205	1,0	0,083	0,059	0,037	0,092	0,065	0,041	0,105	0,074	0,047	0,118	0,083	0,053	0,130	0,092	0,058	0,141	0,100	0,063	0,162	0,115	0,072
P.1.5	195	1,0	0,079	0,056	0,035	0,087	0,062	0,039	0,100	0,070	0,045	0,111	0,079	0,050	0,123	0,087	0,055	0,134	0,094	0,060	0,153	0,109	0,069
P.2.1	220	1,0	0,096	0,068	0,043	0,107	0,075	0,048	0,122	0,086	0,054	0,136	0,096	0,061	0,150	0,106	0,067	0,163	0,115	0,073	0,188	0,133	0,084
P.2.2	200	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
P.2.3	180	1,0	0,079	0,056	0,035	0,087	0,062	0,039	0,100	0,070	0,045	0,111	0,079	0,050	0,123	0,087	0,055	0,134	0,094	0,060	0,153	0,109	0,069
P.2.4	140	1,0	0,073	0,051	0,033	0,081	0,057	0,036	0,092	0,065	0,041	0,103	0,073	0,046	0,114	0,080	0,051	0,124	0,087	0,055	0,142	0,100	0,064
P.3.1	130	1,0	0,084	0,060	0,038	0,094	0,066	0,042	0,107	0,076	0,048	0,120	0,085	0,054	0,132	0,093	0,059	0,143	0,101	0,064	0,165	0,117	0,074
P.3.2	120	1,0	0,080	0,057	0,036	0,089	0,063	0,040	0,101	0,072	0,045	0,114	0,080	0,051	0,125	0,088	0,056	0,136	0,096	0,061	0,156	0,111	0,070
P.3.3	110	1,0	0,076	0,053	0,034	0,084	0,059	0,038	0,096	0,068	0,043	0,107	0,076	0,048	0,118	0,084	0,053	0,129	0,091	0,058	0,148	0,104	0,066
P.4.1	90	1,0	0,058	0,041	0,026	0,065	0,046	0,029	0,074	0,052	0,033	0,083	0,058	0,037	0,091	0,064	0,041	0,099	0,070	0,044	0,114	0,080	0,051
P.4.2	90	1,0	0,058	0,041	0,026	0,065	0,046	0,029	0,074	0,052	0,033	0,083	0,058	0,037	0,091	0,064	0,041	0,099	0,070	0,044	0,114	0,080	0,051
M.1.1	60	1,0	0,051	0,036	0,023	0,057	0,040	0,025	0,065	0,046	0,029	0,072	0,051	0,032	0,080	0,056	0,036	0,087	0,061	0,039	0,099	0,070	0,044
M.2.1	55	1,0	0,042	0,030	0,019	0,047	0,033	0,021	0,054	0,038	0,024	0,060	0,042	0,027	0,066	0,047	0,029	0,072	0,051	0,032	0,082	0,058	0,037
M.3.1	60	1,0	0,044	0,031	0,020	0,048	0,034	0,022	0,055	0,039	0,025	0,062	0,044	0,028	0,068	0,048	0,031	0,074	0,052	0,033	0,085	0,060	0,038
K.1.1	240	1,0	0,145	0,103	0,065	0,162	0,114	0,072	0,185	0,130	0,083	0,206	0,146	0,092	0,227	0,161	0,102	0,247	0,175	0,111	0,284	0,201	0,127
K.1.2	180	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.2.1	220	1,0	0,124	0,087	0,055	0,137	0,097	0,061	0,157	0,111	0,070	0,175	0,124	0,078	0,193	0,137	0,086	0,210	0,149	0,094	0,242	0,171	0,108
K.2.2	180	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.3.1	160	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.3.2	150	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
N.1.1																							
N.1.2																							
N.2.1																							
N.2.2																							
N.2.3																							
N.3.1																							
N.3.2																							
N.3.3																							
N.4.1																							
S.1.1																							
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H.1.3																							
H.1.4																							
H.2.1																							
H.3.1																							
O.1.1																							
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

Index	52 613 ..., 52 614 ..., 52 615 ..., 52 619 ...														● 1st choice ○ suitable		
	Ø DC (mm) =									Ramping	Helical milling			Drilling			
	13,7–14,0			15,5–16,0			17,5–20,0			1,0 x DC		Hole diameter		1,0 x DC			
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Max. plunging angle	$\alpha_{R\,max.}$*	$D_{min.}$ DC x 1,5	$D_{max.}$ DC x 1,8	f_z Factor	Emulsion	Compressed air	MMS
	f_z (mm)																
P.1.1	0,209	0,148	0,094	0,229	0,162	0,102	0,262	0,185	0,117	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.2	0,200	0,141	0,089	0,219	0,155	0,098	0,250	0,177	0,112	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.3	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.4	0,181	0,128	0,081	0,198	0,140	0,088	0,226	0,160	0,101	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.5	0,171	0,121	0,077	0,187	0,133	0,084	0,214	0,152	0,096	45	0,75 x DC	25°	16°	0,9	○	●	○
P.2.1	0,209	0,148	0,094	0,229	0,162	0,102	0,262	0,185	0,117	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.2	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.3	0,171	0,121	0,077	0,187	0,133	0,084	0,214	0,152	0,096	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.4	0,159	0,112	0,071	0,174	0,123	0,078	0,198	0,140	0,089	45	0,75 x DC	25°	16°	0,7	○	●	○
P.3.1	0,184	0,130	0,082	0,201	0,142	0,090	0,230	0,163	0,103	30	0,5 x DC	18°	11°	0,8	●		○
P.3.2	0,175	0,123	0,078	0,191	0,135	0,085	0,218	0,154	0,098	30	0,5 x DC	18°	11°	0,7	●		○
P.3.3	0,165	0,117	0,074	0,181	0,128	0,081	0,206	0,146	0,092	30	0,5 x DC	18°	11°	0,7	●		○
P.4.1	0,127	0,090	0,057	0,139	0,098	0,062	0,159	0,112	0,071	15	0,5 x DC	18°	11°		●		○
P.4.2	0,127	0,090	0,057	0,139	0,098	0,062	0,159	0,112	0,071	15	0,5 x DC	18°	11°		●		○
M.1.1	0,111	0,079	0,050	0,122	0,086	0,054	0,139	0,098	0,062	15	0,5 x DC	18°	11°		●		
M.2.1	0,092	0,065	0,041	0,101	0,071	0,045	0,115	0,081	0,051	15	0,5 x DC	18°	11°		●		
M.3.1	0,095	0,067	0,043	0,104	0,074	0,047	0,119	0,084	0,053	15	0,5 x DC	18°	11°		●		
K.1.1	0,317	0,224	0,142	0,347	0,245	0,155	0,397	0,281	0,178	45	0,75 x DC	25°	16°	0,8		●	
K.1.2	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.2.1	0,270	0,191	0,121	0,295	0,209	0,132	0,337	0,239	0,151	45	0,75 x DC	25°	16°	0,8		●	
K.2.2	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.3.1	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.3.2	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,8		●	
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1																	
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S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

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* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – PCR – End mill, UNI version – trochoidal milling

Index	Type long		52 619																			
			Ø DC (mm) =																			
			5				6				8				10				12			
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1	505	46°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,038	0,19	0,14	0,11	0,043
P.1.2	480	46°	0,09	0,06	0,05	0,020	0,11	0,07	0,06	0,024	0,13	0,10	0,08	0,030	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,041
P.1.3	460	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
P.1.4	435	46°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,021	0,12	0,09	0,07	0,027	0,15	0,10	0,08	0,033	0,17	0,12	0,10	0,038
P.1.5	415	46°	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,020	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.2.1	460	46°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,038	0,19	0,14	0,11	0,043
P.2.2	415	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
P.2.3	375	46°	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,020	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.2.4	290	46°	0,07	0,05	0,04	0,016	0,08	0,06	0,05	0,019	0,11	0,08	0,06	0,024	0,13	0,09	0,07	0,029	0,15	0,10	0,08	0,033
P.3.1	270	46°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,12	0,09	0,07	0,028	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,038
P.3.2	250	46°	0,08	0,06	0,05	0,018	0,09	0,07	0,05	0,021	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.3.3	230	46°	0,07	0,05	0,04	0,017	0,09	0,06	0,05	0,019	0,11	0,08	0,06	0,025	0,13	0,09	0,08	0,030	0,15	0,11	0,09	0,034
P.4.1	190	46°	0,06	0,04	0,03	0,013	0,07	0,05	0,04	0,015	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026
P.4.2	190	46°	0,06	0,04	0,03	0,013	0,07	0,05	0,04	0,015	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026
M.1.1	220	35°	0,05	0,03		0,011	0,06	0,04		0,013	0,08	0,05		0,018	0,10	0,06		0,022	0,12	0,07		0,027
M.2.1	200	35°	0,06	0,04		0,013	0,07	0,05		0,016	0,10	0,06		0,021	0,12	0,08		0,027	0,14	0,10		0,032
M.3.1	200	35°	0,06	0,04		0,013	0,07	0,05		0,016	0,10	0,06		0,021	0,12	0,08		0,027	0,14	0,10		0,032
K.1.1	500	46°	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,037	0,21	0,15	0,12	0,048	0,26	0,18	0,15	0,057	0,29	0,21	0,17	0,066
K.1.2	375	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.2.1	460	46°	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,041	0,22	0,15	0,13	0,049	0,25	0,18	0,14	0,056
K.2.2	375	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.3.1	335	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.3.2	315	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
N.1.1																						
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O.2.2																						
O.3.1																						

Cutting depth corresponding to the cutting length

Index	52 619 .... Ø DC (mm) = 14				16				18				20				● 1st choice ○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)						
P.1.1	0,22	0,15	0,13	0,049	0,24	0,17	0,14	0,053	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,061	○	●	○
P.1.2	0,21	0,15	0,12	0,046	0,23	0,16	0,13	0,051	0,24	0,17	0,14	0,054	0,26	0,18	0,15	0,058	○	●	○
P.1.3	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055	○	●	○
P.1.4	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,046	0,22	0,16	0,13	0,049	0,23	0,17	0,14	0,052	○	●	○
P.1.5	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	○	●	○
P.2.1	0,22	0,15	0,13	0,049	0,24	0,17	0,14	0,053	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,061	○	●	○
P.2.2	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055	○	●	○
P.2.3	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	○	●	○
P.2.4	0,16	0,12	0,09	0,037	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,046	○	●	○
P.3.1	0,19	0,13	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	0,24	0,17	0,14	0,053	●		○
P.3.2	0,18	0,13	0,10	0,040	0,20	0,14	0,11	0,044	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,051	●		○
P.3.3	0,17	0,12	0,10	0,038	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,048	●		○
P.4.1	0,13	0,09	0,08	0,029	0,14	0,10	0,08	0,032	0,15	0,11	0,09	0,035	0,16	0,12	0,09	0,037	●		○
P.4.2	0,13	0,09	0,08	0,029	0,14	0,10	0,08	0,032	0,15	0,11	0,09	0,035	0,16	0,12	0,09	0,037	●		○
M.1.1	0,14	0,08		0,031	0,16	0,10		0,036	0,18	0,11		0,040	0,20	0,12		0,045	●		
M.2.1	0,17	0,11		0,038	0,19	0,13		0,043	0,22	0,14		0,048	0,24	0,16		0,054	●		
M.3.1	0,17	0,11		0,038	0,19	0,13		0,043	0,22	0,14		0,048	0,24	0,16		0,054	●		
K.1.1	0,33	0,23	0,19	0,073	0,36	0,25	0,21	0,080	0,39	0,27	0,22	0,086	0,41	0,29	0,24	0,092		●	
K.1.2	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.2.1	0,28	0,20	0,16	0,062	0,31	0,22	0,18	0,068	0,33	0,23	0,19	0,074	0,35	0,25	0,20	0,078		●	
K.2.2	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.3.1	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.3.2	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055		●	
N.1.1																			
N.1.2																			
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O.2.2																			
O.3.1																			

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Cutting data standard values – MonsterMill – PCR – End mill, AL version

Index	Type long / extra long		52 616 ..., 52 617 ..., 52 618 ...																				
			Ø DC (mm) =																				
			5,0			5,7–7,0			7,7–8,0			8,7–10,0			11,7–12,0			13,7–14,0			15,5–16,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)																				
P.1.1																							
P.1.2																							
P.1.3																							
P.1.4																							
P.1.5																							
P.2.1																							
P.2.2																							
P.2.3																							
P.2.4																							
P.3.1																							
P.3.2																							
P.3.3																							
P.4.1																							
P.4.2																							
M.1.1																							
M.2.1																							
M.3.1																							
K.1.1																							
K.1.2																							
K.2.1																							
K.2.2																							
K.3.1																							
K.3.2																							
N.1.1	630	1,0	0,111	0,078	0,050	0,149	0,105	0,067	0,167	0,118	0,075	0,200	0,141	0,089	0,229	0,162	0,103	0,256	0,181	0,115	0,280	0,198	0,125
N.1.2	575	1,0	0,101	0,071	0,045	0,135	0,096	0,061	0,151	0,107	0,068	0,181	0,128	0,081	0,208	0,147	0,093	0,233	0,165	0,104	0,255	0,180	0,114
N.2.1	380	1,0	0,106	0,075	0,047	0,142	0,101	0,064	0,159	0,112	0,071	0,190	0,135	0,085	0,219	0,155	0,098	0,244	0,173	0,109	0,267	0,189	0,120
N.2.2	305	1,0	0,111	0,078	0,050	0,149	0,105	0,067	0,167	0,118	0,075	0,200	0,141	0,089	0,229	0,162	0,103	0,256	0,181	0,115	0,280	0,198	0,125
N.2.3	220	1,0	0,121	0,086	0,054	0,162	0,115	0,073	0,182	0,129	0,081	0,218	0,154	0,097	0,250	0,177	0,112	0,279	0,198	0,125	0,306	0,216	0,137
N.3.1	275	1,0	0,050	0,036	0,023	0,068	0,048	0,030	0,076	0,054	0,034	0,091	0,064	0,041	0,104	0,074	0,047	0,116	0,082	0,052	0,127	0,090	0,057
N.3.2	165	1,0	0,081	0,057	0,036	0,108	0,077	0,048	0,121	0,086	0,054	0,145	0,103	0,065	0,167	0,118	0,075	0,186	0,132	0,083	0,204	0,144	0,091
N.3.3	220	1,0	0,081	0,057	0,036	0,108	0,077	0,048	0,121	0,086	0,054	0,145	0,103	0,065	0,167	0,118	0,075	0,186	0,132	0,083	0,204	0,144	0,091
N.4.1																							
S.1.1																							
S.1.2																							
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H.2.1																							
H.3.1																							
O.1.1																							
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

Index	52 616 ..., 52 617 ..., 52 618 ...											● 1st choice ○ suitable		
	Ø DC (mm) =						Ramping	Helical milling			Drilling			
	17,5–18,0			19,5–20,0			1,0 x DC		Hole diameter		1,0 x DC			
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Max. plunging angle	$\alpha_{R\,max.}$*	$D_{min.}$ DC x 1,5	$D_{max.}$ DC x 1,8	f_z Factor	Emulsion	Compressed air	MMS
	f_z (mm)													
P.1.1														
P.1.2														
P.1.3														
P.1.4														
P.1.5														
P.2.1														
P.2.2														
P.2.3														
P.2.4														
P.3.1														
P.3.2														
P.3.3														
P.4.1														
P.4.2														
M.1.1														
M.2.1														
M.3.1														
K.1.1														
K.1.2														
K.2.1														
K.2.2														
K.3.1														
K.3.2														
N.1.1	0,301	0,213	0,135	0,320	0,226	0,143	45°	0,75 x DC	25°	16°	0,8	●		
N.1.2	0,274	0,194	0,123	0,291	0,206	0,130	45°	0,75 x DC	25°	16°	0,8	●		
N.2.1	0,288	0,203	0,129	0,306	0,216	0,137	45°	0,75 x DC	25°	16°	0,8	●		
N.2.2	0,301	0,213	0,135	0,320	0,226	0,143	45°	0,75 x DC	25°	16°	0,8	●		
N.2.3	0,329	0,233	0,147	0,349	0,247	0,156	45°	0,75 x DC	25°	16°	0,8	●		
N.3.1	0,137	0,097	0,061	0,146	0,103	0,065	45°	0,75 x DC	25°	16°	0,8	●		
N.3.2	0,219	0,155	0,098	0,233	0,165	0,104	45°	0,75 x DC	25°	16°	0,8	●		
N.3.3	0,219	0,155	0,098	0,233	0,165	0,104	45°	0,75 x DC	25°	16°	0,8	●		
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
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H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

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* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – PCR – End mill, AL version – trochoidal milling

Index	Type long		52 618 ...																			
			Ø DC (mm) =																			
			5				6				8				10				12			
	v_c (m/min)	max. angle of engagement	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1																						
P.1.2																						
P.1.3																						
P.1.4																						
P.1.5																						
P.2.1																						
P.2.2																						
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K.1.2																						
K.2.1																						
K.2.2																						
K.3.1																						
K.3.2																						
N.1.1	800	66°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,024	0,14	0,10	0,08	0,031	0,17	0,12	0,10	0,037	0,19	0,13	0,11	0,043
N.1.2	725	66°	0,08	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028	0,15	0,11	0,09	0,034	0,17	0,12	0,10	0,039
N.2.1	485	66°	0,09	0,06	0,05	0,020	0,10	0,07	0,06	0,023	0,13	0,09	0,08	0,030	0,16	0,11	0,09	0,035	0,18	0,13	0,11	0,041
N.2.2	385	66°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,024	0,14	0,10	0,08	0,031	0,17	0,12	0,10	0,037	0,19	0,13	0,11	0,043
N.2.3	280	66°	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,034	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,047
N.3.1	350	66°	0,04	0,03	0,02	0,009	0,05	0,03	0,03	0,011	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,019
N.3.2	210	66°	0,07	0,05	0,04	0,015	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,031
N.3.3	280	66°	0,07	0,05	0,04	0,015	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,031
N.4.1																						
S.1.1																						
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O.1.1																						
O.1.2																						
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O.2.2																						
O.3.1																						

Cutting depth corresponding to the cutting length

Index	52 618 ... Ø DC (mm) = 14 a_e 0,1 x DC f_z (mm)	14 a_e 0,2 x DC f_z (mm)	14 a_e 0,3 x DC f_z (mm)	14 h_m	16 a_e 0,1 x DC f_z (mm)	16 a_e 0,2 x DC f_z (mm)	16 a_e 0,3 x DC f_z (mm)	16 h_m	18 a_e 0,1 x DC f_z (mm)	18 a_e 0,2 x DC f_z (mm)	18 a_e 0,3 x DC f_z (mm)	18 h_m	20 a_e 0,1 x DC f_z (mm)	20 a_e 0,2 x DC f_z (mm)	20 a_e 0,3 x DC f_z (mm)	20 h_m	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1																			
P.1.2																			
P.1.3																			
P.1.4																			
P.1.5																			
P.2.1																			
P.2.2																			
P.2.3																			
P.2.4																			
P.3.1																			
P.3.2																			
P.3.3																			
P.4.1																			
P.4.2																			
M.1.1																			
M.2.1																			
M.3.1																			
K.1.1																			
K.1.2																			
K.2.1																			
K.2.2																			
K.3.1																			
K.3.2																			
N.1.1	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,056	0,27	0,19	0,15	0,060	●		
N.1.2	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,23	0,16	0,13	0,051	0,24	0,17	0,14	0,054	●		
N.2.1	0,20	0,14	0,12	0,045	0,22	0,16	0,13	0,050	0,24	0,17	0,14	0,054	0,25	0,18	0,15	0,057	●		
N.2.2	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,056	0,27	0,19	0,15	0,060	●		
N.2.3	0,23	0,16	0,13	0,052	0,25	0,18	0,15	0,057	0,27	0,19	0,16	0,061	0,29	0,21	0,17	0,065	●		
N.3.1	0,10	0,07	0,06	0,022	0,11	0,07	0,06	0,024	0,11	0,08	0,07	0,025	0,12	0,09	0,07	0,027	●		
N.3.2	0,15	0,11	0,09	0,035	0,17	0,12	0,10	0,038	0,18	0,13	0,11	0,041	0,19	0,14	0,11	0,043	●		
N.3.3	0,15	0,11	0,09	0,035	0,17	0,12	0,10	0,038	0,18	0,13	0,11	0,041	0,19	0,14	0,11	0,043	●		
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1																			
S.3.2																			
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

Cutting data standard values – MonsterMill – MCR – End mill, short – long

Index	Type short		50 752 ...						Type short	Type long	50 752 ...													
			Ø DC (mm) =								Ø DC (mm) =													
			1			2					3			4			5			6				
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	$a_{p\,max.}$ x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	
			f_z (mm)								f_z (mm)													
P.1.1	160	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
P.1.2	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
P.1.3	120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
P.1.4	120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
P.1.5	100	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
P.2.1	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
P.2.2	120	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
P.2.3	100	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
P.2.4	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
P.3.1	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
P.3.2	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
P.3.3	80	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
P.4.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023	0,058	0,043	0,027		
P.4.2	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023	0,058	0,043	0,027		
M.1.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023	0,058	0,043	0,027		
M.2.1																								
M.3.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023	0,058	0,043	0,027		
K.1.1	160	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035	0,090	0,066	0,042		
K.1.2	160	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035	0,090	0,066	0,042		
K.2.1	140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035	0,090	0,066	0,042		
K.2.2	140	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035	0,090	0,066	0,042		
K.3.1	100	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030	0,077	0,057	0,036		
K.3.2	100	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030	0,077	0,057	0,036		
N.1.1																								
N.1.2																								
N.2.1																								
N.2.2																								
N.2.3																								
N.3.1	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
N.3.2	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
N.3.3	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
N.4.1																								
S.1.1																								
S.1.2																								
S.2.1																								
S.2.2																								
S.2.3																								
S.3.1	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020	0,051	0,038	0,024		
S.3.2	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020	0,051	0,038	0,024		
S.3.3	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020	0,051	0,038	0,024		
H.1.1																								
H.1.2																								
H.1.3																								
H.1.4																								
H.2.1	80	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025	0,064	0,047	0,030		
H.3.1																								
O.1.1																								
O.1.2																								
O.2.1																								
O.2.2																								
O.3.1																								

* = with an a_p of 1.5 x d_1 the f_z should be multiplied by 0.8

Plunging angle for ramping and helical milling:
Diameter 3–5 = 3° / Diameter 6–9 = 5° / Diameter 10–20 = 8°

Index	50 752 ...																		● 1st choice ○ suitable		
	Ø DC (mm) =																				
	8			10			12			14			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																				
P.1.1	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.1.2	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.1.3	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.1.4	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.1.5	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.2.1	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.2.2	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.2.3	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.2.4	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.3.1	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.3.2	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.3.3	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
P.4.1	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
P.4.2	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
M.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
M.2.1																					
M.3.1	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
K.1.1	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
K.1.2	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
K.2.1	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
K.2.2	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
K.3.1	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
K.3.2	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
N.3.2	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
N.3.3	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
N.4.1																					
S.1.1																					
S.1.2																					
S.2.1																					
S.2.2																					
S.2.3																					
S.3.1	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
S.3.2	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
S.3.3	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

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Cutting data standard values – MonsterMill – MCR – End mill, extra long

Index	Type extra long			50 752 ...															
				Ø DC (mm) =															
				3			4			5			6			8			
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC		f_z (mm)															
P.1.1	120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.2	100	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.3	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.4	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.5	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.1	100	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.2	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.3	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.4	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.1	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.2	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.3	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.4.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
P.4.2	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
M.1.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
M.2.1																		
M.3.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
K.1.1	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.1.2	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.2.1	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.2.2	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.3.1	100	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
K.3.2	100	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.3.2	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.3.3	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
S.3.2	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
S.3.3	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1	80	0,5*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

* = Trimming and trochoidal slot milling

Plunging angle for ramping and helical milling:
Diameter 3–5 = 3° / Diameter 6–9 = 5° / Diameter 10–20 = 8°

Index	50 752 ... Ø DC (mm) = 10			12			14			16			20			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																	
P.1.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.4	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.5	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.4	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.4.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
P.4.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
M.1.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
M.2.1																		
M.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
K.1.1	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.1.2	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.2.1	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.2.2	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.3.1	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
K.3.2	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.3.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.3.3	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
S.3.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
S.3.3	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

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Cutting data – CircularLine – End Mills – CCR-UNI, short – long

Index	Type short / long		53 585..., 53 587..., 53 586 ..., 53 642 ...															
			Ø DC (mm) =															
			6				8				10				12			
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.1.2	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.3	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.5	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.2	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.3	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.1	220	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.2	220	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.3	200	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.4.1	180	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
P.4.2	160	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.1.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.2.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.3.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
K.1.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.1.2	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.2	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.1	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.2	200	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.1.2	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.1	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.2	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.3																		
S.3.1	140	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.2	100	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Depth of cut corresponds to the flute length

Index	53 585..., 53 587..., 53 586 ..., 53 642 ...																● 1st choice ○ suitable		
	Ø DC (mm) =																		
	14				16				18				20						
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)						
P.1.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.1.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.4	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.5	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.2.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.2.2	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.2.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.2.4	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.1	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.4.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
P.4.2	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.1.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.2.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.3.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
K.1.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.1.2	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.2.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.2.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
K.3.1	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
K.3.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1																			
N.3.2																			
N.3.3																			
N.4.1																			
S.1.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.1.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.3																			
S.3.1	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.2	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

14

Cutting data standard values – CircularLine – End mill – CCR-UNI, extra long

Index	Type extra long			53 589 … / 53 593 …															
				Ø DC (mm) =															
	4xDC	5xDC	max. angle of engagement	6			8			10			12			14			
				a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m
	v_c (m/min)			f_z (mm)			f_z (mm)			f_z (mm)			f_z (mm)			f_z (mm)		
P.1.1	250	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.1.2	250	220	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.3	250	220	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.4	230	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.5	230	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.1	250	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.2	250	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.3	230	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.4	230	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.1	200	180	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.2	200	180	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.3	180	160	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.4.1	150	130	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
P.4.2	130	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.1.1	110	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.2.1	110	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.3.1	110	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
K.1.1	260	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.1.2	260	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.1	260	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.2	230	210	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.3.1	230	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
K.3.2	180	170	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	70	60	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.1.2	70	60	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.1	50	40	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.2	50	40	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.3																		
S.3.1	120	100	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.2	90	80	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Depth of cut corresponds to the flute length

Index	53 589 ... / 53 593 ...									● 1st choice ○ suitable		
	Ø DC (mm) =											
	16			18			20					
	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)			f_z (mm)			f_z (mm)					
P.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.1.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.5	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.4.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
P.4.2	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.1.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.2.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.3.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
K.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.1.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
K.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.1.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.3												
S.3.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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Cutting data standard values – CircularLine – CCR-VA, long 3xDC

Index	Type long		53 643 ...															
			Ø DC (mm) =															
			6				8				10				12			
	v_c (m/min)	max. angle of engagement	a_s 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_s 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_s 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_s 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1																		
P.1.2																		
P.1.3																		
P.1.4																		
P.1.5																		
P.2.1																		
P.2.2																		
P.2.3																		
P.2.4																		
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	200	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
P.4.2	180	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.1.1	**160**	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.2.1	**160**	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.3.1	**160**	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
K.1.1																		
K.1.2																		
K.2.1																		
K.2.2																		
K.3.1																		
K.3.2																		
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	**85**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.1.2	**85**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.1	**65**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.2	**65**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.3	**65**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.3.1	**160**	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.2	**120**	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Depth of cut corresponds to the flute length

Index	53 643 ... Ø DC (mm) = 14				16				18				20				● 1st choice ○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)						
P.1.1																			
P.1.2																			
P.1.3																			
P.1.4																			
P.1.5																			
P.2.1																			
P.2.2																			
P.2.3																			
P.2.4																			
P.3.1																			
P.3.2																			
P.3.3																			
P.4.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
P.4.2	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.1.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.2.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.3.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
K.1.1																			
K.1.2																			
K.2.1																			
K.2.2																			
K.3.1																			
K.3.2																			
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1																			
N.3.2																			
N.3.3																			
N.4.1																			
S.1.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.1.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.3	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.3.1	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.2	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

14

Cutting data standard values – CircularLine – CCR-VA, extra-long 4xDC

Index	Type extra long		53 644 ...															
			Ø DC (mm) =															
			6			8			10			12			14			
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	
			f_z (mm)			f_z (mm)			f_z (mm)			f_z (mm)			f_z (mm)			
P.1.1																		
P.1.2																		
P.1.3																		
P.1.4																		
P.1.5																		
P.2.1																		
P.2.2																		
P.2.3																		
P.2.4																		
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	170	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
P.4.2	150	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
M.1.1	125	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
M.2.1	125	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
M.3.1	125	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
K.1.1																		
K.1.2																		
K.2.1																		
K.2.2																		
K.3.1																		
K.3.2																		
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	75	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.1.2	75	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.2.1	55	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.2.2	55	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.2.3	55	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.3.1	140	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.3.2	105	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Depth of cut corresponds to the flute length

Index	53 644 ...									● 1st choice ○ suitable		
	Ø DC (mm) =											
	16			18			20					
	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)			f_z (mm)			f_z (mm)					
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
P.4.2	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.1.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.2.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.3.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.1.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.3	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

14

Cutting data standard values – CircularLine – CCR-AL

Index	Type long	Type extra long		max. angle of engagement	53 590 ..., 53 591 ..., 53 594 ..., 53 595 ..., 53 641 ...															
					Ø DC (mm) =															
					6				8				10				12			
	3xDC	4xDC	5xDC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m
	v_c (m/min)				f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1																				
P.1.2																				
P.1.3																				
P.1.4																				
P.1.5																				
P.2.1																				
P.2.2																				
P.2.3																				
P.2.4																				
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1																				
P.4.2																				
M.1.1																				
M.2.1																				
M.3.1																				
K.1.1																				
K.1.2																				
K.2.1																				
K.2.2																				
K.3.1																				
K.3.2																				
N.1.1	500	400	300	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.1.2	500	400	300	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.2.1	500	400	300	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.2.2	500	400	300	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.2.3	400	350	265	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.3.1	400	350	265	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.3.2	400	350	265	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.3.3	300	250	190	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.4.1																				
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1																				
S.3.2																				
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

Depth of cut corresponds to the flute length

Plunging angle for ramping and helical milling: 4°

Index	53 590 ..., 53 591 ..., 53 594 ..., 53 595 ..., 53 641 ...																● 1st choice ○ suitable		
	Ø DC (mm) =																		
	14				16				18				20						
	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)						
P.1.1																			
P.1.2																			
P.1.3																			
P.1.4																			
P.1.5																			
P.2.1																			
P.2.2																			
P.2.3																			
P.2.4																			
P.3.1																			
P.3.2																			
P.3.3																			
P.4.1																			
P.4.2																			
M.1.1																			
M.2.1																			
M.3.1																			
K.1.1																			
K.1.2																			
K.2.1																			
K.2.2																			
K.3.1																			
K.3.2																			
N.1.1	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.1.2	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.1	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.2	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.3	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.1	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.2	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.3	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1																			
S.3.2																			
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

Cutting data standard values – CircularLine – CCR Ti, long

Index	Type long		52 510 ...											
			Ø DC (mm) =											
			6				8				10			
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)			
P.4.1	200	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
P.4.2	180	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.1.1	200	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.2.1	160	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.3.1	180	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	**140**	25°	0,060	0,042	0,034	0,020	0,070	0,049	0,040	0,030	0,089	0,063	0,052	0,040
S.3.2	**120**	25°	0,060	0,042	0,034	0,020	0,070	0,049	0,040	0,030	0,089	0,063	0,052	0,040
S.3.3	**100**	25°	0,045	0,032	0,026	0,018	0,052	0,037	0,030	0,028	0,067	0,047	0,039	0,038

Cutting data standard values – CircularLine – CCR-Ti, extra-long

Index	Type extra long		52 510 ...											
			Ø DC (mm) =											
			6			8			10			12		
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m
			f_z (mm)			f_z (mm)			f_z (mm)			f_z (mm)		
P.4.1	170	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
P.4.2	150	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.1.1	170	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.2.1	130	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.3.1	150	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	**120**	25°	0,031	0,022	0,015	0,036	0,025	0,020	0,045	0,032	0,030	0,054	0,038	0,040
S.3.2	**100**	25°	0,031	0,022	0,015	0,036	0,025	0,020	0,045	0,032	0,030	0,054	0,038	0,040
S.3.3	**90**	25°	0,022	0,016	0,013	0,027	0,019	0,015	0,036	0,025	0,025	0,045	0,032	0,035

Depth of cut corresponds to the flute length

Index	52 510 ... Ø DC (mm) = 12				16				20				● 1st choice ○ suitable		
	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)				f_z (mm)						
P.4.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
P.4.2	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.1.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.2.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.3.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	0,113	0,080	0,065	0,050	0,157	0,111	0,090	0,060	0,217	0,153	0,125	0,075	●		
S.3.2	0,113	0,080	0,065	0,050	0,157	0,111	0,090	0,060	0,217	0,153	0,125	0,075	●		
S.3.3	0,085	0,060	0,049	0,048	0,117	0,083	0,068	0,058	0,163	0,115	0,094	0,070	●		

Index	52 510 ... Ø DC (mm) = 16			20			● 1st choice ○ suitable		
	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)			f_z (mm)					
P.4.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
P.4.2	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.1.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.2.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.3.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1	0,076	0,054	0,050	0,107	0,076	0,060	●		
S.3.2	0,076	0,054	0,050	0,107	0,076	0,060	●		
S.3.3	0,058	0,041	0,045	0,080	0,057	0,055	●		

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Cutting data standard values – CircularLine – End mill – CCR-H

Index	Type long		53 596 ...												● 1st choice ○ suitable		
			Ø DC (mm) = 6				8				10						
	v_c (m/min)	max. angle of engagement	a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC	h_m	Emulsion	Compressed air	MMS
			f_z (mm)				f_z (mm)				f_z (mm)						
H.1.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023		●	○
H.1.2	120	30°	0,06	0,04	0,03	0,008	0,07	0,05	0,03	0,010	0,09	0,06	0,04	0,012		●	○
H.1.3	115	30°	0,04	0,03		0,006	0,05	0,03		0,007	0,06	0,04		0,009		●	○
H.1.4	110	30°	0,02			0,003	0,03				0,04			0,006		●	○
H.2.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023		●	○
H.3.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023			

Index	Type long		53 596 ...												● 1st choice ○ suitable		
			Ø DC (mm) = 12				16				20						
	v_c (m/min)	max. angle of engagement	a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC	h_m	Emulsion	Compressed air	MMS
			f_z (mm)				f_z (mm)				f_z (mm)						
H.1.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14	0,10	0,031	0,24	0,15	0,11	0,034		●	○
H.1.2	120	30°	0,10	0,07	0,05	0,015	0,13	0,08		0,018	0,14	0,09		0,020		●	○
H.1.3	115	30°	0,07	0,05		0,010	0,09	0,06		0,012	0,09	0,06		0,013		●	○
H.1.4	110	30°	0,05			0,006	0,06			0,008	0,08			0,011		●	○
H.2.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14		0,031	0,24	0,15		0,034		●	○
H.3.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14	0,10	0,031	0,24	0,15	0,11	0,034		●	○

Depth of cut corresponds to the flute length

Cutting data standard values – SilverLine – NC deburring cutter

Index	50 560 ..., 50 561 ..., 50 562 ..., 50 563 ...							50 564 ..., 50 565 ..., 50 566 ..., 50 567 ...							● 1st choice ○ suitable		
		DPB72S						uncoated									
		Ø DC (mm) =						Ø DC (mm) =									
		4	6	8	10	12	16	4	6	8	10	12	16		Emulsion	Compressed air	MMS
	v_c (m/min)	f_z (mm)						v_c (m/min)	f_z (mm)								
P.1.1	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.2	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.3	120	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.4	120	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.5	90	0,025	0,03	0,04	0,055	0,075	0,085	50	0,015	0,02	0,03	0,045	0,065	0,075	●	○	○
P.2.1	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.2.2	100	0,03	0,035	0,045	0,06	0,08	0,09	60	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.2.3	90	0,025	0,03	0,04	0,055	0,075	0,085	50	0,015	0,02	0,03	0,045	0,065	0,075	●	○	○
P.2.4	80	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.3.1	120	0,03	0,035	0,04	0,055	0,075	0,085	65	0,02	0,025	0,03	0,045	0,065	0,075	●	○	○
P.3.2	70	0,02	0,02	0,025	0,03	0,04	0,05	40	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.3.3	70	0,02	0,02	0,025	0,03	0,04	0,05	40	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.4.1	100	0,03	0,035	0,04	0,055	0,075	0,085	60	0,02	0,025	0,03	0,045	0,065	0,075	●		
P.4.2	95	0,025	0,03	0,04	0,055	0,075	0,085	55	0,015	0,02	0,03	0,045	0,065	0,075	●		
M.1.1	100	0,025	0,03	0,04	0,055	0,075	0,085	65	0,025	0,03	0,04	0,055	0,075	0,085	●		
M.2.1	80	0,02	0,02	0,025	0,03	0,04	0,05	50	0,02	0,02	0,025	0,03	0,04	0,05	●		
M.3.1	100	0,025	0,03	0,04	0,055	0,075	0,085	65	0,025	0,03	0,04	0,055	0,075	0,085	●		
K.1.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.1.2	100	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.2.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.2.2	120	0,03	0,035	0,045	0,06	0,08	0,09	80	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.3.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.3.2	120	0,03	0,035	0,045	0,06	0,08	0,09	80	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	80	0,02	0,02	0,025	0,03	0,04	0,05	50	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.1.2	45	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.1	50	0,015	0,015	0,02	0,025	0,035	0,045	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.2	40	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.3	45	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.1	60	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.2	65	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.3	50	0,015	0,015	0,02	0,025	0,035	0,045	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

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Cutting data standard values – SilverLine – End mill

Index	Type short / long		50 993 …, 50 994 …, 50 995 …, 50 996 …, 50 997 …, 50 998 …																		● 1st choice ○ suitable		
			Ø DC (mm) =																				
			6			8			10			12			16			20					
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	Emulsion	Compressed air	MMS
			f_z (mm)																				
P.1.1	205	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.2	200	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.3	200	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.4	190	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.5	190	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.2.1	200	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.2.2	190	1,0	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.2.3	180	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.2.4	170	1,0	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.3.1	180	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.3.2	170	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.3.3	145	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.4.1	100	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
P.4.2	80	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.1.1	100	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.2.1	100	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.3.1	100	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
K.1.1	200	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
K.1.2	180	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
K.2.1	190	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.2.2	170	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.3.1	180	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.3.2	160	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
N.1.1																							
N.1.2																							
N.2.1																							
N.2.2																							
N.2.3																							
N.3.1	315	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
N.3.2	315	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
N.3.3	250	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
N.4.1																							
S.1.1	25	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.1.2	25	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.1	25	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.2	25	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.3	25	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.3.1	80	1,0	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●		
S.3.2																							
S.3.3																							
H.1.1																							
H.1.2																							
H.1.3																							
H.1.4																							
H.2.1																							
H.3.1																							
O.1.1																							
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

Plunging angle for ramping and helical milling = 2-3°

Cutting data standard values – SilverLine – End mill

Index	Type long		50 949 ..., 50 999 ...																			● 1st choice ○ suitable		
			Ø DC (mm) =																					
			6			8			10			12			16			20			Emulsion	Compressed air	MMS
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6 x DC			
			f_z (mm)																					
P.1.1	165	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.2	160	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.3	160	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.4	150	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.1.5	150	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.2.1	160	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.2.2	150	1,0	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.2.3	145	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.2.4	135	1,0	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.3.1	145	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.3.2	135	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.3.3	115	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
P.4.1	80	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
P.4.2	65	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.1.1	80	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.2.1	80	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.3.1	80	1,0	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
K.1.1	160	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
K.1.2	145	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
K.2.1	150	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.2.2	135	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.3.1	145	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.3.2	130	1,0	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
N.1.1																							
N.1.2																							
N.2.1																							
N.2.2																							
N.2.3																							
N.3.1	250	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
N.3.2	250	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
N.3.3	200	1,0	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080	0,192	0,154	0,096	0,240	0,192	0,120	0,274	0,219	0,137	●	○	○
N.4.1																							
S.1.1	20	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.1.2	20	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.1	20	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.2	20	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.3	20	1,0	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.3.1	65	1,0	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●		
S.3.2																							
S.3.3																							
H.1.1																							
H.1.2																							
H.1.3																							
H.1.4																							
H.2.1																							
H.3.1																							
O.1.1																							
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

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Plunging angle for ramping and helical milling = 2-3°

Cutting data standard values – SilverLine – End mills – Trochoidal machining

Index	Type long		50 949 ..., 50 999 ...															
			Ø DC (mm) =															
			6				8				10				12			
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.1.2	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.3	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.5	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.2	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.3	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.1	220	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.2	220	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.3	200	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.4.1	180	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
P.4.2	160	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.1.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.2.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.3.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
K.1.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.1.2	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.2	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.1	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.2	200	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.1.2	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.1	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.2	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.3																		
S.3.1	140	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.2	100	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling = 2-3°

Cutting depth corresponding to the cutting length

Index	50 949 ..., 50 999 ...								● 1st choice ○ suitable		
	Ø DC (mm) =										
	16				20						
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)						
P.1.1	0,27	0,19	0,16	0,060	0,30	0,21	0,17	0,066	○	●	○
P.1.2	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.1.3	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.1.4	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.1.5	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.2.1	0,27	0,19	0,16	0,060	0,30	0,21	0,17	0,066	○	●	○
P.2.2	0,27	0,19	0,16	0,060	0,30	0,21	0,17	0,066	○	●	○
P.2.3	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.2.4	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.3.1	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.3.2	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.3.3	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
P.4.1	0,19	0,13	0,11	0,042	0,21	0,15	0,12	0,047	●		
P.4.2	0,19	0,13	0,11	0,042	0,21	0,15	0,12	0,047	●		
M.1.1	0,19	0,13	0,11	0,042	0,21	0,15	0,12	0,047	●		
M.2.1	0,19	0,13	0,11	0,042	0,21	0,15	0,12	0,047	●		
M.3.1	0,19	0,13	0,11	0,042	0,21	0,15	0,12	0,047	●		
K.1.1	0,27	0,19	0,16	0,060	0,30	0,21	0,17	0,066	○	●	○
K.1.2	0,27	0,19	0,16	0,060	0,30	0,21	0,17	0,066	○	●	○
K.2.1	0,27	0,19	0,16	0,060	0,30	0,21	0,17	0,066	○	●	○
K.2.2	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
K.3.1	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
K.3.2	0,25	0,18	0,14	0,055	0,28	0,20	0,16	0,062	○	●	○
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1	0,11	0,08	0,07	0,026	0,13	0,09	0,08	0,029	●		
S.1.2	0,11	0,08	0,07	0,026	0,13	0,09	0,08	0,029	●		
S.2.1	0,11	0,08	0,07	0,026	0,13	0,09	0,08	0,029	●		
S.2.2	0,11	0,08	0,07	0,026	0,13	0,09	0,08	0,029	●		
S.2.3											
S.3.1	0,16	0,11	0,09	0,035	0,18	0,12	0,10	0,040	●		
S.3.2	0,16	0,11	0,09	0,035	0,18	0,12	0,10	0,040	●		
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

Cutting data standard values – SilverLine – End mill

Index	Type long		50 558 ..., 50 958																		
			Ø DC (mm) =																		
			3,0			3,5–4,0			4,5–5,0			5,5–6,0			7,0–8,0			9,0–10,0		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)																		
P.1.1	110	1,0*	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043
P.1.2	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.3	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.4	80	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.5	80	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.1	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.2	70	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.3	70	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.4	55	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
P.4.2	40	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.1.1	40	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.2.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.3.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
K.1.1	130	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.1.2	120	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.2.1	130	1,0*	0,040	0,032	0,020	0,048	0,038	0,024	0,056	0,045	0,028	0,064	0,051	0,032	0,079	0,063	0,040	0,095	0,076	0,048
K.2.2	120	1,0*	0,040	0,032	0,020	0,048	0,038	0,024	0,056	0,045	0,028	0,064	0,051	0,032	0,079	0,063	0,040	0,095	0,076	0,048
K.3.1	130	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.3.2	120	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	200	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.3.2	200	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.3.3	140	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.4.1																				
S.1.1	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.1.2	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.1	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.2	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.3	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.3.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
S.3.2	20	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

Plunging angle for ramping and helical milling = 6-10°

Index	50 558 ..., 50 958																● 1st choice ○ suitable		
	Ø DC (mm) =																		
	11,0–12,0			14,0			15,0–16,0			17,0–18,0			19,0–20,0						
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																		
P.1.1	0,102	0,082	0,051	0,116	0,093	0,058	0,124	0,099	0,062	0,131	0,105	0,066	0,139	0,111	0,070	●	○	○
P.1.2	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.3	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.4	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.5	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.1	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.2	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.3	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.4	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
P.4.2	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.1.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.2.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.3.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
K.1.1	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.1.2	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.2.1	0,110	0,088	0,055	0,126	0,101	0,063	0,134	0,107	0,067	0,142	0,114	0,071	0,150	0,120	0,075	●	○	○
K.2.2	0,110	0,088	0,055	0,126	0,101	0,063	0,134	0,107	0,067	0,142	0,114	0,071	0,150	0,120	0,075	●	○	○
K.3.1	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.3.2	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.3.2	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.3.3	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.4.1																		
S.1.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
S.3.2	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

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Cutting data standard values – SilverLine – End mill

Index	Type short		Type long		Type extra long		50 966 ..., 50 967 ..., 50 992 ...														
							Ø DC (mm) =														
							3,0			3,5–4,0			4,5–5,0			5,5–6,0			6,5–8,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
							f_z (mm)														
P.1.1	252	1,0	210	1,0*	105	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.2	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.3	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.4	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.5	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.1	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.2	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.3	216	1,0	180	1,0*	90	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.4	204	1,0	170	1,0*	85	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.3.1																					
P.3.2																					
P.3.3																					
P.4.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
P.4.2	96	1,0	80	1,0*	50	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.1.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.2.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.3.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
K.1.1	240	1,0	200	1,0*	100	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
K.1.2	216	1,0	180	1,0*	90	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
K.2.1	228	1,0	190	1,0*	60	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.2.2	204	1,0	170	1,0*	85	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.3.1	216	1,0	180	1,0*	90	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.3.2	192	1,0	160	1,0*	80	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	420	1,0	350	1,0*	175	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.3.2	420	1,0	350	1,0*	175	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.3.3	336	1,0	280	1,0*	140	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.4.1																					
S.1.1	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.1.2	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.1	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.2	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.3	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.3.1	108	1,0	90	1,0*	45	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
S.3.2	60	1,0	50	1,0*	25	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

"Extra-long" version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Plunging angle for ramping and helical milling: 3°

Index	50 966 ..., 50 967 ..., 50 992 ...																			● 1st choice ○ suitable		
	Ø DC (mm) =																					
	8,5–10,0			12,0			14,0			16,0			18,0			20,0			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z (mm)																					
P.1.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.3	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.4	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.5	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.3	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.4	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.3.1																					
P.3.2																					
P.3.3																					
P.4.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
P.4.2	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.1.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.2.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.3.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
K.1.1	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.1.2	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.2.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.3.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.3.2	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.3.3	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.4.1																					
S.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●		
S.3.2	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

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Cutting data standard values – SilverLine – End mill

Index	Type long		50 976 ..., 50 977 ...															
			Ø DC (mm) =															
			3		4		5		6		8		10		12		14	
			a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1	210	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.1.2	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.1.3	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.1.4	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.1.5	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.2.1	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.2.2	190	2,0	0,020	0,014	0,027	0,019	0,034	0,025	0,042	0,030	0,056	0,040	0,070	0,050	0,084	0,060	0,098	0,070
P.2.3	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.2.4	170	2,0	0,020	0,014	0,027	0,019	0,034	0,025	0,042	0,030	0,056	0,040	0,070	0,050	0,084	0,060	0,098	0,070
P.3.1	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.3.2	170	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.3.3	140	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
P.4.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047
P.4.2	100	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047
M.1.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047
M.2.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047
M.3.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047
K.1.1	200	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090
K.1.2	180	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090
K.2.1	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
K.2.2	170	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
K.3.1	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
K.3.2	160	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	350	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090
N.3.2	350	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090
N.3.3	280	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Profiling with an a_e < 0.3xDC only possible under certain conditions!

Plunging angle for ramping and helical milling: 3°

Index	50 976 ..., 50 977 ...						● 1st choice ○ suitable		
	Ø DC (mm) =								
	16		18		20				
	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)								
P.1.1	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.1.2	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.1.3	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.1.4	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.1.5	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.2.1	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.2.2	0,105	0,075	0,112	0,080	0,119	0,085	●	○	○
P.2.3	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.2.4	0,105	0,075	0,112	0,080	0,119	0,085	●	○	○
P.3.1	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.3.2	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.3.3	0,121	0,087	0,129	0,092	0,137	0,098	●	○	○
P.4.1	0,071	0,051	0,076	0,054	0,081	0,058	●		
P.4.2	0,071	0,051	0,076	0,054	0,081	0,058	●		
M.1.1	0,071	0,051	0,076	0,054	0,081	0,058	●		
M.2.1	0,071	0,051	0,076	0,054	0,081	0,058	●		
M.3.1	0,071	0,051	0,076	0,054	0,081	0,058	●		
K.1.1	0,134	0,096	0,143	0,102	0,151	0,108	●	●	●
K.1.2	0,134	0,096	0,143	0,102	0,151	0,108	●	●	●
K.2.1	0,121	0,087	0,129	0,092	0,137	0,098	●	●	●
K.2.2	0,121	0,087	0,129	0,092	0,137	0,098	●	●	●
K.3.1	0,121	0,087	0,129	0,092	0,137	0,098	●	●	●
K.3.2	0,121	0,087	0,129	0,092	0,137	0,098	●	●	●
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1	0,134	0,096	0,143	0,102	0,151	0,108	●	○	○
N.3.2	0,134	0,096	0,143	0,102	0,151	0,108	●	○	○
N.3.3	0,134	0,096	0,143	0,102	0,151	0,108	●	○	○
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – SilverLine – End mill

Index	Type extra long		50 970 ..., 50 971 ..., 50 974 ..., 50 975 ...																		
			Ø DC (mm) =																		
			3			4			5			6			8			10		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)																		
P.1.1	160	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.3	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.4	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.5	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.1	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.3	120	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.4	120	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.1	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.2	80	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.3	80	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.4.1	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
P.4.2	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.1.1	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.2.1	70	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.3.1	80	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
K.1.1	150	1,0	0,040	0,031	0,022	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,110	0,082	0,055
K.1.2	140	1,0	0,040	0,031	0,022	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,110	0,082	0,055
K.2.1	150	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.2.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.3.1	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.3.2	140	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	220	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.3.2	180	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.3.3	180	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.4.1																				
S.1.1	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.1.2	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.1	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.2	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.3	25	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.3.1	80	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,072	0,055	0,040	0,090	0,069	0,050
S.3.2	70	0,5	0,020	0,015	0,011	0,027	0,021	0,015	0,032	0,025	0,018	0,040	0,031	0,022	0,054	0,042	0,030	0,072	0,055	0,040
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

Plunging angle for ramping and helical milling: 3°

Index	50 970 ..., 50 971 ..., 50 974 ..., 50 975 ...															● 1st choice ○ suitable		
	Ø DC (mm) =																	
	12			14			16			18			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																	
P.1.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.4	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.5	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.4	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.4.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
P.4.2	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.1.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.2.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.3.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
K.1.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	●	●
K.1.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	●	●
K.2.1	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.2.2	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.3.1	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.3.2	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.3.2	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.3.3	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.4.1																		
S.1.1	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.1.2	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.1	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.2	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.3	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.3.1	0,108	0,083	0,060	0,126	0,097	0,070	0,144	0,111	0,080	0,162	0,125	0,090	0,180	0,139	0,100	●		
S.3.2	0,090	0,069	0,050	0,099	0,076	0,055	0,108	0,083	0,060	0,126	0,097	0,070	0,144	0,111	0,080	●		
S.3.3																●		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – SilverLine – End mill, roughing-finishing and rough milling cutter

Index	Type short	Type long		50 969 ..., 50 970..., 50 971 ..., 50 972 ..., 50 973 ..., 50 974 ..., 50 975 ..., 50 978 ..., 50 979 ...																		
				Ø DC (mm) =																		
				3,0			3,5–4,0			4,5–5,0			5,5–6,0			7,0–8,0			9,0–10,0		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)																		
P.1.1	253	230	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.2	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.3	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.4	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.5	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.1	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.2	230	210	1,0*	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
P.2.3	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.4	210	190	1,0*	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
P.3.1	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.3.2	210	190	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.3.3	176	160	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.4.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
P.4.2	100	90	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.1.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.2.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.3.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
K.1.1	242	220	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
K.1.2	220	200	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
K.2.1	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.2.2	210	190	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.3.1	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.3.2	200	180	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	385	350	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.3.2	308	350	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.3.3	308	280	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.4.1																					
S.1.1	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.1.2	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.1	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.2	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.3	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.3.1	110	90	0,5	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
S.3.2	70	50	0,5	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

Plunging angle for ramping and helical milling: 3°

Index	50 969 ..., 50 970..., 50 971 ..., 50 972 ..., 50 973 ..., 50 974 ..., 50 975 ..., 50 978 ..., 50 979 ...															● 1st choice ○ suitable		
	Ø DC (mm) =																	
	11,0–12,0			14,0			15,0–16,0			17,0→18,0			19,0–20,0					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																	
P.1.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.4	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.5	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.2	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.4	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.3.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.3.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.3.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.4.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
P.4.2	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.1.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.2.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.3.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
K.1.1	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●	●	●
K.1.2	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●	●	●
K.2.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.2.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.3.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.3.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.3.2	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.3.3	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.4.1																		
S.1.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●		
S.3.2	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

14

Cutting data standard values – SilverLine – High-precision finish milling cutter

Index	Type long	Type extra long		50 991 ...							● 1st choice ○ suitable		
				Ø DC (mm) =									
				6	8	10	12	16	20	25			
				a_e 0,05 x DC									
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)							Emulsion	Compressed air	MMS
P.1.1	260	180	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.1.2	250	175	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.1.3	250	175	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.1.4	230	160	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.1.5	230	160	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.2.1	250	175	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.2.2	230	160	2,0	0,023	0,031	0,039	0,047	0,059	0,067	0,077	●		
P.2.3	220	155	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.2.4	210	145	2,0	0,023	0,031	0,039	0,047	0,059	0,067	0,077	●		
P.3.1	220	155	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.3.2	210	145	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.3.3	175	120	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.4.1	120	80	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
P.4.2	100	70	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
M.1.1	120	80	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
M.2.1	120	80	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
M.3.1	120	80	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
K.1.1	250	175	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
K.1.2	220	155	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
K.2.1	230	160	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
K.2.2	210	145	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
K.3.1	220	155	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
K.3.2	200	140	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	430	300	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
N.3.2	430	300	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
N.3.3	350	245	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
N.4.1													
S.1.1	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.1.2	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.2.1	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.2.2	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.2.3	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.3.1	200	140	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
S.3.2	125	85	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Plunging angle for ramping and helical milling = 1°

Cutting data standard values – SilverLine – Radius milling cutters – 50 990 ... – Finish machining

Index	Type long		50 990 ...								● 1st choice ○ suitable		
			Ø DC (mm) =										
			4	5	6	8	10	12	16	20			
			a_e 0,05 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)								Emulsion	Compressed air	MMS
P.1.1	195	0,08	0,019	0,025	0,030	0,040	0,050	0,060	0,075	0,085	●	○	○
P.1.2	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.3	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.4	145	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.5	145	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.1	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.2	130	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.3	130	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.4	100	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.3.1													
P.3.2													
P.3.3													
P.4.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
P.4.2	75	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.1.1	75	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.2.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.3.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
K.1.1	235	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.1.2	220	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.2.1	235	0,08	0,028	0,033	0,039	0,050	0,061	0,072	0,089	0,100	●		○
K.2.2	220	0,08	0,028	0,033	0,039	0,050	0,061	0,072	0,089	0,100	●		○
K.3.1	235	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.3.2	220	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	360	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.3.2	360	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.3.3	255	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.4.1													
S.1.1													
S.1.2													
S.2.1													
S.2.2													
S.2.3													
S.3.1													
S.3.2													
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Plunging angle for ramping and helical milling: 3°

Cutting data standard values – SilverLine – Radius milling cutters – 50 990 ... – Rough machining

Index	Type long		50 990 ...																			
			Ø DC (mm) =																			
			4			5			6			8			10			12				
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)																			
P.1.1	130	1,0	0,026	0,022	0,017	0,031	0,027	0,021	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045		
P.1.2	110	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.1.3	110	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.1.4	95	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.1.5	95	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.2.1	110	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.2.2	85	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.2.3	85	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.2.4	65	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040		
P.3.1																						
P.3.2																						
P.3.3																						
P.4.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030		
P.4.2	50	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030		
M.1.1	50	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030		
M.2.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030		
M.3.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030		
K.1.1	155	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072		
K.1.2	145	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072		
K.2.1	155	1,0	0,032	0,027	0,021	0,038	0,033	0,025	0,044	0,038	0,029	0,054	0,047	0,036	0,065	0,056	0,043	0,077	0,066	0,051		
K.2.2	145	1,0	0,032	0,027	0,021	0,038	0,033	0,025	0,044	0,038	0,029	0,054	0,047	0,036	0,065	0,056	0,043	0,077	0,066	0,051		
K.3.1	155	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072		
K.3.2	145	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072		
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1	240	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066		
N.3.2	240	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066		
N.3.3	170	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066		
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1																						
H.1.2																						
H.1.3																						
H.1.4																						
H.2.1																						
H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

Plunging angle for ramping and helical milling: 3°

Index	50 990 ... Ø DC (mm) = 16 a_e 0,1–0,2 x DC f_z (mm)	16 a_e 0,3–0,4 x DC f_z (mm)	16 a_e 0,6–1,0 x DC f_z (mm)	20 a_e 0,1–0,2 x DC f_z (mm)	20 a_e 0,3–0,4 x DC f_z (mm)	20 a_e 0,6–1,0 x DC f_z (mm)	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	0,083	0,072	0,055	0,092	0,080	0,062	●	○	○
P.1.2	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.3	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.4	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.5	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.1	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.2	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.3	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.4	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.3.1									
P.3.2									
P.3.3									
P.4.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
P.4.2	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.1.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.2.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.3.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
K.1.1	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.1.2	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.2.1	0,093	0,081	0,062	0,104	0,090	0,070	●	○	○
K.2.2	0,093	0,081	0,062	0,104	0,090	0,070	●	○	○
K.3.1	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.3.2	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.3.2	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.3.3	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – SilverLine – Ball-nosed end mill

Index	Type short		Type long		50 963 ...																	
					Ø DC (mm) =																	
					3			4			5			6			7			8		
					a_e x DC																	
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05
					f_z (mm)																	
P.1.1	300	0,08	180	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.2	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.3	225	0,08	135	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.4	225	0,08	135	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.5	245	0,08	145	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.1	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.2	215	0,08	130	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
P.2.3	190	0,08	115	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.4	210	0,08	125	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.3.1	210	0,08	125	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.3.2	175	0,08	105	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
P.3.3	130	0,08	80	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
P.4.1																						
P.4.2																						
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.1.2	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.2.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.2.2	280	0,08	170	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
K.3.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.3.2	280	0,08	170	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1																						
N.3.2																						
N.3.3	455	0,08	275	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1	100	0,08	60	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.2	60	0,08	35	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.3	55	0,08	35	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.4																						
H.2.1	70	0,08	40	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.3.1	100	0,08	60	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

Plunging angle for ramping and helical milling: 3°

Index	50 963 ...																		● 1st choice ○ suitable		
	Ø DC (mm) =																				
	10			12			14			16			18			20					
	a_e x DC																				
	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	0,01–0,02	0,03–0,04	0,05	Emulsion	Compressed air	MMS
	f_z (mm)																				
P.1.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.2	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.3	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.4	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.5	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.2.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.2.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
P.2.3	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.2.4	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.3.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.3.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
P.3.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,180	0,144	0,090	0,210	0,168	0,105	0,240	0,192	0,120	●	○	○
P.4.1																					
P.4.2																					
M.1.1																					
M.2.1																					
M.3.1																					
K.1.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.1.2	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.2.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.2.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
K.3.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.3.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1																					
N.3.2																					
N.3.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,180	0,144	0,090	0,210	0,168	0,105	0,240	0,192	0,120	●		
N.4.1																					
S.1.1																					
S.1.2																					
S.2.1																					
S.2.2																					
S.2.3																					
S.3.1																					
S.3.2																					
S.3.3																					
H.1.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.2	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.4																					
H.2.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.3.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

14

Cutting data standard values – SilverLine – Torus face cutter

Index	Type long	Type extra long		50 989 ...															
				Ø DC (mm) =															
				6			8			10			12			16			
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1	**240**	**190**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.2	**210**	**170**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.3	**210**	**170**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.4	**190**	**150**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.5	**190**	**150**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.1	**220**	**175**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.2	**200**	**160**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.3	**180**	**145**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.4	**170**	**135**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.1	**170**	**135**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.2	**150**	**120**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.3	**120**	**95**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.4.1	**90**	**70**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.4.2	**70**	**55**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.1.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.2.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.3.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.1.1	**250**	**200**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.1.2	**230**	**185**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.2.1	**200**	**160**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.2.2	**180**	**145**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.3.1	**220**	**175**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.3.2	**210**	**170**	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3	250	200	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.1.2	80	65	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.1.3																		
H.1.4																		
H.2.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.3.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

Index	50 989 ... Ø DC (mm) = 20 a_e 0,1–0,2 x DC f_z (mm)	a_e 0,3–0,4 x DC f_z (mm)	a_e 0,5 x DC f_z (mm)	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	0,912	0,730	0,456	●	○	○
P.1.2	0,912	0,730	0,456	●	○	○
P.1.3	0,912	0,730	0,456	●	○	○
P.1.4	0,912	0,730	0,456	●	○	○
P.1.5	0,912	0,730	0,456	●	○	○
P.2.1	0,912	0,730	0,456	●	○	○
P.2.2	0,912	0,730	0,456	●	○	○
P.2.3	0,912	0,730	0,456	●	○	○
P.2.4	0,912	0,730	0,456	●	○	○
P.3.1	0,912	0,730	0,456	●	○	○
P.3.2	0,912	0,730	0,456	●	○	○
P.3.3	0,912	0,730	0,456	●	○	○
P.4.1	0,912	0,730	0,456	●		
P.4.2	0,912	0,730	0,456	●		
M.1.1	0,912	0,730	0,456	●		
M.2.1	0,912	0,730	0,456	●		
M.3.1	0,912	0,730	0,456	●		
K.1.1	0,912	0,730	0,456	●	○	○
K.1.2	0,912	0,730	0,456	●	○	○
K.2.1	0,912	0,730	0,456	●	○	○
K.2.2	0,912	0,730	0,456	●	○	○
K.3.1	0,912	0,730	0,456	●	○	○
K.3.2	0,912	0,730	0,456	●	○	○
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3	0,912	0,730	0,456	●	○	○
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1	0,736	0,589	0,368		●	●
H.1.2	0,736	0,589	0,368		●	●
H.1.3						
H.1.4						
H.2.1	0,736	0,589	0,368		●	●
H.3.1	0,736	0,589	0,368		●	●
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – S-Cut – End mill, short – long

Index	Type short / long		52 205 ..., 52 223 ..., 52 224 ..., 52 225 ..., 52 228 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1	150	1,0	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069	
P.1.2	150	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.1.3	130	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.1.4	140	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.1.5	120	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.2.1	140	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.2.2	120	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.2.3	140	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.2.4	120	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
P.3.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	
P.3.2	120	1,0	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046	
P.3.3	100	1,0	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046	
P.4.1	130	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	
P.4.2	110	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	
M.1.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	
M.2.1	50	1,0	0,020	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,020	0,053	0,039	0,026	0,069	0,029	0,035	
M.3.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,030	0,081	0,058	0,046	
K.1.1	200	1,0	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081	
K.1.2	200	1,0	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081	
K.2.1	220	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
K.2.2	200	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
K.3.1	180	1,0	0,039	0,030	0,022	0,054	0,041	0,030	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069	
K.3.2	160	1,0	0,032	0,025	0,018	0,046	0,036	0,025	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	250	1,0	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069	
N.3.2	250	1,0	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069	
N.3.3	250	1,0	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069	
N.4.1																		
S.1.1	50	0,5	0,020	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,020	0,053	0,039	0,026	0,069	0,029	0,035	
S.1.2	50	0,5	0,020	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,020	0,053	0,039	0,026	0,069	0,029	0,035	
S.2.1	30	0,5	0,018	0,014	0,010	0,025	0,020	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035	
S.2.2	30	0,5	0,018	0,014	0,010	0,025	0,020	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035	
S.2.3	30	0,5	0,018	0,014	0,010	0,025	0,020	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035	
S.3.1	120	0,5	0,029	0,022	0,016	0,040	0,031	0,023	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058	
S.3.2	110	0,5	0,029	0,022	0,016	0,040	0,031	0,022	0,058	0,043	0,029	0,076	0,056	0,038	0,104	0,081	0,058	
S.3.3	75	0,5	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046	
H.1.1	120	0,5	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046	
H.1.2	120	0,3	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046	
H.1.3	120	0,2	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046	
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.
With an a_p of 2.0 x DC the f_z should be multiplied by 0.5.

Plunging angle for ramping and helical milling: 3°

Index	52 205 ..., 52 223 ..., 52 224 ..., 52 225 ..., 52 228 ...																● 1st choice ○ suitable		
	Ø DC (mm) =																		
	10			12			16			20			25						
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																		
P.1.1	0,161	0,115	0,081	0,173	0,127	0,029	0,184	0,150	0,115	0,230	0,184	0,138	0,292	0,234	0,175	●	○	○
P.1.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.5	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
P.3.2	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
P.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
P.4.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
P.4.2	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
M.1.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
M.2.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
M.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,150	0,115	0,092	0,190	0,146	0,117	●		
K.1.1	0,207	0,150	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,230	0,184	0,365	0,292	0,234	○	●	○
K.1.2	0,207	0,150	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,230	0,184	0,365	0,292	0,234	○	●	○
K.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.3.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.3.2	0,150	0,104	0,069	0,161	0,115	0,081	0,173	0,127	0,104	0,207	0,173	0,127	0,263	0,219	0,161	○	●	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,150	0,127	0,230	0,184	0,138	0,292	0,234	0,175	●		○
N.3.2	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,150	0,127	0,230	0,184	0,138	0,292	0,234	0,175	●		○
N.3.3	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,150	0,115	0,230	0,184	0,138	0,292	0,234	0,175	●		○
N.4.1																		
S.1.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
S.1.2	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
S.2.1	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.2.2	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.2.3	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.3.1	0,127	0,092	0,069	0,138	0,104	0,069	0,150	0,115	0,092	0,184	0,150	0,115	0,234	0,190	0,146	●		
S.3.2	0,127	0,092	0,069	0,138	0,104	0,069	0,150	0,115	0,092	0,184	0,150	0,115	0,234	0,190	0,146	●		
S.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●		
H.1.1	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,190	0,161	0,117		●	
H.1.2	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,190	0,161	0,117		●	
H.1.3	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,190	0,161	0,117		●	
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – S-Cut– End mill, extra long

Index	Type extra long			52 205 ..., 52 226 ..., 52 227 ...														
				Ø DC (mm) =														
				3			4			5			6			8		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC		f_z (mm)														
P.1.1	130	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
P.1.2	120	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.3	100	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.4	120	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.5	100	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.1	110	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.2	100	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.3	100	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.4	90	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.3.1	70	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.3.2	100	1,0	0,5	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.3.3	90	1,0	0,5	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.4.1	70	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.4.2	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.1.1	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.2.1	40	1,0	0,5	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
M.3.1	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
K.1.1	180	1,0	0,5	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.1.2	140	1,0	0,5	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.2.1	180	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.2.2	140	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.1	140	1,0	0,5	0,039	0,030	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.2	120	1,0	0,5	0,032	0,025	0,018	0,046	0,036	0,025	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	250	1,0	0,5	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.2	250	1,0	0,5	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.3	250	1,0	0,5	0,036	0,028	0,020	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.4.1																		
S.1.1	40	0,5	0,25	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.1.2	40	0,5	0,25	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.2.1	25	0,5	0,25	0,018	0,014	0,010	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.2	25	0,5	0,25	0,018	0,014	0,010	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.3	25	0,5	0,25	0,018	0,014	0,010	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.3.1	50	0,5	0,25	0,029	0,022	0,016	0,040	0,031	0,023	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058
S.3.2	40	0,5	0,25	0,029	0,022	0,016	0,040	0,031	0,022	0,058	0,043	0,029	0,076	0,056	0,038	0,104	0,081	0,058
S.3.3	40	0,5	0,25	0,025	0,020	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
H.1.1	100	0,5	0,5	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.2	100	0,5	0,3	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.3	100	0,5	0,15	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

Index	52 205 ..., 52 226 ..., 52 227 ...																● 1st choice ○ suitable		
	Ø DC (mm) =																		
	10			12			16			20			25						
	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																		
P.1.1	0,161	0,115	0,081	0,173	0,127	0,029	0,184	0,15	0,115	0,23	0,184	0,138	0,276	0,23	0,184	●	○	○
P.1.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.5	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
P.3.2	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
P.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
P.4.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,150	0,115	●		
P.4.2	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,150	0,115	●		
M.1.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,150	0,115	●		
M.2.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
M.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,150	0,115	●		
K.1.1	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,345	0,288	0,230	○	●	○
K.1.2	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,345	0,288	0,230	○	●	○
K.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.3.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.3.2	0,15	0,104	0,069	0,161	0,115	0,081	0,173	0,127	0,104	0,207	0,173	0,127	0,242	0,207	0,173	○	●	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,276	0,230	0,184	●		○
N.3.2	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,276	0,230	0,184	●		○
N.3.3	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,115	0,23	0,184	0,138	0,276	0,230	0,184	●		○
N.4.1																		
S.1.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
S.1.2	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
S.2.1	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.2.2	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.2.3	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.3.1	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,219	0,184	0,15	●		
S.3.2	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,219	0,184	0,15	●		
S.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●		
H.1.1	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,173	0,150	0,127		●	
H.1.2	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,173	0,150	0,127		●	
H.1.3	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,150	0,127	0,092	0,173	0,150	0,127		●	
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

14

Cutting data standard values – S-Cut – End mills – SC-UNI, ZEFP = 5, long

Index	Type long	max. angle of engagement	52 230 ...															
			Ø DC (mm) =															
			6				8				10				12			
			a_e 0,050 x DC	a_e 0,1 x DC	a_e 0,150 x DC	h_m	a_e 0,050 x DC	a_e 0,1 x DC	a_e 0,150 x DC	h_m	a_e 0,050 x DC	a_e 0,1 x DC	a_e 0,150 x DC	h_m	a_e 0,050 x DC	a_e 0,1 x DC	a_e 0,150 x DC	h_m
	v_c (m/min)		f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1	280	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
P.1.2	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.1.3	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.1.4	260	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.1.5	260	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.2.1	280	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
P.2.2	280	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
P.2.3	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.2.4	280	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.3.1	160	50°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
P.3.2	220	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.3.3	220	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
P.4.1	180	50°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
P.4.2	180	50°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.1.1	140	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.2.1	140	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.3.1	140	45°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
K.1.1	300	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
K.1.2	300	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
K.2.1	300	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
K.2.2	260	50°	0,134	0,095	0,077	0,030	0,157	0,111	0,090	0,035	0,201	0,142	0,116	0,045	0,255	0,180	0,147	0,057
K.3.1	260	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,090	0,035	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
K.3.2	200	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,090	0,035	0,179	0,126	0,103	0,040	0,228	0,161	0,132	0,051
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	140	40°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
S.1.2	140	40°	0,080	0,057	0,046	0,018	0,098	0,070	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
S.2.1	60	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
S.2.2	60	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
S.2.3	60	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
S.3.1	140	40°	0,045	0,032	0,026	0,010	0,072	0,051	0,041	0,016	0,089	0,063	0,052	0,020	0,112	0,079	0,065	0,025
S.3.2	120	40°	0,045	0,032	0,026	0,010	0,072	0,051	0,041	0,016	0,089	0,063	0,052	0,020	0,112	0,079	0,065	0,025
S.3.3	100	40°	0,045	0,032	0,026	0,010	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,060	0,049	0,019
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting depth corresponding to the cutting length

Index	52 230 ... Ø DC (mm) = 16 a_p 0,050 x DC	a_e 0,1 x DC	a_e 0,150 x DC	h_m	20 a_p 0,050 x DC	a_e 0,1 x DC	a_e 0,150 x DC	h_m	● 1st choice ○ suitable Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)						
P.1.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.1.2	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.1.3	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.1.4	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.1.5	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.2.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.2.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.2.3	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.2.4	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.3.1	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
P.3.2	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.3.3	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
P.4.1	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
P.4.2	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
M.1.1	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
M.2.1	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
M.3.1	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
K.1.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.1.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.2.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.2.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.3.1	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
K.3.2	0,268	0,190	0,155	0,060	0,291	0,206	0,168	0,065	○	●	○
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
S.1.2	0,188	0,133	0,108	0,042	0,268	0,190	0,155	0,060	●		
S.2.1	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.2.2	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.2.3	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.3.1	0,157	0,111	0,090	0,035	0,219	0,155	0,127	0,049	●		
S.3.2	0,157	0,111	0,090	0,035	0,219	0,155	0,127	0,049	●		
S.3.3	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

Cutting data standard values – 3D Finish – barrel shape

Index	v_c (m/min)	52 739 ... Ø DC (mm) = 10 a_e 0,05–0,10 f_z (mm)	a_e 0,10–0,20 f_z (mm)	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	280	0,07	0,06	●	●	○
P.1.2	250	0,07	0,05	●	●	○
P.1.3	250	0,07	0,05	●	●	○
P.1.4	250	0,07	0,05	●	●	○
P.1.5	250	0,07	0,05	●	●	○
P.2.1	250	0,07	0,05	●	●	○
P.2.2	250	0,07	0,05	●	●	○
P.2.3	210	0,06	0,04	●	●	○
P.2.4	210	0,06	0,04	●	●	○
P.3.1	210	0,06	0,04	●	●	○
P.3.2	200	0,05	0,03		●	
P.3.3	200	0,05	0,03		●	
P.4.1	80	0,05	0,03	●		○
P.4.2	80	0,05	0,03	●		○
M.1.1	60	0,04	0,02	●		○
M.2.1	60	0,04	0,02	●		○
M.3.1	60	0,04	0,02	●		○
K.1.1	280	0,08	0,06		●	
K.1.2	280	0,08	0,06		●	
K.2.1	250	0,07	0,05		●	
K.2.2	250	0,07	0,05		●	
K.3.1	140	0,04	0,03		●	
K.3.2	140	0,04	0,03		●	
N.1.1	600	0,07	0,05	●		○
N.1.2	600	0,06	0,04	●		○
N.2.1	410	0,07	0,05	●		○
N.2.2						
N.2.3						
N.3.1	180	0,08	0,06	●	○	○
N.3.2	180	0,08	0,06	●		○
N.3.3	180	0,08	0,06	●		○
N.4.1	410	0,10	0,08	●		○
S.1.1	30	0,04	0,02	●		
S.1.2	30	0,04	0,02	●		
S.2.1	30	0,04	0,02	●		
S.2.2	30	0,04	0,02	●		
S.2.3	30	0,04	0,02	●		
S.3.1	100	0,04	0,02	●		
S.3.2	80	0,04	0,02	●		
S.3.3	60	0,04	0,02	●		
H.1.1	100	0,05	0,03		●	
H.1.2						
H.1.3						
H.1.4						
H.2.1	130	0,05	0,03		●	
H.3.1	100	0,05	0,03		●	
O.1.1	410	0,10	0,08	●	○	○
O.1.2	600	0,10	0,08	●		○
O.2.1						
O.2.2						
O.3.1						

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – oval shape

Index	v_c (m/min)	52 745 ... Ø DC (mm) = 6			8			10			12			16			● 1st choice ○ suitable		
		a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,2–0,3	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,2–0,3	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,2–0,3	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,2–0,3	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,2–0,3	Emulsion	Compressed air	MMS
		f_z (mm)																	
P.1.1	280	0,04	0,04	0,04	0,06	0,06	0,05	0,07	0,07	0,06	0,08	0,08	0,07	0,11	0,11	0,10	●	●	○
P.1.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●	●	○
P.1.3	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●	●	○
P.1.4	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●	●	○
P.1.5	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●	●	○
P.2.1	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●	●	○
P.2.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●	●	○
P.2.3	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,10	0,08	0,06	●	●	○
P.2.4	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,10	0,08	0,06	●	●	○
P.3.1	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,10	0,08	0,06	●	●	○
P.3.2	200	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
P.3.3	200	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
P.4.1	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		○
P.4.2	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		○
M.1.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
M.2.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
M.3.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
K.1.1	280	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,10	0,08	0,07	0,13	0,11	0,10		●	
K.1.2	280	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,10	0,08	0,07	0,13	0,11	0,10		●	
K.2.1	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08		●	
K.2.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08		●	
K.3.1	140	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03		●	
K.3.2	140	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03		●	
N.1.1	600	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●		○
N.1.2	600	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,10	0,08	0,06	●		○
N.2.1	410	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,10	0,08	●		○
N.2.2																			
N.2.3																			
N.3.1	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,10	0,08	0,07	0,13	0,11	0,10	●	○	○
N.3.2	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,10	0,08	0,07	0,13	0,11	0,10	●		○
N.3.3	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,10	0,08	0,07	0,13	0,11	0,10	●		○
N.4.1	410	0,06	0,05	0,05	0,08	0,06	0,06	0,10	0,08	0,08	0,12	0,10	0,10	0,16	0,13	0,13	●		○
S.1.1	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.1.2	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.1	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.2	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.3	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.3.1	100	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,10	0,08	0,06	●		
S.3.2	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		
S.3.3	60	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		
H.1.1	100	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1	130	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
H.3.1	100	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
O.1.1	410	0,06	0,05	0,05	0,08	0,06	0,06	0,10	0,08	0,08	0,12	0,10	0,10	0,16	0,13	0,13	●	○	○
O.1.2	600	0,06	0,05	0,05	0,08	0,06	0,06	0,10	0,08	0,08	0,12	0,10	0,10	0,16	0,13	0,13	●		○
O.2.1																			
O.2.2																			
O.3.1																			

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – taper shape

Index	v_c (m/min)	52 753 ..., 52 755 ...										● 1st choice ○ suitable		
		Ø DC (mm) =												
		6		8		10		12		16				
		a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,05–0,10	a_e 0,1–0,2	a_e 0,05–0,10	a_e 0,1–0,2	Emulsion	Compressed air	MMS
		f_z (mm)												
P.1.1	280	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.1.2	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.1.3	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.1.4	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.1.5	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.2.1	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.2.2	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●	●	○
P.2.3	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.2.4	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.3.1	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.3.2	200	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
P.3.3	200	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
P.4.1	80	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	●		○
P.4.2	80	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	●		○
M.1.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
M.2.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
M.3.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
K.1.1	280	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,11	0,08		●	
K.1.2	280	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,11	0,08		●	
K.2.1	250	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,10	0,08		●	
K.2.2	250	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,10	0,08		●	
K.3.1	140	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03		●	
K.3.2	140	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03		●	
N.1.1	600	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●		○
N.1.2	600	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	●		○
N.2.1	410	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,10	0,06	●		○
N.2.2														
N.2.3														
N.3.1	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,10	0,08	●	○	○
N.3.2	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,10	0,08	●		○
N.3.3	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,10	0,08	●		○
N.4.1	410	0,06	0,05	0,08	0,06	0,10	0,08	0,12	0,10	0,16	0,13	●		○
S.1.1	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.1.2	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.1	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.2	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.3	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.1	100	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.2	80	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.3	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
H.1.1	100	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
H.1.2														
H.1.3														
H.1.4														
H.2.1	130	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
H.3.1	100	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
O.1.1	410	0,06	0,05	0,08	0,06	0,10	0,08	0,12	0,10	0,16	0,13	●	○	○
O.1.2	600	0,06	0,05	0,08	0,06	0,10	0,08	0,12	0,10	0,16	0,13	●		○
O.2.1														
O.2.2														
O.3.1														

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – lens shape

Index	v_c (m/min)	52 756 ... Ø DC (mm) = 4		6		8		10		12		● 1st choice ○ suitable Emulsion	Compressed air	MMS
		Allowance 0,05–0,10	0,1–0,2	0,05–0,10	0,1–0,2	0,05–0,10	0,1–0,2	0,05–0,10	0,1–0,2	0,05–0,10	0,1–0,2			
		f_z (mm)												
P.1.1	280	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.2	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.3	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.4	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.5	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.1	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.2	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.3	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.2.4	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.3.1	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.3.2	180	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04		●	
P.3.3	180	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04		●	
P.4.1	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		○
P.4.2	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		○
M.1.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
M.2.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
M.3.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
K.1.1	300	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07		●	
K.1.2	300	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07		●	
K.2.1	270	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
K.2.2	270	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
K.3.1	150	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04		●	
K.3.2	150	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04		●	
N.1.1	900	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●		○
N.1.2	900	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●		○
N.2.1	600	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●		○
N.2.2														
N.2.3														
N.3.1	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07	●	○	○
N.3.2	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07	●		○
N.3.3	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07	●		○
N.4.1	600	0,04	0,03	0,06	0,05	0,08	0,06	0,10	0,08	0,12	0,10	●		○
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	150	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●		
S.3.2	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		
S.3.3	90	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

In order to calculate the rotational speed n, the diameter DC has to be used.

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Cutting data standard values – PCD milling cutter

Index	v_c (m/min)	50 011 ..., 50 012 ...		50 010 ..., 50 013 ...		50 014 ...		50 015 ...			
											
		$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e
N.1.1	900	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.1.2	900	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.1	700	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.2	600	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.3	400	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.3.1	500							0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.3.2											
N.3.3											
N.4.1	900							0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.1.1	120	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.1.2	250	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.2.1											
O.2.2	200–300	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.3.1	650	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC

Index	v_c (m/min)	50 016 ..., 50 017 ...				50 018 ...				50 020 ...			
													
		$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e
N.1.1	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.1.2	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.1	700	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.2	600	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.3	400	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.3.1	500	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.3.2													
N.3.3													
N.4.1	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.1.1	120	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.1.2	250	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.2.1													
O.2.2	200–300	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.3.1	650	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC

● 1st choice
○ suitable

Index	v_c (m/min)	50 019 ...				Ø DC (mm) =						Emulsion	Compressed air	MMS
						40	50	63	80	100	125			
		$a_{p\,max.}$ x DC	a_e	$a_{p\,max.}$ x DC	a_e	f_z (mm)								
N.1.1	2200	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.1.2	2100	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.1	1850	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.2	1850	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.3	1750	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.3.1	1000–1500	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.3.2														
N.3.3														
N.4.1	2200	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
O.1.1														
O.1.2														
O.2.1														
O.2.2	500–600	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,230	0,230	0,230	0,230	0,230	0,230	●		○
O.3.1														

Index	50 010 ..., 50 011 ..., 50 012 ..., 50 013 ..., 50 014 ..., 50 015 ...												● 1st choice ○ suitable		
	Ø DC (mm) =												Emulsion	Compressed air	MMS
	2	3	4	5	6	8	10	12	16	20	25	32			
	f_z (mm)														
N.1.1	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.1.2	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.1	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.2	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.3	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.2															
N.3.3															
N.4.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
O.1.1	0,025	0,038	0,050	0,071	0,100	0,150	0,200	0,250	0,300	0,400	0,440	0,460	●		○
O.1.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.2.1															
O.2.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,20	0,220	0,260	●		○
O.3.1	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,20	0,220	0,260	●		○

Index	50 016 ..., 50 017 ..., 50 018 ..., 50 020 ...												● 1st choice ○ suitable		
	Ø DC (mm) =												Emulsion	Compressed air	MMS
	2	3	4	5	6	8	10	12	16	20	25	32			
	f_z (mm)														
N.1.1	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.1.2	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.1	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.2	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.3	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.2															
N.3.3															
N.4.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
O.1.1	0,025	0,038	0,050	0,0705	0,100	0,150	0,200	0,250	0,300	0,400	0,440	0,460	●		○
O.1.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.2.1															
O.2.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.3.1	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○

Cutting data standard values – AluLine – End mills – ZEFP = 2

Index	Type short		Medium-length version		53 623..., 53 624..., 53 625..., 53 626..., 53 633..., 53 634..., 53 635..., 53 636..., 53 619..., 53 620..., 53 621..., 53 622..., 53 629..., 53 630..., 53 631..., 53 632..., 52 627..., 53 628..., 53 637..., 53 638...																	
					Ø DC (mm) =																	
					2			2,5–3,0			3,5–4,0			4,5–5,0			5,5–6,0			6,5–8,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
					f_z (mm)																	
N.1.1	600	1,0	360	0,7	0,032	0,027	0,021	0,045	0,039	0,030	0,057	0,049	0,038	0,071	0,061	0,047	0,084	0,073	0,056	0,110	0,095	0,073
N.1.2	600	1,0	360	0,7	0,032	0,027	0,021	0,045	0,039	0,030	0,057	0,049	0,038	0,071	0,061	0,047	0,084	0,073	0,056	0,110	0,095	0,073
N.2.1	360	1,0	215	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.2	360	1,0	215	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.3	240	1,0	145	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.3.1	240	1,0	145	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.3.2	240	1,0	145	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.3.3	170	1,0	100	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.4.1	220	1,0	130	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063

Cutting data standard values – AluLine – End mill – ZEFP = 3

Index	Type short / medium length		Type long		Type extra long		53 615..., 53 616..., 53 617..., 53 618..., 53 611..., 53 612..., 53 613..., 53 614..., 53 712..., 53 713..., 53 714..., 53 715..., 53 708..., 53 709..., 53 710..., 53 711..., 53 584..., 53 597...,													
							Ø DC (mm) =															
							2			2,5–3,0			3,5–4,0			4,5–5,0			5,5–6,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
							f_z (mm)															
N.1.1	600	1,0	480	0,8	240	0,6	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047
N.1.2	600	1,0	480	0,8	240	0,6	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047
N.2.1	360	1,0	290	0,8	145	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.2.2	360	1,0	290	0,8	145	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.2.3	240	1,0	190	0,8	95	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.3.1	240	1,0	190	0,8	95	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.3.2	240	1,0	190	0,8	95	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.3.3	170	1,0	135	0,8	70	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.4.1	220	1,0	175	0,8	90	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044

Cutting data standard values – AluLine – End mill – ZEFP = 4

Index	Type short / medium length		Type long		Type extra long		53 700..., 53 701..., 53 702..., 53 703..., 53 704..., 53 705..., 53 706..., 53 707..., 53 560..., 53 561..., 53 562..., 53 563..., 53 564..., 53 565..., 53 566..., 53 567..., 53 568..., 53 569...													
							Ø DC (mm) =															
							2			3,0			4,0			5,0			6,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
							f_z (mm)															
N.1.1	600	1,0	480	0,8	240	0,6	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039
N.1.2	600	1,0	480	0,8	240	0,6	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039
N.2.1	360	1,0	290	0,8	145	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.2.2	480	1,0	385	0,8	145	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.2.3	240	1,0	190	0,8	95	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.3.1	240	1,0	190	0,8	95	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.3.2	240	1,0	190	0,8	95	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.3.3	170	1,0	135	0,8	70	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.4.1	220	1,0	175	0,8	90	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035

53 623..., 53 624..., 53 625..., 53 626..., 53 633..., 53 634..., 53 635..., 53 636..., 53 619..., 53 620..., 53 621..., 53 622..., 53 629..., 53 630..., 53 631..., 53 632..., 52 627..., 53 628..., 53 637..., 53 638...

● 1st choice
○ suitable

Index	Ø DC (mm) = 8,5–10,0			10,5–12,0			12,5–14,0			14,5–16,0			16,5–18,0			18,5–20,0			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z (mm)																				
N.1.1	0,137	0,118	0,091	0,162	0,140	0,108	0,189	0,164	0,126	0,203	0,176	0,135	0,216	0,187	0,144	0,230	0,199	0,153	●	○*	○
N.1.2	0,137	0,118	0,091	0,162	0,140	0,108	0,189	0,164	0,126	0,203	0,176	0,135	0,216	0,187	0,144	0,230	0,199	0,153	●	○*	○
N.2.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.2	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.3	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.3.1	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.3.2	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.3.3	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.4.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○

* = only suitable for DLC-coated cutters

53 598..., 53 599..., 53 578..., 53 579..., 53 580.../ 53 581..., 53 517..., 53 518..., 53 519..., 53 520..., 53 521..., 53 522..., 53 523..., 53 524...

● 1st choice
○ suitable

Index	Ø DC (mm) = 6,5–8,0			8,5–10,0			10,5–12,0			12,5–14,0			14,5–16,0			16,5–18,0			18,5–20,0			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z (mm)																							
N.1.1	0,095	0,082	0,063	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.1.2	0,095	0,082	0,063	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.1	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.2.2	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.2.3	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.3.1	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.3.2	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.3.3	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.4.1	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○

* = only suitable for DLC-coated cutters

53 700..., 53 701..., 53 702..., 53 703..., 53 704..., 53 705..., 53 706..., 53 707..., 53 560..., 53 561..., 53 562..., 53 563..., 53 564..., 53 565..., 53 566..., 53 567..., 53 568..., 53 569...

● 1st choice
○ suitable

Index	Ø DC (mm) = 8,0			8,5–10,0			12,0			14,0			16,0			18,0			20,0			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z (mm)																							
N.1.1	0,078	0,068	0,052	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.1.2	0,078	0,068	0,052	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.2.1	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.2.2	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.2.3	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.3.1	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.3.2	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.3.3	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.4.1	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○

* = only suitable for DLC-coated cutters

Cutting data standard values – AluLine – Roughing-finishing milling cutter

Index	Type short / long		Medium-length version		53 582 ..., 53 583 ...															
					Ø DC (mm) =															
					3			4			5			6			8			
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
					f_z (mm)															
N.1.1	600	1,0	480	0,8	0,114	0,099	0,076	0,131	0,113	0,087	0,147	0,127	0,098	0,162	0,140	0,108	0,195	0,169	0,130
N.1.2	600	1,0	480	0,8	0,114	0,099	0,076	0,131	0,113	0,087	0,147	0,127	0,098	0,162	0,140	0,108	0,195	0,169	0,130
N.2.1	360	1,0	290	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.2.2	360	1,0	290	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.2.3	240	1,0	190	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.3.1	240	1,0	190	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.3.2	240	1,0	190	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.3.3	170	1,0	135	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.4.1	220	1,0	175	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108

Cutting data – AluLine – Ball Nosed End Mills

Index	Type short		Type long		Type extra long		53 607 ..., 53 608 ..., 53 609 ..., 53 610 ...														
							Ø DC (mm) =														
							3			4			5			6			8		
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
							f_z (mm)														
N.1.1	750	0,03	450	0,02	225	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.1.2	750	0,03	450	0,02	225	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.1	600	0,03	360	0,02	180	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.2.2	600	0,03	360	0,02	180	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.2.3	400	0,03	240	0,02	120	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.3.1	180	0,03	110	0,02	55	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.3.2	180	0,03	110	0,02	55	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.3.3	230	0,03	140	0,02	70	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.4.1	350	0,03	210	0,02	105	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
O.1.1	65	0,03	40	0,03	40	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150
O.1.2	240	0,03	145	0,03	145	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150

Cutting data – AluLine – High Accuracy Finishing Cutters

Index	Type short	Type long	Type extra long	$a_{p\,max.}$ x DC	53 639 ...															
					Ø DC (mm) =															
					6			8			10			12			16			
	v_c (m/min)				a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC
					f_z (mm)															
N.1.1	500	400	300	2,0	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045	0,083	0,072	0,055
N.1.2	500	400	300	2,0	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045	0,083	0,072	0,055
N.2.1	300	240	180	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.2.2	300	240	180	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.2.3	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.1	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.2	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.3	150	120	90	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.4.1	200	160	120	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045

Index	53 582 ..., 53 583 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	10			12			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
N.1.1	0,225	0,195	0,150	0,258	0,224	0,172	0,305	0,264	0,203	0,336	0,291	0,224	●		
N.1.2	0,225	0,195	0,150	0,258	0,224	0,172	0,305	0,264	0,203	0,336	0,291	0,224	●		
N.2.1	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.2.2	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.2.3	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.3.1	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.3.2	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.3.3	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.4.1	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		

Index	53 607 ..., 53 608 ..., 53 609 ..., 53 610 ...															● 1st choice ○ suitable		
	Ø DC (mm) =																	
	10			12			14			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)																	
N.1.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,206	0,178	0,137	●	○	
N.1.2	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,206	0,178	0,137	●	○	
N.2.1	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●	○	
N.2.2	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●	○	
N.2.3	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●	○	
N.3.1	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●	○	
N.3.2	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●	○	
N.3.3	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●	○	
N.4.1	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●	○	
O.1.1	0,400	0,298	0,200	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●	○	
O.1.2	0,400	0,298	0,200	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●	○	

Index	53 639 ...			● 1st choice ○ suitable		
	Ø DC (mm) =					
	10					
	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	Emulsion	Compressed air	MMS
	f_z (mm)					
N.1.1	0,092	0,080	0,062	●		○
N.1.2	0,092	0,080	0,062	●		○
N.2.1	0,077	0,066	0,051	●		○
N.2.2	0,077	0,066	0,051	●		○
N.2.3	0,077	0,066	0,051	●		○
N.3.1	0,077	0,066	0,051	●		○
N.3.2	0,077	0,066	0,051	●		○
N.3.3	0,077	0,066	0,051	●		○
N.4.1	0,077	0,066	0,051	●		○

Cutting data – Cutters for plastic machining

Index	Strength N/mm² – HB	50 983 ..., 50 984 ..., 50 985 ..., 50 986 ..., 50 932 ...	50 937 ...	50 936 ...	50 938 ...	50 610 ..., 50 611 ..., 52 76. ...	50 91. ...	50 946 ...	50 948 ...	50 947 ...
		v_c (m/min)								
N.1.1	60 HB					400–450	400–450			
N.1.2	340 N/mm² / 100 HB					400–450	400–450			
N.2.1	250 N/mm² / 75 HB					350–400	350–400			
N.2.2	300 N/mm² / 90 HB				300–400			300–400	300–400	300–400
N.2.3	440 N/mm² / 130 HB				300–400			250–300	250–300	250–300
N.3.1	375 N/mm² / 110 HB					350–400	350–400			
N.3.2	300 N/mm² / 90 HB					400–450	400–450			
N.3.3	340 N/mm² / 100 HB					400–450	400–450			
N.4.1	70 HB				250			250	250	250
O.1.1	≤ 150 N/mm²					500–550	500–550			
O.1.2	≤ 100 N/mm²					500–550	500–550			
O.2.1	≤ 1000 N/mm²	150–200	150–200	500–600	150–200					
O.2.2	≤ 1000 N/mm²	150–200	150–200	500–600	150–200					
O.3.1		300–400	500–600	500–600	300–400					

DC in mm	Plastics, Thermoset, Hardwood, Pressed Cardboard					Plastic, Thermoplast, Polycarbonate, Non-ferrous metal, Hard rubber				
	End milling cutter Type W			Ball nosed cutter Type W		End milling cutter Type W			Ball nosed cutter Type W	
	Shoulder milling, trimming		Slot milling	Copy milling - Line milling		Shoulder milling, trimming		Slot milling	Copy milling - Line milling	
	Roughing	Finishing		Roughing	Finishing	Roughing	Finishing		Roughing	Finishing
	a_p = 1,0 x DC	a_p = 1,0 x DC		a_e = 0,5 x DC	a_e = 0,03 x DC	a_e = 1,5 x DC	a_p = 1,0 x DC		a_e = 0,5 x DC	a_e = 0,03 x DC
	a_e = 0,4 x DC	a_e = 0,1 x DC		a_e = 0,5 x DC	a_e = 0,02 x DC	a_e = 0,8 x DC	a_e = 0,1 x DC		a_e = 0,5 x DC	a_e = 0,02 x DC
	f_z (mm)									
2	0,024	0,018	0,016	0,028	0,024	0,024	0,022	0,017	0,037	0,030
3	0,036	0,027	0,024	0,042	0,036	0,036	0,033	0,026	0,056	0,045
4	0,048	0,036	0,032	0,056	0,048	0,048	0,044	0,034	0,074	0,060
5	0,060	0,045	0,040	0,070	0,060	0,060	0,055	0,043	0,093	0,075
6	0,072	0,054	0,048	0,084	0,072	0,072	0,066	0,051	0,111	0,090
8	0,100	0,070	0,060	0,110	0,100	0,100	0,090	0,070	0,150	0,120
10	0,120	0,090	0,080	0,140	0,120	0,120	0,110	0,090	0,190	0,150
12	0,140	0,110	0,100	0,170	0,140	0,140	0,130	0,100	0,220	0,180
14	0,170	0,130	0,110	0,200	0,170	0,170	0,150	0,120	0,260	0,210
16	0,190	0,140	0,130	0,220	0,190	0,190	0,180	0,140	0,300	0,240
18	0,220	0,160	0,140	0,250	0,220	0,220	0,200	0,150	0,330	0,270
20	0,240	0,180	0,160	0,280	0,240	0,240	0,220	0,170	0,370	0,300

DC in mm	Fiber reinforced plastics AFK, CFK, GFK			
	End mill staggered teeth			
	Shoulder milling, trimming		Slot milling	
	a_p = 1,0 x DC		a_p = 0,35 x DC	
	a_e = 0,4 x DC			
	fine	medium	fine	medium
	f (mm/rev)			
2	0,16	0,14	0,14	0,12
3	0,24	0,21	0,21	0,18
4	0,32	0,28	0,28	0,24
5	0,40	0,35	0,35	0,30
6	0,48	0,42	0,42	0,36
8	0,64	0,56	0,56	0,48
10	0,80	0,70	0,70	0,60
12	0,96	0,84	0,84	0,72
16	1,28	1,12	1,12	0,96
20	1,60	1,40	1,40	1,20

Feedrate values for ball nosed and torus cutters on → **page 486**

Cutting data standard values – AluLine – NC deburring cutter

Index	v_c (m/min)	53 660 ..., 53 661 ..., 53 662 ..., 53 663 ... DLC Ø DC (mm) = 4	6	8	10	12	16	v_c (m/min)	53 664 ..., 53 665 ..., 53 666 ..., 53 667 ... uncoated Ø DC (mm) = 4	6	8	10	12	16	● 1st choice ○ suitable Emulsion	Compressed air	MMS
		f_z (mm)							f_z (mm)								
N.1.1	300	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.1.2	300	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.1	260	0,03	0,04	0,05	0,06	0,07	0,08	170	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.2	280	0,03	0,04	0,05	0,06	0,07	0,08	180	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.3	250	0,03	0,04	0,05	0,06	0,07	0,08	165	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.1	110	0,03	0,04	0,05	0,06	0,07	0,08	75	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.2	140	0,03	0,04	0,05	0,06	0,07	0,08	90	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.3	120	0,03	0,04	0,05	0,06	0,07	0,08	80	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.4.1																	
O.1.1	320	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○	○
O.1.2	320	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○	○
O.2.1																	
O.2.2																	
O.3.1																	

* = only suitable for DLC-coated cutters

Cutting data standard values – BlueLine – NC deburring cutter

Index	v_c (m/min)	52 560 ..., 52 561 ..., 52 562 ..., 52 563 ... Ti2000 Ø DC (mm) = 4	6	8	10	12	16	● 1st choice ○ suitable Emulsion	Compressed air	MMS
		f_z (mm)								
P.3.2	80	0,02	0,02	0,025	0,03	0,04	0,05		●	
P.3.3	70	0,02	0,02	0,025	0,03	0,04	0,05		●	
H.1.1	120	0,045	0,055	0,06	0,065	0,065	0,07		●	
H.1.2	90	0,04	0,05	0,055	0,06	0,06	0,065		●	
H.1.3	70	0,035	0,045	0,05	0,055	0,055	0,06		●	
H.1.4	50	0,025	0,03	0,04	0,045	0,045	0,05		●	
H.2.1										
H.3.1										

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Cutting data standard values – BlueLine – Micro-end mill / micro-torus cutter

Index	$T_X \leq 2,5$ x DC		52 345 ..., 52 346 ..., 52 347 ..., 52 349 ..., 52 350 ..., 52 351 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	190	0,5	0,0038	0,0045	0,0050	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,0210	0,0225	0,0240	●
P.3.3	190	0,5	0,0038	0,0045	0,0050	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,0210	0,0225	0,0240	●
H.1.1	120	0,5	0,0038	0,0045	0,0050	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,0210	0,0225	0,0240	●
H.1.2	70	0,5	0,0030	0,0360	0,0045	0,0062	0,0074	0,0104	0,0132	0,0144	0,0156	0,0168	0,0180	0,0192	●
H.1.3	50	0,5	0,0025	0,0030	0,0040	0,0052	0,0062	0,0087	0,0110	0,0120	0,0130	0,0140	0,0150	0,0160	●
H.1.4															
H.2.1	190	0,5	0,0038	0,0045	0,0050	0,0078	0,0093	0,0131	0,0165	0,0180	0,0195	0,0210	0,0225	0,0240	●
H.3.1	70	0,5	0,0030	0,0360	0,0045	0,0062	0,0074	0,0104	0,0132	0,0144	0,0156	0,0168	0,0180	0,0192	●

Index	$T_X \leq 2,6–5,0$ x DC		52 345 ..., 52 346 ..., 52 347 ..., 52 349 ..., 52 350 ..., 52 351 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
P.3.3	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.1.1	108	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.1.2	63	0,5	0,0030	0,0032	0,0036	0,0050	0,0060	0,0082	0,0107	0,0121	0,0126	0,0140	0,0156	0,0156	●
H.1.3	45	0,5	0,0025	0,0027	0,0030	0,0042	0,0050	0,0068	0,0089	0,0101	0,0105	0,0117	0,0130	0,0130	●
H.1.4															
H.2.1	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.3.1	63	0,5	0,0030	0,0032	0,0036	0,0050	0,0060	0,0082	0,0107	0,0121	0,0126	0,0140	0,0156	0,0156	●

Index	$T_X \leq 5,1–10,0$ x DC		52 345 ..., 52 346 ..., 52 347 ..., 52 349 ..., 52 350 ..., 52 351 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	150	0,5	0,0030	0,0038	0,0045	0,0060	0,0068	0,0075	0,0083	0,0090	0,0105	0,0113	0,012	0,0128	●
P.3.3	150	0,5	0,0030	0,0038	0,0045	0,0060	0,0068	0,0075	0,0083	0,0090	0,0105	0,0113	0,012	0,0128	●
H.1.1	96	0,5	0,0030	0,0038	0,0045	0,0060	0,0068	0,0075	0,0083	0,0090	0,0105	0,0113	0,0120	0,0128	●
H.1.2	56	0,5	0,0024	0,0030	0,0036	0,0048	0,0054	0,0060	0,0066	0,0072	0,0084	0,0090	0,0096	0,0102	●
H.1.3	40	0,5	0,0020	0,0025	0,0030	0,0040	0,0045	0,0050	0,0055	0,0060	0,0070	0,0075	0,0080	0,0085	●
H.1.4															
H.2.1	150	0,5	0,0030	0,0038	0,0045	0,0060	0,0068	0,0075	0,0083	0,0090	0,0105	0,0113	0,0120	0,0128	●
H.3.1	56	0,5	0,0024	0,0030	0,0036	0,0048	0,0054	0,0060	0,0066	0,0072	0,0084	0,0090	0,0096	0,0102	●

Index	$T_x \leq 10{,}1–15{,}0 \times DC$		52 345 ..., 52 346 ..., 52 347 ..., 52 349 ..., 52 350 ..., 52 351 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	114	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	0,0066	●
P.3.3	114	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	0,0066	●
H.1.1	72	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	0,0066	●
H.1.2	42	0,5	0,0012	0,0018	0,0024	0,0030	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,0050	0,0053	●
H.1.3	30	0,5	0,0010	0,0015	0,0020	0,0025	0,0030	0,0032	0,0034	0,0036	0,0038	0,0040	0,0042	0,0044	●
H.1.4															
H.2.1	114	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	0,0066	●
H.3.1	42	0,5	0,0012	0,0018	0,0024	0,0030	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,0050	0,0053	●

Index	$T_x \leq 15{,}1–20{,}0 \times DC$		52 345 ..., 52 346 ..., 52 347 ..., 52 349 ..., 52 350 ..., 52 351 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	75	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	●
P.3.3	75	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	●
H.1.1	48	0,5	0,0015	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	●
H.1.2	28	0,5	0,0012	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,0050	●
H.1.3	20	0,5	0,0010	0,0010	0,0015	0,0020	0,0025	0,0030	0,0032	0,0034	0,0036	0,0038	0,0040	0,0042	●
H.1.4															
H.2.1	75	0,5	0,0015	0,0015	0,0023	0,0030	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,0060	0,0063	●
H.3.1	28	0,5	0,0012	0,0012	0,0018	0,0024	0,0030	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,0050	●

Index	$T_x \leq 20{,}1–30{,}0 \times DC$		52 345 ..., 52 346 ..., 52 347 ..., 52 349 ..., 52 350 ..., 52 351 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	57	0,5	0,0010	0,002	0,0020	0,0030	0,0030	0,0030	0,0040	0,0040	0,0040	0,005	0,0050	0,0050	●
P.3.3	57	0,5	0,0010	0,002	0,0020	0,0030	0,0030	0,0030	0,0040	0,0040	0,0040	0,005	0,0050	0,0050	●
H.1.1	36	0,5	0,0010	0,002	0,0020	0,0030	0,0030	0,0030	0,0040	0,0040	0,0040	0,005	0,0050	0,0050	●
H.1.2	21	0,5	0,0010	0,001	0,0020	0,0020	0,0020	0,0030	0,0030	0,0030	0,0030	0,004	0,0040	0,0040	●
H.1.3	15	0,5	0,0008	0,001	0,0013	0,0017	0,0019	0,0022	0,0025	0,0027	0,0029	0,003	0,0031	0,0032	●
H.1.4															
H.2.1	57	0,5	0,0010	0,002	0,0020	0,0030	0,0030	0,0030	0,0040	0,0040	0,0040	0,005	0,0050	0,0050	●
H.3.1	21	0,5	0,0010	0,001	0,0020	0,0020	0,0020	0,0030	0,0030	0,0030	0,0030	0,004	0,0040	0,0040	●

Cutting data standard values – BlueLine – Micro-ball-nosed end mill

Index	$T_X \leq 2,5 \times DC$		52 356 ..., 52 357 ..., 52 358 ..., 52 359 ..., 52 360 ...											
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											Compressed air
P.3.2	190	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0053	0,0060	0,0063	0,0066	0,0069	0,0072	0,0075	●
P.3.3	190	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0053	0,0060	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.1.1	120	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0053	0,0060	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.1.2	70	0,5	0,0012	0,0018	0,0024	0,0030	0,0036	0,0042	0,0048	0,0050	0,0053	0,0055	0,0058	0,0060	●
H.1.3	50	0,5	0,0010	0,0015	0,0020	0,0025	0,0030	0,0035	0,0040	0,0042	0,0044	0,0046	0,0048	0,0050	●
H.1.4															
H.2.1	190	0,5	0,0015	0,0023	0,0030	0,0038	0,0045	0,0053	0,0060	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.3.1	70	0,5	0,0012	0,0018	0,0024	0,0030	0,0036	0,0042	0,0048	0,0050	0,0053	0,0055	0,0058	0,0060	●

Index	$T_X \leq 2,6–5,0 \times DC$		52 356 ..., 52 357 ..., 52 358 ..., 52 359 ..., 52 360 ...											
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											Compressed air
P.3.2	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
P.3.3	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.1.1	108	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.1.2	63	0,5	0,0008	0,0011	0,0014	0,0018	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	0,0038	●
H.1.3	45	0,5	0,0007	0,0009	0,0012	0,0015	0,0017	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	●
H.1.4															
H.2.1	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.3.1	63	0,5	0,0008	0,0011	0,0014	0,0018	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	0,0038	●

Index	$T_X \leq 5,1–10,0 \times DC$		52 356 ..., 52 357 ..., 52 358 ..., 52 359 ..., 52 360 ...											
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											Compressed air
P.3.2	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	0,0039	●
P.3.3	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	0,0039	●
H.1.1	96	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
H.1.2	56	0,5	0,0005	0,0007	0,0010	0,0012	0,0014	0,0017	0,0019	0,0022	0,0024	0,0026	0,0029	0,0031	●
H.1.3	40	0,5	0,0004	0,0006	0,0008	0,0010	0,0012	0,0014	0,0016	0,0018	0,0020	0,0022	0,0024	0,0026	●
H.1.4															
H.2.1	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	0,0039	●
H.3.1	56	0,5	0,0005	0,0007	0,0010	0,0012	0,0014	0,0017	0,0019	0,0022	0,0024	0,0026	0,0029	0,0031	●

Index	$T_x \leq 10{,}1–15{,}0 \times DC$		52 356 ..., 52 357 ..., 52 358 ..., 52 359 ..., 52 360 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0	
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	114	0,5	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	●
P.3.3	114	0,5	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	●
H.1.1	72	0,5	0,0003	0,0006	0,0008	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	●
H.1.2	42	0,5	0,0002	0,0005	0,0007	0,0010	0,0012	0,0014	0,0017	0,0019	0,0022	0,0022	0,0026	0,0029	●
H.1.3	30	0,5	0,0002	0,0004	0,0006	0,0008	0,0010	0,0012	0,0014	0,0016	0,0018	0,0020	0,0022	0,0024	●
H.1.4															
H.2.1	114	0,5	0,0003	0,0006	0,0008	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,0030	0,0033	0,0036	●
H.3.1	42	0,5	0,0002	0,0005	0,0007	0,0010	0,0012	0,0014	0,0017	0,0019	0,0022	0,0022	0,0026	0,0029	●

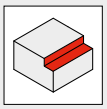
Index	$T_x \leq 15{,}1–20{,}0 \times DC$		52 356 ..., 52 357 ..., 52 358 ..., 52 359 ..., 52 360 ...											Compressed air
			Ø DC (mm) =											
			0,2	0,3	0,4–0,5	0,6–0,7	0,8–0,9	1,0	1,2–1,4	1,5	1,6–1,8	2,0	2,5	3,0	
			a_e 0,05 x DC											
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)											
P.3.2	114	0,5	0,0002	0,0004	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
P.3.3	114	0,5	0,0002	0,0004	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.1.1	72	0,5	0,0002	0,0004	0,0005	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.1.2	42	0,5	0,0001	0,0003	0,0004	0,0007	0,0009	0,0011	0,0014	0,0016	0,0019	0,0019	0,0023	0,0026	●
H.1.3	30	0,5	0,0001	0,0002	0,0003	0,0005	0,0007	0,0009	0,0011	0,0013	0,0015	0,0017	0,0019	0,0021	●
H.1.4															
H.2.1	114	0,5	0,0002	0,0004	0,0005	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.3.1	42	0,5	0,0001	0,0003	0,0004	0,0007	0,0009	0,0011	0,0014	0,0016	0,0019	0,0021	0,0023	0,0026	●

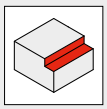
Cutting data standard values – BlueLine – End mill

Index	v_c (m/min) 52 140 ... 52 141 ...	v_c (m/min) 52 133 ... 52 134 ... 52 324 ...	$a_{p\,max.}$ x DC	52 133 ..., 52 134 ..., 52 140 ..., 52 141 ..., 52 324 ... Ø DC (mm) = 3	4	5	6	8	10	12	16	20	Compressed air
				a_e 0,05 x DC									
				f_z (mm)									
P.3.2	190	160	1,0	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040	●
P.3.3	190	160	1,0	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040	●
H.1.1	160	140	1,0	0,013	0,013	0,016	0,018	0,020	0,023	0,025	0,029	0,032	●
H.1.2	**140**	**130**	1,0	0,011	0,011	0,014	0,016	0,018	0,020	0,022	0,025	0,027	●
H.1.3	**100**	**90**	1,0	0,010	0,010	0,012	0,014	0,016	0,018	0,020	0,023	0,025	●
H.1.4													
H.2.1	**190**	**160**	1,0	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040	●
H.3.1	**140**	**130**	1,0	0,011	0,011	0,014	0,016	0,018	0,020	0,022	0,025	0,027	●

Index	v_c (m/min)	$a_{p\,max.}$ x DC	52 135 ..., 52 136 ..., 52 325 ... Ø DC (mm) = 3	4	5	6	8	10	12	16	20	Compressed air
			a_e 0,05 x DC									
			f_z (mm)									
P.3.2	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
P.3.3	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.1.1	125	1,0	0,008	0,009	0,011	0,014	0,016	0,02	0,023	0,026	0,028	●
H.1.2	**115**	1,0	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●
H.1.3	**80**	1,0	0,005	0,006	0,007	0,01	0,012	0,015	0,017	0,019	0,02	●
H.1.4												
H.2.1	**140**	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.3.1	**115**	1,0	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●

Index	v_c (m/min)	$a_{p\,max.}$ x DC	52 344 ... Ø DC (mm) = 0,5			1,0–1,5			2,0–2,5			3,0–3,5			4,0			5,0		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)																	
P.3.2	**120**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,020	0,014
P.3.3	**120**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,020	0,014
H.1.1	**80**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,020	0,014
H.1.2	**60**	0,5	0,004	0,004	0,003	0,006	0,005	0,004	0,009	0,007	0,005	0,013	0,010	0,007	0,017	0,013	0,010	0,022	0,016	0,011
H.1.3	**50**	0,5	0,004	0,003	0,002	0,005	0,004	0,003	0,007	0,006	0,004	0,011	0,008	0,006	0,014	0,011	0,008	0,018	0,013	0,009
H.1.4																				
H.2.1	**120**	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,020	0,014
H.3.1	**60**	0,5	0,004	0,004	0,003	0,006	0,005	0,004	0,009	0,007	0,005	0,013	0,010	0,007	0,017	0,013	0,010	0,022	0,016	0,011

Index	52 140 ... 52 141 ...	52 133 ... 52 134 ... 52 324 ...		52 133 ..., 52 134 ..., 52 140 ..., 52 141 ..., 52 324 ...									Compressed air
				Ø DC (mm) =									
				3	4	5	6	8	10	12	16	20	
				a_e 0,6–1,0 x DC									
	v_c (m/min)		$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	190	160	0,05	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040	●
P.3.3	190	160	0,05	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040	●
H.1.1	160	140	0,05	0,013	0,013	0,016	0,018	0,020	0,023	0,025	0,029	0,032	●
H.1.2	**140**	**130**	0,05	0,011	0,011	0,014	0,016	0,018	0,020	0,022	0,025	0,027	●
H.1.3	**100**	**90**	0,05	0,010	0,010	0,012	0,014	0,016	0,018	0,020	0,023	0,025	●
H.1.4													
H.2.1	**190**	**160**	0,05	0,018	0,020	0,022	0,024	0,025	0,030	0,035	0,038	0,040	●
H.3.1	**140**	**130**	0,05	0,011	0,011	0,014	0,016	0,018	0,020	0,022	0,025	0,027	●

Index		52 135 ..., 52 136 ..., 52 325 ...									Compressed air
		Ø DC (mm) =									
		3	4	5	6	8	10	12	16	20	
		a_e 0,6–1,0 x DC									
	v_c (m/min) $a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	140 0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
P.3.3	140 0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.1.1	125 0,05	0,008	0,009	0,011	0,014	0,016	0,02	0,023	0,026	0,028	●
H.1.2	**115** 0,05	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●
H.1.3	**80** 0,05	0,005	0,006	0,007	0,01	0,012	0,015	0,017	0,019	0,02	●
H.1.4											
H.2.1	**140** 0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.3.1	**115** 0,05	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●

Index	52 344 ...																		Compressed air
	Ø DC (mm) =																		
	6,0			8,0			10,0			12,0			16,0			20,0			
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	
	f_z (mm)																		
P.3.2	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,040	0,027	0,06	0,045	0,030	0,076	0,058	0,045	0,095	0,077	0,060	●
P.3.3	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,040	0,027	0,06	0,045	0,030	0,076	0,058	0,045	0,095	0,077	0,060	●
H.1.1	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,040	0,027	0,06	0,045	0,030	0,076	0,058	0,045	0,095	0,077	0,060	●
H.1.2	0,029	0,021	0,014	0,038	0,029	0,019	0,043	0,032	0,022	0,048	0,036	0,024	0,061	0,046	0,036	0,076	0,062	0,048	●
H.1.3	0,024	0,018	0,012	0,032	0,024	0,016	0,036	0,027	0,018	0,040	0,030	0,020	0,051	0,039	0,030	0,063	0,052	0,040	●
H.1.4																			
H.2.1	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,040	0,027	0,060	0,045	0,030	0,076	0,058	0,045	0,095	0,077	0,060	●
H.3.1	0,029	0,021	0,014	0,038	0,029	0,019	0,043	0,032	0,022	0,048	0,036	0,024	0,061	0,046	0,036	0,076	0,062	0,048	●

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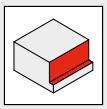
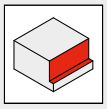
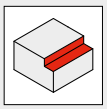
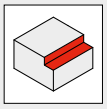
Cutting data standard values – BlueLine – End mill

Index	v_c (m/min)	$a_{p\,max.}$ x DC	52 348 ... Ø DC (mm) = 6		8		10		12		16		20		Compressed air
			a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	
			f_z (mm)												
P.3.2	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
P.3.3	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.1.1	100	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.1.2	90	2,0	0,021	0,017	0,024	0,019	0,027	0,022	0,030	0,025	0,035	0,030	0,041	0,036	●
H.1.3	60	2,0	0,014	0,011	0,016	0,013	0,018	0,015	0,021	0,018	0,025	0,022	0,030	0,027	●
H.1.4															
H.2.1	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.3.1	90	2,0	0,021	0,017	0,024	0,019	0,027	0,022	0,030	0,025	0,035	0,030	0,041	0,036	●

Index	 v_c (m/min)	$a_{p\,max.}$ x DC	52 353 ... Ø DC (mm) = 1	2	3	4	5	6	8	10	12	16	Compressed air
			a_e 0,05 x DC										
			f_z (mm)										
P.3.2	200	0,5	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135	●
P.3.3	200	0,5	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135	●
H.1.1	170	0,5	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135	●
H.1.2	150	0,5	0,006	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,108	●
H.1.3	110	0,5	0,005	0,010	0,020	0,030	0,040	0,050	0,060	0,070	0,080	0,090	●
H.1.4													
H.2.1	200	0,5	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135	●
H.3.1	150	0,5	0,006	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,108	●

Index	 v_c (m/min)	$a_{p\,max.}$ x DC	52 354 ... Ø DC (mm) = 1	2	3	4	5	6	8	10	12	16	Compressed air
			a_e 0,05 x DC										
			f_z (mm)										
P.3.2	200	0,5	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
P.3.3	200	0,5	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
H.1.1	170	0,5	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
H.1.2	150	0,5	0,004	0,006	0,012	0,018	0,024	0,030	0,036	0,042	0,048	0,054	●
H.1.3	110	0,5	0,003	0,005	0,010	0,015	0,020	0,025	0,03	0,035	0,040	0,045	●
H.1.4													
H.2.1	200	0,5	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
H.3.1	150	0,5	0,004	0,006	0,012	0,018	0,024	0,030	0,036	0,042	0,048	0,054	●

Index			52 353 ...										Compressed air
			Ø DC (mm) =										
			1	2	3	4	5	6	8	10	12	16	
			a_e 0,6–1,0 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)										
P.3.2	200	0,05	0,008	0,015	0,030	0,045	0,06	0,075	0,090	0,105	0,120	0,135	●
P.3.3	200	0,05	0,008	0,015	0,030	0,045	0,06	0,075	0,090	0,105	0,120	0,135	●
H.1.1	170	0,05	0,008	0,015	0,030	0,045	0,06	0,075	0,090	0,105	0,120	0,135	●
H.1.2	150	0,05	0,006	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,108	●
H.1.3	110	0,05	0,005	0,010	0,020	0,030	0,040	0,050	0,060	0,070	0,080	0,090	●
H.1.4													
H.2.1	200	0,05	0,008	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,135	●
H.3.1	150	0,05	0,006	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,108	●

Index			52 354 ...										Compressed air
			Ø DC (mm) =										
			1	2	3	4	5	6	8	10	12	16	
			a_e 0,6–1,0 x DC										
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)										
P.3.2	200	0,05	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
P.3.3	200	0,05	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
H.1.1	170	0,05	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
H.1.2	150	0,05	0,004	0,006	0,012	0,018	0,024	0,030	0,036	0,042	0,048	0,054	●
H.1.3	110	0,05	0,003	0,005	0,010	0,015	0,020	0,025	0,030	0,035	0,040	0,045	●
H.1.4													
H.2.1	200	0,05	0,005	0,008	0,015	0,023	0,030	0,038	0,045	0,053	0,060	0,068	●
H.3.1	150	0,05	0,004	0,006	0,012	0,018	0,024	0,030	0,036	0,042	0,048	0,054	●

Cutting data standard values – BlueLine – Ball-nosed end mill

Index			52 258 ..., 52 259 ...									
			Ø DC (mm) =									
			0,1–0,5	0,6–1,0	1,5–2,0	2,5	3,0	4,0	5,0	6,0	8,0	10,0
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	190	0,05	0,008	0,010	0,012	0,016	0,020	0,025	0,030	0,040	0,050	0,060
P.3.3	190	0,05	0,008	0,010	0,012	0,016	0,020	0,025	0,030	0,040	0,050	0,060
H.1.1	165	0,05	0,004	0,005	0,006	0,008	0,010	0,014	0,017	0,028	0,038	0,048
H.1.2	**145**	**0,05**	0,004	0,004	0,005	0,006	0,008	0,012	0,015	0,025	0,035	0,045
H.1.3	**105**	**0,05**	0,003	0,004	0,005	0,005	0,006	0,010	0,014	0,022	0,030	0,040
H.1.4												
H.2.1	**190**	**0,05**	0,008	0,010	0,012	0,016	0,020	0,025	0,030	0,040	0,050	0,060
H.3.1	**145**	**0,05**	0,004	0,004	0,005	0,006	0,008	0,012	0,015	0,025	0,035	0,045

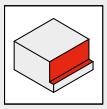
Index			52 256 ..., 52 257 ..., 52 302 ..., 52 303 ..., 52 404 ..., 52 405 ...									
			Ø DC (mm) =									
			0,1–0,5	0,6–1,0	1,1–1,5	1,6–2,0	2,5	3,0	4,0	5,0	6,0	7,0
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	200	0,05	0,010	0,012	0,015	0,019	0,025	0,030	0,033	0,036	0,040	0,040
P.3.3	200	0,05	0,010	0,012	0,015	0,019	0,025	0,030	0,033	0,036	0,040	0,040
H.1.1	170	0,05	0,005	0,006	0,006	0,008	0,011	0,015	0,020	0,024	0,027	0,035
H.1.2	**150**	0,05	0,005	0,006	0,006	0,008	0,010	0,013	0,018	0,022	0,025	0,032
H.1.3	**110**	0,05	0,004	0,005	0,005	0,007	0,009	0,013	0,016	0,021	0,025	0,030
H.1.4												
H.2.1	**200**	0,05	0,010	0,012	0,015	0,019	0,025	0,030	0,033	0,036	0,040	0,040
H.3.1	**150**	0,05	0,005	0,006	0,006	0,008	0,010	0,013	0,018	0,022	0,025	0,032

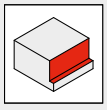
Index			52 355 ...											Compressed air
			Ø DC (mm) =											
			0,6–0,8	1,0	1,2–1,5	2,0	2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	
			a_e 0,05 x DC												
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)												
P.3.2	**200**	0,05	0,006	0,008	0,010	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,120	●
P.3.3	**200**	0,05	0,006	0,008	0,010	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,120	●
H.1.1	**170**	0,05	0,006	0,008	0,010	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,105	●
H.1.2	**150**	0,05	0,004	0,006	0,008	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,100	●
H.1.3	**110**	0,05	0,004	0,005	0,007	0,010	0,020	0,030	0,040	0,050	0,060	0,070	0,080	0,090	●
H.1.4															
H.2.1	**200**	0,05	0,006	0,008	0,010	0,015	0,030	0,045	0,060	0,075	0,090	0,105	0,120	0,120	●
H.3.1	**150**	0,05	0,004	0,006	0,008	0,012	0,024	0,036	0,048	0,060	0,072	0,084	0,096	0,100	●

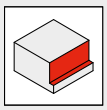
Index	52 258 ..., 52 259 ...			Compressed air
	Ø DC (mm) =			
	12,0	16,0	20,0	
	a_e 0,05 x DC			
	f_z (mm)			
P.3.2	0,070	0,090	0,10	●
P.3.3	0,070	0,090	0,10	●
H.1.1	0,058	0,078	0,09	●
H.1.2	0,055	0,075	0,08	●
H.1.3	0,050	0,070	0,07	●
H.1.4				
H.2.1	0,070	0,090	0,10	●
H.3.1	0,055	0,075	0,08	●

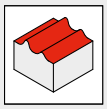
Index	52 258 ..., 52 259 ...							Compressed air
	Ø DC (mm) =							
	8,0	9,0	10,0	12,0	14,0	16,0	20,0	
	a_e 0,05 x DC							
	f_z (mm)							
P.3.2	0,050	0,06	0,07	0,08	0,09	0,100	0,120	●
P.3.3	0,050	0,06	0,07	0,08	0,09	0,100	0,120	●
H.1.1	0,042	0,048	0,058	0,068	0,078	0,088	0,105	●
H.1.2	0,039	0,045	0,055	0,065	0,075	0,085	0,100	●
H.1.3	0,035	0,040	0,050	0,060	0,070	0,080	0,090	●
H.1.4								
H.2.1	0,050	0,060	0,070	0,080	0,090	0,100	0,120	●
H.3.1	0,039	0,045	0,055	0,065	0,075	0,085	0,100	●

Cutting data standard values – BlueLine – Torus cutter

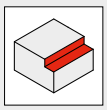
Index			52 304 ...									Compressed air
			Ø DC (mm) =									
			0,5–1,5	2,0–3,0	4,0	5,0	6,0	8,0	10,0	12,0	16,0	
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,090	0,100	0,120	●
P.3.3	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,090	0,100	0,120	●
H.1.1	160	1,0	0,007	0,023	0,040	0,040	0,055	0,070	0,082	0,090	0,110	●
H.1.2	140	1,0	0,006	0,020	0,038	0,038	0,052	0,065	0,080	0,085	0,105	●
H.1.3	100	1,0	0,005	0,018	0,035	0,035	0,050	0,060	0,075	0,080	0,100	●
H.1.4												
H.2.1	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,090	0,100	0,120	●
H.3.1	140	1,0	0,006	0,020	0,038	0,038	0,052	0,065	0,080	0,085	0,105	●

Index			52 305 ...						Compressed air
			Ø DC (mm) =						
			1,0–1,5	2,0	3,0	4,0	5,30	6,0	
			a_e 0,05 x DC						
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)						
P.3.2	190	1,0	0,010	0,025	0,025	0,050	0,050	0,060	●
P.3.3	190	1,0	0,010	0,025	0,025	0,050	0,050	0,060	●
H.1.1	160	1,0	0,005	0,020	0,020	0,035	0,035	0,050	●
H.1.2	140	1,0	0,004	0,017	0,017	0,033	0,033	0,053	●
H.1.3	100	1,0	0,003	0,015	0,015	0,030	0,030	0,005	●
H.1.4									
H.2.1	190	1,0	0,010	0,025	0,025	0,050	0,050	0,060	●
H.3.1	140	1,0	0,004	0,017	0,017	0,033	0,033	0,053	●

Index			52 361 ...									Compressed air
			Ø DC (mm) =									
			0,8–1,0	1,2–1,5	2,0	3,0	4,0	6,0	8,0	10,0	12,0	
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	200	0,5	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
P.3.3	200	0,5	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
H.1.1	170	0,5	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
H.1.2	150	0,5	0,006	0,008	0,012	0,024	0,036	0,060	0,072	0,084	0,096	●
H.1.3	110	0,5	0,005	0,007	0,010	0,020	0,030	0,050	0,060	0,070	0,080	●
H.1.4												
H.2.1	200	0,5	0,008	0,010	0,015	0,03	0,045	0,075	0,090	0,105	0,120	●
H.3.1	150	0,5	0,006	0,008	0,012	0,024	0,036	0,060	0,072	0,084	0,096	●

Index			52 304 ...									Compressed air
			Ø DC (mm) =									
			0,5–1,5	2,0–3,0	4,0	5,0	6,0	8,0	10,0	12,0	16,0	
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	190	0,05	0,016	0,032	0,060	0,060	0,080	0,090	0,100	0,120	0,140	●
P.3.3	190	0,05	0,016	0,032	0,060	0,060	0,080	0,090	0,100	0,120	0,140	●
H.1.1	160	0,05	0,011	0,028	0,050	0,050	0,070	0,080	0,090	0,100	0,130	●
H.1.2	140	0,05	0,010	0,025	0,044	0,044	0,070	0,075	0,088	0,085	0,125	●
H.1.3	100	0,05	0,009	0,021	0,040	0,040	0,065	0,070	0,085	0,080	0,120	●
H.1.4												
H.2.1	190	0,05	0,016	0,032	0,060	0,060	0,080	0,090	0,100	0,120	0,140	●
H.3.1	140	0,05	0,010	0,025	0,044	0,044	0,070	0,075	0,088	0,085	0,125	●

Index			52 305 ...						Compressed air
			Ø DC (mm) =						
			1,0–1,5	2,0	3,0	4,0	5,30	6,0	
			a_e 0,05 x DC						
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)						
P.3.2	190	0,05	0,014	0,030	0,030	0,055	0,055	0,070	●
P.3.3	190	0,05	0,014	0,030	0,030	0,055	0,055	0,070	●
H.1.1	160	0,05	0,009	0,025	0,025	0,045	0,045	0,060	●
H.1.2	140	0,05	0,008	0,022	0,022	0,040	0,040	0,058	●
H.1.3	100	0,05	0,007	0,018	0,018	0,035	0,035	0,050	●
H.1.4									
H.2.1	190	0,05	0,014	0,030	0,030	0,055	0,055	0,070	●
H.3.1	140	0,05	0,008	0,022	0,022	0,040	0,040	0,058	●

Index			52 361 ...									Compressed air
			Ø DC (mm) =									
			0,8–1,0	1,2–1,5	2,0	3,0	4,0	6,0	8,0	10,0	12,0	
			a_e 0,05 x DC									
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)									
P.3.2	200	0,05	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
P.3.3	200	0,05	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
H.1.1	170	0,05	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
H.1.2	150	0,05	0,006	0,008	0,012	0,024	0,036	0,060	0,072	0,084	0,096	●
H.1.3	110	0,05	0,005	0,007	0,010	0,020	0,030	0,050	0,060	0,070	0,080	●
H.1.4												
H.2.1	200	0,05	0,008	0,010	0,015	0,030	0,045	0,075	0,090	0,105	0,120	●
H.3.1	150	0,05	0,006	0,008	0,012	0,024	0,036	0,060	0,072	0,084	0,096	●

Cutting data standard values – Micro cutter – 2.2xDC

Index	52 802 ..., 52 804 ..., 52 806 ...																	
	Ø DC (mm) = 0,2–0,4						Ø DC (mm) = 0,5–0,7						Ø DC (mm) = 0,8–0,9					
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC
	$a_{p\,max.}$	0,02	0,02	0,02	0,01	0,01	$a_{p\,max.}$	0,1	0,1	0,1	0,1	0,05	$a_{p\,max.}$	0,2	0,2	0,2	0,2	0,12
	$n_{min.}$	30.000					$n_{min.}$	12.000					$n_{min.}$	8.000				
	n	v_f (mm/min)					n	v_f (mm/min)					n	v_f (mm/min)				
P.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.1.3	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.1.4	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.1.5	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.2.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.2.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.2.3	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.2.4	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.3.1	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.3.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.3.3	50.000	201	175	151	125	101	50.000	237	206	178	147	119	50.000	420	365	315	260	210
P.4.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
P.4.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
M.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
M.2.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
M.3.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.2.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.2.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	485	422	364	301	242
K.3.1	50.000	141	123	106	88	71	50.000	175	152	131	109	88	32.000	285	248	213	176	142
K.3.2	50.000	141	123	106	88	71	50.000	175	152	131	109	88	32.000	285	248	213	176	142
N.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	44.000	485	422	364	301	242
N.3.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.3.3	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
N.4.1	50.000	212	185	159	132	106	50.000	250	218	188	155	125	50.000	531	462	398	329	266
S.1.1	50.000	46	40	35	29	23	30.000	55	48	41	34	27	19.000	69	60	51	43	34
S.1.2	50.000	46	40	35	29	23	30.000	55	48	41	34	27	19.000	69	60	51	43	34
S.2.1	50.000	72	62	54	44	36	50.000	89	77	66	55	44	25.000	91	79	68	56	45
S.2.2	50.000	46	40	35	29	23	30.000	55	48	41	34	27	19.000	69	60	51	43	34
S.2.3	50.000	54	47	41	34	27	30000	66	57	49	41	33	12.000	78	68	59	49	39
S.3.1	50.000	114	99	85	71	57	50.000	164	143	123	102	82	44.000	114	99	85	71	57
S.3.2	50.000	114	99	85	71	57	50.000	164	143	123	102	82	44.000	164	143	123	102	82
S.3.3	50.000	70	61	53	43	35	50.000	85	74	64	53	42	38.000	101	88	76	63	51
H.1.1	50.000	219	191	164	136	110	50.000	232	202	174	144	116	50.000	388	338	291	241	194
H.1.2	50.000	201	175	151	125	101	50.000	285	248	213	176	142	38.000	336	292	252	208	168
H.1.3	50.000	114	99	85	71	57	50.000	134	117	101	83	67	25.000	156	136	117	97	78
H.1.4	50.000	107	93	80	67	54	50.000	126	110	95	78	63	25.000	141	123	106	88	71
H.2.1	50.000	219	191	164	136	110	50.000	232	202	174	144	116	50.000	388	338	291	241	194
H.3.1	50.000	201	175	151	125	101	50.000	285	248	213	176	142	38.000	336	292	252	208	168
O.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
O.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
O.2.1	50.000	212	185	159	132	106	50.000	200	174	150	124	100	38.000	316	275	237	196	158
O.2.2	50.000	212	185	159	132	106	50.000	200	174	150	124	100	38.000	316	275	237	196	158
O.3.1																		

Index	52 802 ..., 52 804 ..., 52 806 ...												● 1st choice ○ suitable		
	Ø DC (mm) = 1,0–1,4						Ø DC (mm) = 1,5–1,7						Emulsion	Compressed air	MMS
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6 –1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\ max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\ max.}$	0,45	0,45	0,45	0,45	0,3			
	$n_{min.}$	6.500					$n_{min.}$	6.500							
	n	v_f (mm/min)					n	v_f (mm/min)							
P.1.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●	○	○
P.1.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●	○	○
P.1.3	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●	○	○
P.1.4	50.000	671	584	503	416	335	33.000	1039	904	779	644	520	●	○	○
P.1.5	50.000	671	584	503	416	335	33.000	1039	904	779	644	520	●	○	○
P.2.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
P.2.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
P.2.3	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
P.2.4	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
P.3.1	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
P.3.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
P.3.3	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
P.4.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
P.4.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
M.1.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●		○
M.2.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●		○
M.3.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●		○
K.1.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	○	●	
K.1.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	○	●	
K.2.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	○	●	
K.2.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	○	●	
K.3.1	50.000	389	338	292	241	194	21.000	548	477	411	340	274		●	
K.3.2	25000	389	338	292	241	194	21.000	548	477	411	340	274		●	
N.1.1	50.000	930	809	697	576	465	50.000	1500	1305	1125	930	750	●		○
N.1.2	50.000	930	809	697	576	465	50.000	1500	1305	1125	930	750	●		○
N.2.1															
N.2.2															
N.2.3															
N.3.1	44.000	775	674	581	480	387	29.000	1160	1009	870	719	580	●		○
N.3.2	50.000	930	809	697	576	465	38.000	1400	1218	1050	868	700	●		○
N.3.3	50.000	930	809	697	576	465	38.000	1400	1218	1050	868	700	●		○
N.4.1	50.000	849	738	636	526	424	38.000	1388	1207	1041	860	694	●		○
S.1.1	15.000	99	86	74	61	49	12.000	170	148	127	105	85	●		○
S.1.2	15.000	99	86	74	61	49	12.000	170	148	127	105	85	●		○
S.2.1	25.000	152	132	114	94	76	16.000	294	256	220	182	147	●		○
S.2.2	15.000	99	86	74	61	49	12.000	170	148	127	105	85	●		○
S.2.3	12.000	131	114	99	82	66	8.000	255	221	191	158	127	●		○
S.3.1	44.000	170	148	127	105	85	29.000	329	286	246	204	164	●		○
S.3.2	44.000	247	215	186	153	124	29.000	365	318	274	226	183	●		○
S.3.3	38.000	170	148	127	105	85	25.000	329	286	246	204	164	●		○
H.1.1	50.000	620	539	465	384	310	33.000	850	740	638	527	425		●	
H.1.2	38.000	537	467	402	333	268	25.000	779	678	585	483	390		●	
H.1.3	25.000	235	204	176	146	117	16.000	346	301	260	215	173		●	
H.1.4	25.000	221	193	166	137	111	16.000	327	284	245	202	163		●	
H.2.1	50.000	620	539	465	384	310	33.000	850	740	638	527	425		●	
H.3.1	38.000	537	467	402	333	268	25.000	779	678	585	483	390		●	
O.1.1	50.000	930	809	697	576	465	38.000	1520	1322	1140	942	760	●	○	○
O.1.2	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	●	○	○
O.2.1	38.000	495	431	371	307	247	25.000	685	596	513	424	342	●	○	○
O.2.2	38.000	495	431	371	307	247	25.000	685	596	513	424	342	●	○	○
O.3.1															

Cutting data standard values – Micro cutter – 2.2xDC

Index	52 802 ..., 52 804 ..., 52 806 ...												● 1st choice ○ suitable		
	Ø DC (mm) = 1,8–1,9						Ø DC (mm) = 2,0						Emulsion	Compressed air	MMS
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,54	0,54	0,54	0,54	0,36	$a_{p\,max.}$	0,6	0,6	0,6	0,6	0,4			
	$n_{min.}$	5.500					$n_{min.}$	5.000							
	n	v_f (mm/min)					n	v_f (mm/min)							
P.1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●	○	○
P.1.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●	○	○
P.1.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●	○	○
P.1.4	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●	○	○
P.1.5	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●	○	○
P.2.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.2.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.2.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.2.4	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.3.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.3.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.3.3	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.4.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
P.4.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750		●	○
M.1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●		○
M.2.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●		○
M.3.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	●		○
K.1.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	○	●	
K.1.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	○	●	
K.2.1	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	○	●	
K.2.2	29.000	1300	1131	975	806	650	25.000	1500	1300	1125	930	750	○	●	
K.3.1	18.000	630	548	473	391	315	12.000	750	650	550	450	350		●	
K.3.2	18.000	630	548	473	391	315	12.000	750	650	550	450	350		●	
N.1.1	44.000	1800	1566	1350	1116	900	25.000	1500	1300	1125	930	750	●		○
N.1.2	44.000	1800	1566	1350	1116	900	25.000	1500	1300	1125	930	750	●		○
N.2.1															
N.2.2															
N.2.3															
N.3.1	25.000	1250	1088	938	775	625	19.000	1140	990	855	700	570	●		○
N.3.2	32.000	1520	1322	1140	942	760	25.000	1500	1300	1125	930	750	●		○
N.3.3	32.000	1520	1322	1140	942	760	25.000	1500	1300	1125	930	750	●		○
N.4.1	33.000	1560	1357	1170	967	780	25.000	1500	1300	1125	930	750	●		○
S.1.1	10.000	280	244	210	174	140	7.500	300	260	230	200	160	●		○
S.1.2	10.000	280	244	210	174	140	7.500	300	260	230	200	160	●		○
S.2.1	14.000	420	365	315	260	210	12.500	500	400	350	300	250	●		○
S.2.2	10.000	280	244	210	174	140	7.500	300	260	230	200	160	●		○
S.2.3	7.000	370	322	278	229	185	6.000	300	260	230	200	160	●		○
S.3.1	25.000	400	348	300	248	200	25.000	1500	1300	1125	930	750	●		○
S.3.2	25.000	480	418	360	298	240	25.000	1500	1300	1125	930	750	●		○
S.3.3	22.000	380	331	285	236	190	25.000	1500	1300	1125	930	750	●		○
H.1.1	29.000	1200	1044	900	744	600	25.000	1500	1300	1125	930	750		●	
H.1.2	22.000	1000	870	750	620	500	19.000	1140	990	855	700	570		●	
H.1.3	14.000	420	365	315	260	210	19.000	1140	990	855	700	570		●	
H.1.4	14.000	420	365	315	260	210	19.000	1140	990	855	700	570		●	
H.2.1	29.000	1200	1044	900	744	600	25.000	1500	1300	1125	930	750		●	
H.3.1	22.000	1000	870	750	620	500	19.000	1140	990	855	700	570		●	
O.1.1	33.000	1560	1357	1170	967	780	19.000	1140	990	855	700	570	●	○	○
O.1.2	28.000	1400	1218	1050	868	700	19.000	1140	990	855	700	570	●	○	○
O.2.1	22.000	800	696	600	496	400	12.000	720	630	540	450	360	●	○	○
O.2.2	22.000	800	696	600	496	400	12.000	720	630	540	450	360	●	○	○
O.3.1															

Cutting data standard values – Micro cutter – 5xDC

Index	52 802 ..., 52 804 ..., 52 806 ...																● 1st choice ○ suitable		
	Ø DC (mm) = 0,2–0,4 mm					Ø DC (mm) = 0,5–0,7 mm					Ø DC (mm) = 0,8–0,9 mm								
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	Emulsion	Compressed air	MMS
	$a_{p\,max.}$	0,012				$a_{p\,max.}$	0,06				$a_{p\,max.}$	0,12				0,064			
	$n_{min.}$	30.000				$n_{min.}$	12.000				$n_{min.}$	8.000							
	n	v_f (mm/min)				n	v_f (mm/min)				n	v_f (mm/min)							
P.1.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.3	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.4	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165	●	○	○
P.1.5	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165	●	○	○
P.2.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.2.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.2.3	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.2.4	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.3.1	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.3.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.3.3	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.4.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.4.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
M.1.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
M.2.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
M.3.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
K.1.1	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.1.2	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.2.1	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.2.2	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.3.1	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	
K.3.2	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	
N.1.1	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.1.2	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	50.000	232	202	174	144	50.000	274	238	205	170	38.000	485	422	364	301	242	●		○
N.3.2	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.3.3	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.4.1	50.000	212	185	159	132	50.000	250	218	188	155	50.000	506	440	379	314	253	●		○
S.1.1	50.000	55	48	41	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.1.2	50.000	55	48	41	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.2.1	50.000	63	54	47	39	44.000	76	66	57	47	22.000	91	79	68	56	45	●		○
S.2.2	50.000	55	47	40	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.2.3	50.000	46	40	35	29	25.000	55	48	41	34	12.000	78	68	59	49	39	●		○
S.3.1	50.000	60	61	48	41	50.000	71	62	53	44	38.000	114	99	85	71	57	●		○
S.3.2	50.000	60	61	48	41	50.000	71	62	53	44	38.000	126	110	95	78	63	●		○
S.3.3	50.000	60	52	45	37	50.000	71	62	49	39	31.000	89	77	66	55	44	●		○
H.1.1	50.000	95	83	71	59	50.000	134	117	101	83	31.000	180	157	135	112	90		●	
H.1.2	50.000	95	83	71	59	44.000	134	117	101	83	22.000	180	157	135	112	90		●	
H.1.3	50.000	89	78	67	55	44.000	126	110	95	78	22.000	170	148	127	105	85		●	
H.1.4																			
H.2.1	50.000	155	135	116	96	50.000	164	143	123	102	44.000	346	301	260	215	173		●	
H.3.1	50.000	95	83	71	59	50.000	134	117	101	83	31.000	180	157	135	112	90		●	
O.1.1	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●	○	○
O.1.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	554	482	416	344	277	●	○	○
O.2.1	50.000	141	123	106	88	50.000	200	174	150	124	31.000	316	275	237	196	158	●	○	○
O.2.2	50.000	141	123	106	88	50.000	200	174	150	124	31.000	316	275	237	196	158	●	○	○
O.3.1																			

a_e= 0.6–1.0 x DC: If values are missing, only trochoidal slot milling and profiling are permitted. Otherwise, there is the risk of tool breakage.

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Cutting data standard values – Micro cutter – 5xDC

Index	52 802 ..., 52 804 ..., 52 806 ...																	
	Ø DC (mm) = 1,0–1,4						Ø DC (mm) = 1,5–1,7						Ø DC (mm) = 1,8–1,9					
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC
	$a_{p\,max.}$	0,3				0,2	$a_{p\,max.}$	0,3				0,2	$a_{p\,max.}$	0,54				0,36
	$n_{min.}$	6.500					$n_{min.}$	6.500					$n_{min.}$	5.500				
	n	v_f (mm/min)					n	v_f (mm/min)					n	v_f (mm/min)				
P.1.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.1.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.1.3	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.1.4	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.1.5	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.2.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.2.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.2.3	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.2.4	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.3.1	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.3.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.3.3	31.000	416	362	312	258	208	21.000	693	603	520	430	346	18.000	850	740	638	527	425
P.4.1	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
P.4.2	44.000	682	593	511	423	341	29.000	1160	1009	870	719	580	25.000	1250	1088	938	775	625
M.1.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
M.2.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
M.3.1	31.000	480	418	360	298	240	21.000	800	696	600	496	400	18.000	850	740	638	527	425
K.1.1	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.1.2	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.2.1	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.2.2	50.000	620	539	465	384	310	33.000	1000	870	750	620	500	28.000	1320	1148	990	818	660
K.3.1	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
K.3.2	25.000	297	258	223	184	148	16.000	411	357	308	255	205	14.000	480	418	360	298	240
N.1.1	50.000	775	674	581	480	387	42.000	1200	1044	900	744	600	36.000	1500	1305	1125	930	750
N.1.2	50.000	775	674	581	480	387	42.000	1200	1044	900	744	600	36.000	1500	1305	1125	930	750
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	38.000	697	607	523	432	349	25.000	1000	870	750	620	500	22.000	1100	957	825	682	550
N.3.2	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
N.3.3	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
N.4.1	50.000	849	738	636	526	424	33.000	1205	1048	904	747	602	28.000	1400	1218	1050	868	700
S.1.1	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
S.1.2	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
S.2.1	22.000	114	99	85	71	57	14.000	196	170	147	121	98	12.000	300	261	225	186	150
S.2.2	15.000	120	105	90	75	60	10.000	184	160	138	114	92	8.000	280	244	210	174	140
S.2.3	12.000	131	114	99	82	66	8.000	170	148	127	105	85	7.000	240	209	180	149	120
S.3.1	38.000	156	135	117	96	78	25.000	274	238	205	170	137	22.000	380	331	285	236	190
S.3.2	38.000	212	185	159	132	106	25.000	365	318	274	226	183	22.000	450	392	338	279	225
S.3.3	31.000	127	111	95	79	64	21.000	201	175	151	125	100	18.000	300	261	225	186	150
H.1.1	31.000	201	175	151	125	101	21.000	346	301	260	215	173	16.000	500	435	375	310	250
H.1.2	22.000	235	204	176	146	117	14.000	346	301	260	215	173	12.000	450	392	338	279	225
H.1.3	22.000	221	193	166	137	111	14.000	327	284	245	202	163	12.000	450	392	338	279	225
H.1.4																		
H.2.1	44.000	426	371	320	264	213	29.000	600	522	450	372	300	25.000	800	696	600	496	400
H.3.1	31.000	201	175	151	125	101	21.000	346	301	260	215	173	16.000	500	435	375	310	250
O.1.1	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
O.1.2	44.000	813	708	610	504	407	29.000	1160	1009	870	719	580	25.000	1200	1044	900	744	600
O.2.1	31.000	438	381	329	272	219	21.000	575	500	431	357	288	18.000	650	566	488	403	325
O.2.2	31.000	438	381	329	272	219	21.000	575	500	431	357	288	18.000	650	566	488	403	325
O.3.1																		

Index	52 802 ..., 52 804 ..., 52 806 ...						● 1st choice ○ suitable		
	Ø DC (mm) = 2,0								
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,6				0,4			
	$n_{min.}$	5.000							
	n	v_f (mm/min)					Emulsion	Compressed air	MMS
P.1.1	22.000	1320	1148	990	818	660	●	○	○
P.1.2	22.000	1320	1148	990	818	660	●	○	○
P.1.3	22.000	1320	1148	990	818	660	●	○	○
P.1.4	15.000	900	783	675	558	450	●	○	○
P.1.5	15.000	900	783	675	558	450	●	○	○
P.2.1	22.000	1320	1148	990	818	660		●	○
P.2.2	22.000	1320	1148	990	818	660		●	○
P.2.3	15.000	900	783	675	558	450		●	○
P.2.4	15.000	900	783	675	558	450		●	○
P.3.1	15.000	900	783	675	558	450		●	○
P.3.2	22.000	1320	1148	990	818	660		●	○
P.3.3	15.000	900	783	675	558	450		●	○
P.4.1	22.000	1320	1148	990	818	660		●	○
P.4.2	22.000	1320	1148	990	818	660		●	○
M.1.1	15.000	900	783	675	558	450	●		○
M.2.1	15.000	900	783	675	558	450	●		○
M.3.1	15.000	900	783	675	558	450	●		○
K.1.1	25.000	1500	1305	1125	930	750	○	●	
K.1.2	25.000	1500	1305	1125	930	750	○	●	
K.2.1	25.000	1500	1305	1125	930	750	○	●	
K.2.2	25.000	1500	1305	1125	930	750	○	●	
K.3.1	12.000	520	452	390	322	260		●	
K.3.2	12.000	520	452	390	322	260		●	
N.1.1	31.000	1860	1618	1395	1153	930	●		○
N.1.2	31.000	1860	1618	1395	1153	930	●		○
N.2.1									
N.2.2									
N.2.3									
N.3.1	19.000	1140	992	855	707	570	●		○
N.3.2	25.000	1500	1305	1125	930	750	●		○
N.3.3	25.000	1500	1305	1125	930	750	●		○
N.4.1	25.000	1500	1305	1125	930	750	●		○
S.1.1	7.000	300	261	225	186	150	●		○
S.1.2	7.000	300	261	225	186	150	●		○
S.2.1	11.000	400	348	300	248	200	●		○
S.2.2	7.000	300	261	225	186	150	●		○
S.2.3	6.000	260	226	195	161	130	●		○
S.3.1	19.000	420	365	315	260	210	●		○
S.3.2	19.000	500	435	375	310	250	●		○
S.3.3	15.000	400	348	300	248	200	●		○
H.1.1	15.000	500	435	375	310	250		●	
H.1.2	11.000	480	418	360	298	240		●	
H.1.3	11.000	480	418	360	298	240		●	
H.1.4									
H.2.1	22.000	1000	870	750	620	500		●	
H.3.1	15.000	500	435	375	310	250		●	
O.1.1	25.000	1500	1305	1125	930	750	●	○	○
O.1.2	22.000	1320	1148	990	818	660	●	○	○
O.2.1	15.000	660	574	495	409	330	●	○	○
O.2.2	15.000	660	574	495	409	330	●	○	○
O.3.1									

Cutting data standard values – Micro cutter – 10xDC

Index	52 802 ..., 52 804 ..., 52 806 ...																	
		Ø DC (mm) = 0,2–0,4				Ø DC (mm) = 0,5–0,7					Ø DC (mm) = 0,8–0,9				Ø DC (mm) = 1,0–1,4			
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC
	$a_{p\ max.}$	0,006	0,006	0,006	0,006	0,015	0,015	0,015	0,015	$a_{p\ max.}$	0,024	0,024	0,024	0,024	0,03	0,03	0,03	0,03
	$n_{min.}$	30.000				12.000				$n_{min.}$	8.000				6.500			
	n	v_f (mm/min)								n	v_f (mm/min)							
P.1.1	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.1.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.1.3	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.1.4	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.1.5	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.2.1	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.2.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.2.3	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.2.4	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.3.1	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.3.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.3.3	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.4.1	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.4.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
M.1.1	50.000	155	135	116	96	219	191	164	136	25.000	312	271	234	193	387	337	290	240
M.2.1	50.000	155	135	116	96	219	191	164	136	25.000	312	271	234	193	387	337	290	240
M.3.1	50.000	155	135	116	96	219	191	164	136	25.000	312	271	234	193	387	337	290	240
K.1.1	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
K.1.2	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
K.2.1	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
K.2.2	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
K.3.1	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
K.3.2	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
N.1.1	50.000	232	202	174	144	438	381	329	272	50.000	693	603	520	430	930	809	697	576
N.1.2	50.000	232	202	174	144	438	381	329	272	50.000	693	603	520	430	930	809	697	576
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	50.000	232	202	174	144	274	238	205	170	31.000	402	350	301	249	480	418	360	298
N.3.2	50.000	232	202	174	144	274	238	205	170	44.000	416	362	312	258	542	472	407	336
N.3.3	50.000	232	202	174	144	274	238	205	170	44.000	416	362	312	258	542	472	407	336
N.4.1	50.000	212	185	159	132	300	261	225	186	44.000	506	440	379	314	742	646	557	460
S.1.1	50.000	46	40	35	29	55	48	41	34	12.000	69	60	51	43	88	76	66	54
S.1.2	50.000	46	40	35	29	55	48	41	34	12.000	69	60	51	43	88	76	66	54
S.2.1	50.000	54	47	40	33	63	55	47	39	19.000	102	89	76	63	126	110	95	78
S.2.2	50.000	46	40	35	29	55	48	41	34	12.000	69	60	51	43	88	76	66	54
S.2.3	50.000	46	40	35	29	55	48	41	34	12.000	59	51	44	36	82	71	62	51
S.3.1	50.000	60	52	45	37	71	62	53	44	31.000	101	88	76	63	141	123	106	88
S.3.2	50.000	60	52	45	37	71	62	53	44	31.000	101	88	76	63	177	154	133	110
S.3.3	50.000	60	52	45	37	71	62	53	44	25.000	89	77	66	55	141	123	106	88
H.1.1	50.000	47	41	36	29	67	58	50	42	25.000	90	78	68	56	101	88	75	62
H.1.2	50.000	47	41	36	29	67	58	50	42	19.000	90	78	68	56	101	88	75	62
H.1.3	50.000	45	39	34	28	63	55	47	39	19.000	85	74	64	53	95	83	71	59
H.1.4																		
H.2.1	50.000	77	67	58	48	82	71	62	51	38.000	173	151	130	107	194	168	145	120
H.3.1	50.000	47	41	36	29	67	58	50	42	25.000	90	78	68	56	101	88	75	62
O.1.1	50.000	232	202	174	144	329	286	246	204	44.000	554	482	416	344	813	708	610	504
O.1.2	50.000	232	202	174	144	329	286	246	204	38.000	554	482	416	344	705	613	529	437
O.2.1	50.000	141	123	106	88	200	174	150	124	25.000	285	248	213	176	339	295	255	210
O.2.2	50.000	141	123	106	88	200	174	150	124	25.000	285	248	213	176	339	295	255	210
O.3.1																		

a_e= 0,6–1,0 x DC: Missing values only trochodial slotting and milling is recommended. Otherwise there is the risk of tool breakage.

Index	52 802 ..., 52 804 ..., 52 806 ...															● 1st choice ○ suitable		
	Ø DC (mm) = 1,5–1,7					Ø DC (mm) = 1,8–1,9					Ø DC (mm) = 2,0							
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC			
	$a_{p\,max.}$	0,06	0,06	0,06	0,06	$a_{p\,max.}$	0,072	0,072	0,072	0,072	$a_{p\,max.}$	0,08	0,08	0,08	0,08			
	$n_{min.}$	6.500				$n_{min.}$	5.500				$n_{min.}$	5.000						
	n	v_f (mm/min)				n	v_f (mm/min)				n	v_f (mm/min)				Emulsion	Compressed air	MMS
P.1.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707	●	○	○
P.1.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707	●	○	○
P.1.3	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707	●	○	○
P.1.4	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446	●	○	○
P.1.5	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446	●	○	○
P.2.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.2.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.2.3	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.2.4	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.3.1	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.3.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.3.3	16.000	554	482	416	344	14.000	680	592	510	422	12.000	720	626	540	446		●	○
P.4.1	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
P.4.2	25.000	1000	870	750	620	22.000	1080	940	810	670	19.000	1140	992	855	707		●	○
M.1.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446	●		○
M.2.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446	●		○
M.3.1	16.000	600	522	450	372	14.000	650	566	488	403	12.000	720	626	540	446	●		○
K.1.1	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.1.2	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.2.1	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.2.2	29.000	1160	1009	870	719	25.000	1240	1079	930	769	22.000	1320	1148	990	818	○	●	
K.3.1	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	
K.3.2	12.000	329	286	246	204	10.000	380	331	285	236	9.000	390	339	293	242		●	
N.1.1	38.000	1520	1322	1140	942	33.000	1600	1392	1200	992	28.000	1680	1462	1260	1042	●		○
N.1.2	38.000	1520	1322	1140	942	33.000	1600	1392	1200	992	28.000	1680	1462	1260	1042	●		○
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	21.000	800	696	600	496	18.000	850	740	638	527	15.000	900	783	675	558	●		○
N.3.2	29.000	900	783	675	558	25.000	1000	870	750	620	22.000	1140	992	855	707	●		○
N.3.3	29.000	900	783	675	558	25.000	1000	870	750	620	22.000	1140	992	855	707	●		○
N.4.1	29.000	1059	921	794	657	25.000	1200	1044	900	744	22.000	1320	1148	990	818	●		○
S.1.1	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155	●		○
S.1.2	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155	●		○
S.2.1	12.000	204	178	153	127	10.000	300	261	225	186	9.000	350	305	263	217	●		○
S.2.2	8.000	127	111	95	79	7.000	220	191	165	136	6.000	250	218	188	155	●		○
S.2.3	8.000	106	92	80	66	7.000	200	174	150	124	6.000	220	191	165	136	●		○
S.3.1	21.000	228	199	171	141	18.000	300	261	225	186	15.000	380	331	285	236	●		○
S.3.2	21.000	274	238	205	170	18.000	400	348	300	248	15.000	450	392	338	279	●		○
S.3.3	16.000	237	206	178	147	14.000	300	261	225	186	12.000	380	331	285	236	●		○
H.1.1	16.000	173	151	130	107	14.000	200	174	150	124	12.000	240	209	180	149		●	
H.1.2	12.000	173	151	130	107	10.000	200	174	150	124	9.000	240	209	180	149		●	
H.1.3	12.000	163	142	122	101	10.000	200	174	150	124	9.000	240	209	180	149		●	
H.1.4																		
H.2.1	25.000	300	261	225	186	21.000	400	348	300	248	19.000	500	435	375	310		●	
H.3.1	16.000	173	151	130	107	14.000	200	174	150	124	12.000	240	209	180	149		●	
O.1.1	29.000	1160	1009	870	719	25.000	1200	1044	900	744	22.000	1320	1148	990	818	●	○	○
O.1.2	25.000	1000	870	750	620	18.000	1000	870	750	620	19.000	1140	992	855	707	●	○	○
O.2.1	16.000	438	381	329	272	14.000	500	435	375	310	12.000	520	452	390	322	●	○	○
O.2.2	16.000	438	381	329	272	14.000	500	435	375	310	12.000	520	452	390	322	●	○	○
O.3.1																		

Cutting data standard values – MultiLock – Radius milling cutter

Index	53 803 ..., 53 804 ...						● 1st choice ○ suitable		
	CTC5240	CTPX225	Ø DC (mm) = 12	16	20	25	Emulsion	Compressed air	MMS
	v_c (m/min)		a_e / a_p= 0,05 x DC f_z (mm)						
P.1.1		180	0,12	0,15	0,18	0,20	●	○	○
P.1.2		160	0,13	0,16	0,19	0,21	●	○	○
P.1.3		160	0,13	0,16	0,19	0,21	●	○	○
P.1.4		140	0,10	0,13	0,16	0,18	●	○	○
P.1.5		140	0,10	0,13	0,16	0,18	●	○	○
P.2.1		150	0,10	0,13	0,16	0,18	●	○	○
P.2.2		150	0,10	0,13	0,16	0,18	●	○	○
P.2.3		90	0,09	0,10	0,13	0,14	●	○	○
P.2.4		90	0,09	0,10	0,13	0,14	●	○	○
P.3.1		80	0,07	0,09	0,11	0,12	●	○	○
P.3.2		80	0,07	0,09	0,11	0,12	●	○	○
P.3.3		80	0,07	0,09	0,11	0,12	●	○	○
P.4.1		60	0,09	0,10	0,13	0,14	●		○
P.4.2		50	0,09	0,10	0,13	0,14	●		○
M.1.1		50	0,07	0,09	0,11	0,12	●		○
M.2.1		40	0,06	0,08	0,10	0,11	●		○
M.3.1		50	0,07	0,09	0,11	0,12	●		○
K.1.1		150	0,13	0,17	0,21	0,23	●	○	○
K.1.2		120	0,12	0,15	0,18	0,20	●	○	○
K.2.1		140	0,13	0,16	0,19	0,21	●	○	○
K.2.2		120	0,10	0,13	0,16	0,18	●	○	○
K.3.1		120	0,13	0,16	0,19	0,21	●	○	○
K.3.2		100	0,12	0,15	0,18	0,20	●	○	○
N.1.1		500	0,20	0,25	0,30	0,33	●		○
N.1.2		450	0,20	0,25	0,30	0,33	●		○
N.2.1									
N.2.2		380	0,19	0,24	0,28	0,31	●		○
N.2.3		150	0,16	0,20	0,24	0,26	●		○
N.3.1		220	0,13	0,17	0,21	0,23	●		○
N.3.2		190	0,13	0,17	0,21	0,23	●		○
N.3.3		250	0,13	0,16	0,19	0,21	●		○
N.4.1									
S.1.1	60		0,08	0,11	0,16	0,17	●		
S.1.2									
S.2.1	60		0,08	0,11	0,16	0,17	●		
S.2.2	60		0,08	0,11	0,16	0,17	●		
S.2.3									
S.3.1	140		0,11	0,16	0,21	0,22	●		
S.3.2	100		0,08	0,11	0,16	0,17	●		
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – MultiLock – Torus cutter

Index	CTC5240	CTPX225	53 805 ..., 53 806 ...								● 1st choice ○ suitable		
			Ø DC (mm) =										
			12		16		20		25				
			a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC			
			$a_{p\,max.}$ (mm) =										
			3,0		4,5		6,0		8,0				
	v_c (m/min)		f_z (mm)								Emulsion	Compressed air	MMS
P.1.1		180	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
P.1.2		160	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
P.1.3		160	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
P.1.4		140	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.1.5		140	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.1		150	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.2		150	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.3		90	0,06	0,03	0,08	0,05	0,10	0,06	0,11	0,06	●	○	○
P.2.4		90	0,06	0,03	0,08	0,05	0,10	0,06	0,11	0,06	●	○	○
P.3.1		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.3.2		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.3.3		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.4.1		60	0,06	0,05	0,08	0,07	0,10	0,09	0,11	0,09	●		○
P.4.2		50	0,06	0,05	0,08	0,07	0,10	0,09	0,11	0,09	●		○
M.1.1		50	0,05	0,04	0,07	0,06	0,09	0,08	0,10	0,08	●		○
M.2.1		40	0,04	0,03	0,06	0,05	0,08	0,07	0,09	0,07	●		○
M.3.1		50	0,05	0,04	0,07	0,06	0,09	0,08	0,10	0,08	●		○
K.1.1		150	0,09	0,06	0,13	0,08	0,16	0,10	0,18	0,10	●	○	○
K.1.2		120	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
K.2.1		140	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
K.2.2		120	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
K.3.1		120	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
K.3.2		100	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1													
N.3.2		220	0,09	0,06	0,13	0,08	0,16	0,10	0,18	0,10	●		○
N.3.3													
N.4.1													
S.1.1	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.1.2	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.1	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.2	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.3	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.3.1	140		0,10	0,05	0,15	0,08	0,2	0,11	0,22	0,13	●		
S.3.2	100		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Plunging angle for ramping milling = 1.9°
Plunging angle for helical milling = 1.5°
Bore diameter with helical milling = D_{min} 1.7xDC / D_{max} 1.95xDC
With ramping and helical milling, multiply the f_z by 0.5

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Cutting data standard values – MultiLock – HFC milling cutter

Index	CTC5240	CTPX225	53 801 ..., 53 802 ...												● 1st choice ○ suitable		
			Ø DC (mm) =														
			12			16			20			25					
			a_e x DC =														
			0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0			
			$a_{p\,max.}$ (mm) =														
			0,5			0,8			0,8			0,8					
	v_c (m/min)		f_z (mm)												Emulsion	Compressed air	MMS
P.1.1		200	0,45	0,36	0,26	0,63	0,47	0,30	0,81	0,60	0,38	0,89	0,63	0,38	●	○	○
P.1.2		180	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
P.1.3		180	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
P.1.4		150	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.1.5		150	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.1		170	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.2		170	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.3		100	0,33	0,26	0,20	0,46	0,34	0,22	0,59	0,44	0,28	0,65	0,47	0,28	●	○	○
P.2.4		100	0,33	0,26	0,20	0,46	0,34	0,22	0,59	0,44	0,28	0,65	0,47	0,28	●	○	○
P.3.1		90	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.3.2		90	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.3.3		90	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.4.1		70	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●		○
P.4.2		60	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●		○
M.1.1		55	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,24	0,57	0,40	0,24	●		○
M.2.1		40	0,25	0,20	0,15	0,35	0,26	0,17	0,44	0,33	0,21	0,49	0,35	0,21	●		○
M.3.1		60	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,24	0,57	0,40	0,24	●		○
K.1.1		170	0,53	0,42	0,32	0,74	0,55	0,35	0,96	0,71	0,45	1,06	0,75	0,45	●	○	○
K.1.2		130	0,45	0,36	0,26	0,63	0,47	0,3	0,81	0,59	0,38	0,89	0,63	0,38	●	○	○
K.2.1		150	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
K.2.2		130	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
K.3.1		130	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
K.3.2		110	0,45	0,36	0,26	0,63	0,47	0,30	0,81	0,59	0,38	0,89	0,63	0,38	●	○	○
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.1.2	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.1	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.2	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.3	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.3.1	140		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.3.2	100		0,25	0,19	0,14	0,26	0,19	0,12	0,28	0,22	0,17	0,29	0,24	0,18	●		
S.3.3	140		0,18	0,15	0,11	0,20	0,15	0,11	0,22	0,18	0,14	0,23	0,20	0,16	●		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Plunging angle for ramping and helical milling = 1.9°
Bore diameter with helical milling = D_{min} 1.6xDC / D_{max} 1.95xDC
With ramping and helical milling, multiply the f_z by 0.5

Cutting data standard values – MultiLock – Deburring cutter

Index	CTPX225	53800 ...		● 1st choice ○ suitable		
		Ø DC (mm) =				
		12	16			
		a_e x DC =				
		0,1–0,2	0,1–0,3			
		$a_{p\,max.}$ (mm) =				
		4	6			
	v_c (m/min)	f_z (mm)		Emulsion	Compressed air	MMS
P.1.1	200	0,09	0,12	●	○	○
P.1.2	180	0,10	0,13	●	○	○
P.1.3	180	0,10	0,13	●	○	○
P.1.4	150	0,08	0,11	●	○	○
P.1.5	150	0,08	0,11	●	○	○
P.2.1	170	0,08	0,11	●	○	○
P.2.2	170	0,08	0,11	●	○	○
P.2.3	100	0,07	0,09	●	○	○
P.2.4	100	0,07	0,09	●	○	○
P.3.1	90	0,06	0,08	●	○	○
P.3.2	90	0,06	0,08	●	○	○
P.3.3	90	0,06	0,08	●	○	○
P.4.1	70	0,07	0,09	●		○
P.4.2	60	0,07	0,09	●		○
M.1.1	60	0,06	0,08	●		○
M.2.1	40	0,05	0,07	●		○
M.3.1	60	0,06	0,08	●		○
K.1.1	170	0,11	0,14	●	○	○
K.1.2	130	0,09	0,12	●	○	○
K.2.1	150	0,10	0,13	●	○	○
K.2.2	130	0,08	0,11	●	○	○
K.3.1	130	0,10	0,13	●	○	○
K.3.2	110	0,09	0,12	●	○	○
N.1.1	550	0,16	0,21	●		
N.1.2	500	0,16	0,21	●		
N.2.1						
N.2.2	420	0,15	0,20	●		
N.2.3	170	0,13	0,17	●		
N.3.1	240	0,11	0,14	●		
N.3.2	210	0,11	0,14	●		
N.3.3	280	0,10	0,13	●		
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – MultiChange – PCR-UNI

Index	52 871 ...													
	Correction factor f_z and v_c Tool holder				Feedrates for extra short and short holder									
					Ø DC (mm) =					Ø DC (mm) =				
					10,0	12,0	16,0	20,0		10,0	12,0	16,0	20,0	
					a_e 0,25xDC					a_e 1xDC				
Index	Medium-length version	Type long	Type extra long	$a_{p\,max.}$	v_c (m/min)	f_z (mm)				v_c (m/min)	f_z (mm)			
P.1.1	**0,9**	**0,7***	**0,6***	0,56	**490**	0,057	0,065	0,080	0,091	**240**	0,028	0,033	0,040	0,046
P.1.2	**0,9**	**0,7***	**0,6***	0,56	**470**	0,054	0,062	0,076	0,087	**230**	0,027	0,031	0,038	0,044
P.1.3	**0,9**	**0,7***	**0,6***	0,56	**445**	0,052	0,059	0,073	0,083	**220**	0,026	0,030	0,036	0,041
P.1.4	**0,9**	**0,7***	**0,6***	0,56	**425**	0,049	0,056	0,069	0,079	**205**	0,025	0,028	0,034	0,039
P.1.5	**0,9**	**0,7***	**0,6***	0,56	**400**	0,047	0,053	0,065	0,075	**195**	0,023	0,027	0,033	0,037
P.2.1	**0,9**	**0,7***	**0,6***	0,56	**445**	0,057	0,065	0,080	0,091	**220**	0,028	0,033	0,040	0,046
P.2.2	**0,9**	**0,7***	**0,6***	0,56	**405**	0,052	0,059	0,073	0,083	**200**	0,026	0,030	0,036	0,041
P.2.3	**0,9**	**0,7***	**0,6***	0,56	**365**	0,047	0,053	0,065	0,075	**180**	0,023	0,027	0,033	0,037
P.2.4	**0,9**	**0,7***	**0,6***	0,56	**285**	0,043	0,050	0,060	0,069	**140**	0,022	0,025	0,030	0,035
P.3.1	**0,9**	**0,7***	**0,6***	0,56	**265**	0,050	0,057	0,070	0,080	**130**	0,025	0,029	0,035	0,040
P.3.2	**0,9**	**0,7***	**0,6***	0,56	**245**	0,047	0,054	0,067	0,076	**120**	0,024	0,027	0,033	0,038
P.3.3	**0,9**	**0,7***	**0,6***	0,56	**225**	0,045	0,051	0,063	0,072	**110**	0,022	0,026	0,031	0,036
P.4.1	**0,9**	**0,7***	**0,6***	0,56	**180**	0,034	0,040	0,048	0,055	**90**	0,017	0,020	0,024	0,028
P.4.2	**0,9**	**0,7***	**0,6***	0,56	**180**	0,034	0,040	0,048	0,055	**90**	0,017	0,020	0,024	0,028
M.1.1	0,9	0,7*	0,6*	0,56	120	0,030	0,035	0,042	0,048	60	0,015	0,017	0,021	0,024
M.2.1	0,9	0,7*	0,6*	0,56	115	0,025	0,029	0,035	0,040	55	0,012	0,014	0,018	0,020
M.3.1	0,9	0,7*	0,6*	0,56	120	0,026	0,030	0,036	0,041	60	0,013	0,015	0,018	0,021
K.1.1	**0,9**	**0,7***	**0,6***	0,56	**485**	0,086	0,099	0,121	0,138	**240**	0,043	0,050	0,060	0,069
K.1.2	**0,9**	**0,7***	**0,6***	0,56	**365**	0,060	0,069	0,085	0,097	**180**	0,030	0,035	0,042	0,048
K.2.1	**0,9**	**0,7***	**0,6***	0,56	**445**	0,073	0,084	0,103	0,118	**220**	0,037	0,042	0,051	0,059
K.2.2	**0,9**	**0,7***	**0,6***	0,56	**365**	0,060	0,069	0,085	0,097	**180**	0,030	0,035	0,042	0,048
K.3.1	**0,9**	**0,7***	**0,6***	0,56	**325**	0,060	0,069	0,085	0,097	**160**	0,030	0,035	0,042	0,048
K.3.2	**0,9**	**0,7***	**0,6***	0,56	**305**	0,052	0,059	0,073	0,083	**150**	0,026	0,030	0,036	0,041

* = Trimming and trochoidal slot milling

Cutting data standard values – MultiChange – PCR-ALU

Index	52 872 ...													
	Correction factor f_z and v_c Tool holder				Feedrates for extra short and short holder									
					Ø DC (mm) =					Ø DC (mm) =				
					10,0	12,0	16,0	20,0		10,0	12,0	16,0	20,0	
					a_e 0,25xDC					a_e 1xDC				
Index	Medium-length version	Type long	Type extra long	$a_{p\,max.}$	v_c (m/min)	f_z (mm)				v_c (m/min)	f_z (mm)			
N.1.1	**0,9**	**0,7***	**0,6***	0,56	**1035**	0,169	0,194	0,237	0,271	**675**	0,084	0,097	0,119	0,136
N.1.2	**0,9**	**0,7***	**0,6***	0,56	**945**	0,154	0,177	0,216	0,247	**610**	0,077	0,088	0,108	0,123
N.2.1	**0,9**	**0,7***	**0,6***	0,56	**625**	0,161	0,185	0,226	0,259	**405**	0,081	0,093	0,113	0,129
N.2.2	**0,9**	**0,7***	**0,6***	0,56	**500**	0,169	0,194	0,237	0,271	**325**	0,084	0,097	0,119	0,136
N.2.3	**0,9**	**0,7***	**0,6***	0,56	**360**	0,184	0,212	0,259	0,296	**235**	0,092	0,106	0,129	0,148
N.3.1	**0,9**	**0,7***	**0,6***	0,56	**450**	0,077	0,088	0,108	0,123	**295**	0,038	0,044	0,054	0,062
N.3.2	**0,9**	**0,7***	**0,6***	0,56	**270**	0,123	0,141	0,173	0,197	**175**	0,061	0,071	0,086	0,099
N.3.3	**0,9**	**0,7***	**0,6***	0,56	**360**	0,123	0,141	0,173	0,197	**235**	0,061	0,071	0,086	0,099
N.4.1														

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Index	52 871 ... Ramping Max. angle	Drilling f_z factor	Helical milling $\alpha_{R\,max.}$**	Max. plunging angle $D_{min.}$ 1,5 x DC	Max. plunging angle $D_{max.}$ 1,8 x DC	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	45°	0,9	0,56xDC	20°	13°	○	●	○
P.1.2	45°	0,9	0,56xDC	20°	13°	○	●	○
P.1.3	45°	0,9	0,56xDC	20°	13°	○	●	○
P.1.4	45°	0,9	0,56xDC	20°	13°	○	●	○
P.1.5	45°	0,9	0,56xDC	20°	13°	○	●	○
P.2.1	45°	0,8	0,56xDC	20°	13°	○	●	○
P.2.2	45°	0,8	0,56xDC	20°	13°	○	●	○
P.2.3	45°	0,8	0,56xDC	20°	13°	○	●	○
P.2.4	45°	0,7	0,56xDC	20°	13°	○	●	○
P.3.1	30°	0,8	0,56xDC	20°	13°	●		○
P.3.2	30°	0,7	0,56xDC	20°	13°	●		○
P.3.3	30°	0,7	0,56xDC	20°	13°	●		○
P.4.1	15°		0,56xDC	20°	13°	●		○
P.4.2	15°		0,56xDC	20°	13°	●		○
M.1.1	15°		0,4xDC	14°	9°	●		
M.2.1	15°		0,4xDC	14°	9°	●		
M.3.1	15°		0,4xDC	14°	9°	●		
K.1.1	45°	0,8	0,56xDC	20	13		●	
K.1.2	45°	0,8	0,56xDC	20	13		●	
K.2.1	45°	0,8	0,56xDC	20	13		●	
K.2.2	45°	0,8	0,56xDC	20	13		●	
K.3.1	45°	0,8	0,56xDC	20	13		●	
K.3.2	45°	0,8	0,56xDC	20	13		●	

Index	52 872 ... Ramping Max. angle	Drilling f_z factor	Helical milling $\alpha_{R\,max.}$**	Max. plunging angle $D_{min.}$ 1,5 x DC	Max. plunging angle $D_{max.}$ 1,8 x DC	● 1st choice ○ suitable Emulsion	Compressed air	MMS
N.1.1	45°	0,9	0,56xDC	20°	13°	●		○
N.1.2	45°	0,9	0,56xDC	20°	13°	●		○
N.2.1	45°	0,9	0,56xDC	20°	13°	●		○
N.2.2	45°	0,9	0,56xDC	20°	13°	●		○
N.2.3	45°	0,9	0,56xDC	20°	13°	●		○
N.3.1	45°	0,9	0,56xDC	20°	13°	●		○
N.3.2	45°	0,9	0,56xDC	20°	13°	●		○
N.3.3	45°	0,9	0,56xDC	20°	13°	●		○
N.4.1								

** Width of cut per helical revolution

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Cutting data standard values – MultiChange – Shoulder milling heads

Index	52 860 ..., 52 861 ...																		● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	Feedrates for extra short and short holder														Emulsion	Compressed air	MMS
					Ø DC (mm) =																
					8			10			12			16			20				
					$a_{p\,max.}$ =																
					5,2	4,4	3,6	6,5	5,5	4,5	7,8	6,6	5,4	10,4	8,8	7,2	13	11	9		
					a_e x DC =																
					0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0		
					f_z (mm)																
P.1.1	0,9	0,7*	0,6*	175	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,05	○	●	○
P.1.2	0,9	0,7*	0,6*	165	0,05	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,04	○	●	○
P.1.3	0,9	0,7*	0,6*	160	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	○	●	○
P.1.4	0,9	0,7*	0,6*	150	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.1.5	0,9	0,7*	0,6*	145	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.2.1	0,9	0,7*	0,6*	160	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,05	○	●	○
P.2.2	0,9	0,7*	0,6*	145	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	○	●	○
P.2.3	0,9	0,7*	0,6*	130	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.2.4	0,9	0,7*	0,6*	100	0,04	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	○	●	○
P.3.1	0,9	0,7*	0,6*	95	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	●		○
P.3.2	0,9	0,7*	0,6*	85	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	●		○
P.3.3	0,9	0,7*	0,6*	80	0,04	0,03	0,02	0,05	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	●		○
P.4.1	0,9	0,7*	0,6*	65	0,03	0,02	0,01	0,03	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	●		○
P.4.2	0,9	0,7*	0,6*	65	0,03	0,02	0,01	0,03	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	●		○
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1	0,9	0,7*	0,6*	175	0,07	0,05	0,04	0,09	0,07	0,04	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,10	0,07		●	
K.1.2	0,9	0,7*	0,6*	130	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.2.1	0,9	0,7*	0,6*	160	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06		●	
K.2.2	0,9	0,7*	0,6*	130	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.3.1	0,9	0,7*	0,6*	115	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.3.2	0,9	0,7*	0,6*	110	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04		●	
N.1.1																						
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O.2.2																						
O.3.1																						

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Rough-finishing milling heads

Index	52 862 ...														● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	Feedrates for extra short and short holder Ø DC (mm) = 8 $a_{p\,max.}$ = 7,5 a_e x DC = 0,1–0,2 f_z (mm)		Ø DC (mm) = 10 $a_{p\,max.}$ = 9,4 a_e x DC = 0,1–0,2 f_z (mm)		Ø DC (mm) = 12 $a_{p\,max.}$ = 11,3 a_e x DC = 0,1–0,2 f_z (mm)		Ø DC (mm) = 16 $a_{p\,max.}$ = 15,0 a_e x DC = 0,1–0,2 f_z (mm)		Ø DC (mm) = 20 $a_{p\,max.}$ = 18,8 a_e x DC = 0,1–0,2 f_z (mm)		Emulsion	Compressed air	MMS
					0,1–0,2	0,3–0,4	0,1–0,2	0,3–0,4	0,1–0,2	0,3–0,4	0,1–0,2	0,3–0,4	0,1–0,2	0,3–0,4			
P.1.1	0,9	0,7*	0,6*	225	0,04	0,03	0,05	0,04	0,06	0,04	0,08	0,05	0,09	0,06	○	●	○
P.1.2	0,9	0,7*	0,6*	215	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.1.3	0,9	0,7*	0,6*	205	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.1.4	0,9	0,7*	0,6*	195	0,04	0,03	0,05	0,03	0,05	0,04	0,06	0,05	0,07	0,05	○	●	○
P.1.5	0,9	0,7*	0,6*	185	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	○	●	○
P.2.1	0,9	0,7*	0,6*	205	0,04	0,03	0,05	0,04	0,06	0,04	0,08	0,05	0,09	0,06	○	●	○
P.2.2	0,9	0,7*	0,6*	185	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.2.3	0,9	0,7*	0,6*	170	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	○	●	○
P.2.4	0,9	0,7*	0,6*	130	0,03	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,06	0,05	○	●	○
P.3.1	0,9	0,7*	0,6*	120	0,04	0,03	0,05	0,03	0,05	0,04	0,07	0,05	0,08	0,05	●		○
P.3.2	0,9	0,7*	0,6*	110	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	●		○
P.3.3	0,9	0,7*	0,6*	105	0,04	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	●		○
P.4.1	0,9	0,7*	0,6*	85	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	0,05	0,04	●		○
P.4.2	0,9	0,7*	0,6*	85	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	0,05	0,04	●		○
M.1.1	0,9	0,7*	0,6*	55	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	●		
M.2.1	0,9	0,7*	0,6*	50	0,02	0,01	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	●		
M.3.1	0,9	0,7*	0,6*	55	0,02	0,01	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	●		
K.1.1	0,9	0,7*	0,6*	225	0,07	0,05	0,08	0,06	0,09	0,07	0,11	0,08	0,13	0,09		●	
K.1.2	0,9	0,7*	0,6*	170	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.2.1	0,9	0,7*	0,6*	205	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,11	0,08		●	
K.2.2	0,9	0,7*	0,6*	170	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.3.1	0,9	0,7*	0,6*	150	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.3.2	0,9	0,7*	0,6*	140	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
N.1.1	0,9	0,7*	0,6*	785	0,08	0,05	0,09	0,06	0,10	0,07	0,13	0,09	0,15	0,10	●		○
N.1.2	0,9	0,7*	0,6*	715	0,07	0,05	0,08	0,06	0,09	0,07	0,12	0,08	0,13	0,09	●		○
N.2.1	0,9	0,7*	0,6*	475	0,07	0,05	0,09	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		○
N.2.2	0,9	0,7*	0,6*	380	0,08	0,05	0,09	0,06	0,10	0,07	0,13	0,09	0,15	0,10	●		○
N.2.3	0,9	0,7*	0,6*	275	0,08	0,06	0,10	0,07	0,11	0,08	0,14	0,10	0,16	0,11	●		○
N.3.1	0,9	0,7*	0,6*	340	0,03	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	●		○
N.3.2	0,9	0,7*	0,6*	205	0,06	0,04	0,07	0,05	0,08	0,05	0,09	0,07	0,11	0,07	●		○
N.3.3	0,9	0,7*	0,6*	275	0,06	0,04	0,07	0,05	0,08	0,05	0,09	0,07	0,11	0,07	●		○
N.4.1																	
S.1.1																	
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O.1.2																	
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* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

14

Cutting data standard values – MultiChange – HFC milling heads

Index	52 864 ...																					● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	$a_{p\,max.}$ x DCX	Feedrates for extra short and short holder																Emulsion	Compressed air	MMS
						Ø DCX (mm) =																		
						8			10			12			16			20					
						a_e x DCX =																		
						0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0				
						f_z (mm)																		
P.1.1	0,9	0,7*	0,6*	175	0,05	0,44	0,31	0,20	0,53	0,37	0,24	0,61	0,43	0,27	0,74	0,52	0,33	0,85	0,60	0,38		○	●	○
P.1.2	0,9	0,7*	0,6*	165	0,05	0,42	0,30	0,19	0,50	0,36	0,22	0,58	0,41	0,26	0,71	0,50	0,32	0,81	0,57	0,36		○	●	○
P.1.3	0,9	0,7*	0,6*	160	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34		○	●	○
P.1.4	0,9	0,7*	0,6*	150	0,05	0,38	0,27	0,17	0,45	0,32	0,20	0,52	0,37	0,23	0,64	0,45	0,29	0,73	0,52	0,33		○	●	○
P.1.5	0,9	0,7*	0,6*	145	0,05	0,36	0,25	0,16	0,43	0,30	0,19	0,50	0,35	0,22	0,60	0,43	0,27	0,69	0,49	0,31		○	●	○
P.2.1	0,9	0,7*	0,6*	160	0,05	0,44	0,31	0,20	0,53	0,37	0,24	0,61	0,43	0,27	0,74	0,52	0,33	0,85	0,60	0,38		○	●	○
P.2.2	0,9	0,7*	0,6*	145	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34		○	●	○
P.2.3	0,9	0,7*	0,6*	130	0,05	0,36	0,25	0,16	0,43	0,30	0,19	0,50	0,35	0,22	0,60	0,43	0,27	0,69	0,49	0,31		○	●	○
P.2.4	0,9	0,7*	0,6*	100	0,05	0,33	0,24	0,15	0,40	0,28	0,18	0,46	0,32	0,21	0,56	0,40	0,25	0,64	0,45	0,29		○	●	○
P.3.1	0,9	0,7*	0,6*	95	0,05	0,39	0,27	0,17	0,46	0,33	0,21	0,53	0,38	0,24	0,65	0,46	0,29	0,74	0,53	0,33		●		○
P.3.2	0,9	0,7*	0,6*	85	0,05	0,37	0,26	0,16	0,44	0,31	0,20	0,50	0,36	0,23	0,62	0,44	0,28	0,70	0,50	0,32		●		○
P.3.3	0,9	0,7*	0,6*	80	0,05	0,35	0,24	0,15	0,41	0,29	0,19	0,48	0,34	0,21	0,58	0,41	0,26	0,67	0,47	0,30		●		○
P.4.1	0,9	0,7*	0,6*	65	0,05	0,27	0,19	0,12	0,32	0,23	0,14	0,37	0,26	0,16	0,45	0,32	0,20	0,51	0,36	0,23		●		○
P.4.2	0,9	0,7*	0,6*	65	0,05	0,27	0,19	0,12	0,32	0,23	0,14	0,37	0,26	0,16	0,45	0,32	0,20	0,51	0,36	0,23		●		○
M.1.1	0,9	0,7*	0,6*	45	0,05	0,23	0,16	0,10	0,28	0,20	0,12	0,32	0,23	0,14	0,39	0,28	0,18	0,45	0,32	0,20		●		
M.2.1	0,9	0,7*	0,6*	40	0,05	0,19	0,14	0,09	0,23	0,16	0,10	0,27	0,19	0,12	0,32	0,23	0,15	0,37	0,26	0,17		●		
M.3.1	0,9	0,7*	0,6*	45	0,05	0,20	0,14	0,09	0,24	0,17	0,11	0,28	0,19	0,12	0,34	0,24	0,15	0,38	0,27	0,17		●		
K.1.1	0,9	0,7*	0,6*	175	0,05	0,67	0,47	0,30	0,80	0,56	0,36	0,92	0,65	0,41	1,12	0,79	0,50	1,28	0,91	0,57			●	
K.1.2	0,9	0,7*	0,6*	130	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40			●	
K.2.1	0,9	0,7*	0,6*	160	0,05	0,57	0,40	0,25	0,68	0,48	0,30	0,78	0,55	0,35	0,95	0,67	0,43	1,09	0,77	0,49			●	
K.2.2	0,9	0,7*	0,6*	130	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40			●	
K.3.1	0,9	0,7*	0,6*	115	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40			●	
K.3.2	0,9	0,7*	0,6*	110	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34			●	
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* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Finishing milling heads

Index	52 863 ...									● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	Feedrates for extra short and short holder Ø DC (mm) = 8 $a_{p\,max.}$ = 7,5 a_e x DC = 0,1–0,2 f_z (mm)	Ø DC (mm) = 10 $a_{p\,max.}$ = 9,4 a_e x DC = 0,1–0,2 f_z (mm)	Ø DC (mm) = 12 $a_{p\,max.}$ = 11,3 a_e x DC = 0,1–0,2 f_z (mm)	Ø DC (mm) = 16 $a_{p\,max.}$ = 15,0 a_e x DC = 0,1–0,2 f_z (mm)	Ø DC (mm) = 20 $a_{p\,max.}$ = 18,8 a_e x DC = 0,1–0,2 f_z (mm)	Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	405	0,04	0,05	0,06	0,08	0,09	○	●	○
P.1.2	0,9	0,7*	0,6*	385	0,04	0,05	0,06	0,07	0,08	○	●	○
P.1.3	0,9	0,7*	0,6*	365	0,04	0,05	0,06	0,07	0,08	○	●	○
P.1.4	0,9	0,7*	0,6*	350	0,04	0,05	0,05	0,06	0,07	○	●	○
P.1.5	0,9	0,7*	0,6*	330	0,04	0,04	0,05	0,06	0,07	○	●	○
P.2.1	0,9	0,7*	0,6*	365	0,04	0,05	0,06	0,08	0,09	○	●	○
P.2.2	0,9	0,7*	0,6*	335	0,04	0,05	0,06	0,07	0,08	○	●	○
P.2.3	0,9	0,7*	0,6*	300	0,04	0,04	0,05	0,06	0,07	○	●	○
P.2.4	0,9	0,7*	0,6*	235	0,03	0,04	0,05	0,06	0,06	○	●	○
P.3.1	0,9	0,7*	0,6*	215	0,04	0,05	0,05	0,07	0,08	●		○
P.3.2	0,9	0,7*	0,6*	200	0,04	0,04	0,05	0,06	0,07	●		○
P.3.3	0,9	0,7*	0,6*	185	0,04	0,04	0,05	0,06	0,07	●		○
P.4.1	0,9	0,7*	0,6*	150	0,03	0,03	0,04	0,05	0,05	●		○
P.4.2	0,9	0,7*	0,6*	150	0,03	0,03	0,04	0,05	0,05	●		○
M.1.1	0,9	0,7*	0,6*	100	0,02	0,03	0,03	0,04	0,05	●		
M.2.1	0,9	0,7*	0,6*	95	0,02	0,02	0,03	0,03	0,04	●		
M.3.1	0,9	0,7*	0,6*	100	0,02	0,02	0,03	0,03	0,04	●		
K.1.1	0,9	0,7*	0,6*	400	0,07	0,08	0,09	0,11	0,13		●	
K.1.2	0,9	0,7*	0,6*	300	0,05	0,06	0,07	0,08	0,09		●	
K.2.1	0,9	0,7*	0,6*	365	0,06	0,07	0,08	0,10	0,11		●	
K.2.2	0,9	0,7*	0,6*	300	0,05	0,06	0,07	0,08	0,09		●	
K.3.1	0,9	0,7*	0,6*	265	0,05	0,06	0,07	0,08	0,09		●	
K.3.2	0,9	0,7*	0,6*	250	0,04	0,05	0,06	0,07	0,08		●	
N.1.1												
N.1.2												
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O.2.2												
O.3.1												

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

14

Cutting data standard values – MultiChange – Radius torus cutters

Index	52 865 ..., 52 866 ...																		● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	Feedrates for extra short and short holder														Emulsion	Compressed air	MMS
					Ø DC (mm) =																
					8			10			12			16			20				
					$a_{p\,max.}$ =																
					4,8	1,6	0,8	5,6	2,0	1,0	6,8	2,4	1,2	9,0	3,2	1,6	11,3	4,0	2,0		
					a_e x DC =																
					0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0	0,1–0,2	0,3–0,4	0,6–1,0		
					f_z (mm)																
P.1.1	0,9	0,7*	0,6*	110	0,027	0,025	0,018	0,032	0,030	0,022	0,037	0,034	0,025	0,045	0,042	0,031	0,051	0,048	0,035	○	●	○
P.1.2	0,9	0,7*	0,6*	105	0,025	0,024	0,017	0,030	0,028	0,021	0,035	0,032	0,024	0,043	0,040	0,029	0,049	0,045	0,033	○	●	○
P.1.3	0,9	0,7*	0,6*	100	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032	○	●	○
P.1.4	0,9	0,7*	0,6*	95	0,023	0,021	0,016	0,027	0,026	0,019	0,032	0,029	0,022	0,039	0,036	0,026	0,044	0,041	0,030	○	●	○
P.1.5	0,9	0,7*	0,6*	90	0,022	0,020	0,015	0,026	0,024	0,018	0,030	0,028	0,020	0,037	0,034	0,025	0,042	0,039	0,029	○	●	○
P.2.1	0,9	0,7*	0,6*	100	0,027	0,025	0,018	0,032	0,030	0,022	0,037	0,034	0,025	0,045	0,042	0,031	0,051	0,048	0,035	○	●	○
P.2.2	0,9	0,7*	0,6*	90	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032	○	●	○
P.2.3	0,9	0,7*	0,6*	80	0,022	0,020	0,015	0,026	0,024	0,018	0,030	0,028	0,020	0,037	0,034	0,025	0,042	0,039	0,029	○	●	○
P.2.4	0,9	0,7*	0,6*	65	0,020	0,019	0,014	0,024	0,022	0,016	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,026	○	●	○
P.3.1	0,9	0,7*	0,6*	60	0,023	0,022	0,016	0,028	0,026	0,019	0,032	0,030	0,022	0,039	0,037	0,027	0,045	0,042	0,031	●		○
P.3.2	0,9	0,7*	0,6*	55	0,022	0,021	0,015	0,026	0,025	0,018	0,030	0,028	0,021	0,037	0,035	0,025	0,043	0,040	0,029	●		○
P.3.3	0,9	0,7*	0,6*	50	0,021	0,019	0,014	0,025	0,023	0,017	0,029	0,027	0,020	0,035	0,033	0,024	0,040	0,037	0,028	●		○
P.4.1	0,9	0,7*	0,6*	40	0,016	0,015	0,011	0,019	0,018	0,013	0,022	0,021	0,015	0,027	0,025	0,019	0,031	0,029	0,021	●		○
P.4.2	0,9	0,7*	0,6*	40	0,016	0,015	0,011	0,019	0,018	0,013	0,022	0,021	0,015	0,027	0,025	0,019	0,031	0,029	0,021	●		○
M.1.1	0,9	0,7*	0,6*	27	0,014	0,013	0,010	0,017	0,016	0,012	0,019	0,018	0,013	0,024	0,022	0,016	0,027	0,025	0,019	●		
M.2.1	0,9	0,7*	0,6*	25	0,012	0,011	0,008	0,014	0,013	0,010	0,016	0,015	0,011	0,020	0,018	0,013	0,022	0,021	0,015	●		
M.3.1	0,9	0,7*	0,6*	27	0,012	0,011	0,008	0,014	0,013	0,010	0,017	0,015	0,011	0,020	0,019	0,014	0,023	0,022	0,016	●		
K.1.1	0,9	0,7*	0,6*	110	0,040	0,037	0,028	0,048	0,045	0,033	0,055	0,052	0,038	0,068	0,063	0,046	0,077	0,072	0,053		●	
K.1.2	0,9	0,7*	0,6*	80	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.2.1	0,9	0,7*	0,6*	100	0,034	0,032	0,023	0,041	0,038	0,028	0,047	0,044	0,032	0,057	0,054	0,039	0,066	0,061	0,045		●	
K.2.2	0,9	0,7*	0,6*	80	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.3.1	0,9	0,7*	0,6*	70	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.3.2	0,9	0,7*	0,6*	70	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032		●	
N.1.1	0,9	0,7*	0,6*	420	0,045	0,042	0,031	0,054	0,050	0,037	0,062	0,058	0,042	0,076	0,071	0,052	0,087	0,081	0,059	●		○
N.1.2	0,9	0,7*	0,6*	380	0,041	0,038	0,028	0,049	0,046	0,034	0,056	0,053	0,039	0,069	0,064	0,047	0,079	0,073	0,054	●		○
N.2.1	0,9	0,7*	0,6*	255	0,043	0,040	0,029	0,052	0,048	0,035	0,059	0,055	0,041	0,072	0,067	0,050	0,083	0,077	0,057	●		○
N.2.2	0,9	0,7*	0,6*	205	0,045	0,042	0,031	0,054	0,050	0,037	0,062	0,058	0,042	0,076	0,071	0,052	0,087	0,081	0,059	●		○
N.2.3	0,9	0,7*	0,6*	145	0,049	0,046	0,034	0,059	0,055	0,040	0,068	0,063	0,046	0,083	0,077	0,057	0,095	0,088	0,065	●		○
N.3.1	0,9	0,7*	0,6*	185	0,020	0,019	0,014	0,025	0,023	0,017	0,028	0,026	0,019	0,034	0,032	0,024	0,039	0,037	0,027	●		○
N.3.2	0,9	0,7*	0,6*	110	0,033	0,031	0,022	0,039	0,037	0,027	0,045	0,042	0,031	0,055	0,051	0,038	0,063	0,059	0,043	●		○
N.3.3	0,9	0,7*	0,6*	145	0,033	0,031	0,022	0,039	0,037	0,027	0,045	0,042	0,031	0,055	0,051	0,038	0,063	0,059	0,043	●		○
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1																						
H.1.2																						
H.1.3																						
H.1.4																						
H.2.1																						
H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Radius torus cutters – HSC machining

Index	52 865 ..., 52 866 ...									● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	Feedrates for extra short and short holder Ø DC (mm) = 8	10	12	16	20	Emulsion	Compressed air	MMS
					a_e/a_p = 0,04	0,05	0,06	0,08	0,10			
					f_z (mm)							
P.1.1	0,9	0,7*	0,6*	385	0,11	0,11	0,11	0,11	0,11	○	●	○
P.1.2	0,9	0,7*	0,6*	365	0,10	0,11	0,11	0,11	0,11	○	●	○
P.1.3	0,9	0,7*	0,6*	350	0,10	0,10	0,10	0,10	0,10	○	●	○
P.1.4	0,9	0,7*	0,6*	330	0,09	0,10	0,10	0,10	0,10	○	●	○
P.1.5	0,9	0,7*	0,6*	315	0,09	0,09	0,09	0,09	0,09	○	●	○
P.2.1	0,9	0,7*	0,6*	350	0,11	0,11	0,11	0,11	0,11	○	●	○
P.2.2	0,9	0,7*	0,6*	315	0,10	0,10	0,10	0,10	0,10	○	●	○
P.2.3	0,9	0,7*	0,6*	285	0,09	0,09	0,09	0,09	0,09	○	●	○
P.2.4	0,9	0,7*	0,6*	220	0,08	0,08	0,09	0,09	0,08	○	●	○
P.3.1	0,9	0,7*	0,6*	205	0,09	0,10	0,10	0,10	0,10	●		○
P.3.2	0,9	0,7*	0,6*	190	0,09	0,09	0,09	0,09	0,09	●		○
P.3.3	0,9	0,7*	0,6*	175	0,08	0,09	0,09	0,09	0,09	●		○
P.4.1	0,9	0,7*	0,6*	140	0,07	0,07	0,07	0,07	0,07	●		○
P.4.2	0,9	0,7*	0,6*	140	0,07	0,07	0,07	0,07	0,07	●		○
M.1.1	0,9	0,7*	0,6*	95	0,06	0,06	0,06	0,06	0,06	●		
M.2.1	0,9	0,7*	0,6*	90	0,05	0,05	0,05	0,05	0,05	●		
M.3.1	0,9	0,7*	0,6*	95	0,05	0,05	0,05	0,05	0,05	●		
K.1.1	0,9	0,7*	0,6*	380	0,16	0,17	0,17	0,17	0,17		●	
K.1.2	0,9	0,7*	0,6*	285	0,11	0,12	0,12	0,12	0,12		●	
K.2.1	0,9	0,7*	0,6*	350	0,14	0,14	0,14	0,15	0,14		●	
K.2.2	0,9	0,7*	0,6*	285	0,11	0,12	0,12	0,12	0,12		●	
K.3.1	0,9	0,7*	0,6*	255	0,11	0,12	0,12	0,12	0,12		●	
K.3.2	0,9	0,7*	0,6*	235	0,10	0,10	0,10	0,10	0,10		●	
N.1.1	0,9	0,7*	0,6*	840	0,18	0,19	0,19	0,19	0,19	●		○
N.1.2	0,9	0,7*	0,6*	765	0,17	0,17	0,17	0,17	0,17	●		○
N.2.1	0,9	0,7*	0,6*	510	0,17	0,18	0,18	0,18	0,18	●		○
N.2.2	0,9	0,7*	0,6*	405	0,18	0,19	0,19	0,19	0,19	●		○
N.2.3	0,9	0,7*	0,6*	290	0,20	0,21	0,21	0,21	0,20	●		○
N.3.1	0,9	0,7*	0,6*	365	0,08	0,09	0,09	0,09	0,09	●		○
N.3.2	0,9	0,7*	0,6*	220	0,13	0,14	0,14	0,14	0,14	●		○
N.3.3	0,9	0,7*	0,6*	290	0,13	0,14	0,14	0,14	0,14	●		○
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1				150	0,083	0,086	0,087	0,087	0,085	●		
O.1.2				100	0,083	0,086	0,087	0,087	0,085	●		
O.2.1												
O.2.2												
O.3.1												

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

14

Cutting data standard values – MultiChange – Torus cutter heads

Index	52 870 ...												● 1st choice ○ suitable		
	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	Feedrates for extra short and short holder Ø DC (mm) = 10		12		16		20		Emulsion	Compressed air	MMS
					$a_{p\,max.}$ = 5,0	3,0	6,0	3,6	8,0	4,8	10,0	6,0			
					a_e x DC										
					f_z (mm)										
P.1.1															
P.1.2															
P.1.3															
P.1.4															
P.1.5															
P.2.1															
P.2.2															
P.2.3															
P.2.4															
P.3.1															
P.3.2															
P.3.3															
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1															
K.1.2															
K.2.1															
K.2.2															
K.3.1															
K.3.2															
N.1.1	0,9	0,7	0,6	840	0,187	0,216	0,215	0,248	0,263	0,303	0,301	0,346	●		
N.1.2	0,9	0,7	0,6	765	0,170	0,196	0,196	0,225	0,239	0,275	0,273	0,315	●		
N.2.1	0,9	0,7	0,6	510	0,179	0,206	0,206	0,237	0,251	0,289	0,287	0,331	●		
N.2.2	0,9	0,7	0,6	405	0,187	0,216	0,215	0,248	0,263	0,303	0,301	0,346	●		
N.2.3	0,9	0,7	0,6	295	0,204	0,235	0,235	0,271	0,287	0,331	0,328	0,378	●		
N.3.1															
N.3.2															
N.3.3															
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Quarter-round cutter heads

Index	v_c (m/min)	52 869 ... Ø DCX (mm) = 8 PRFRAD = 0,5	8 1,0	10 1,5	10 2,0	12 2,5	12 3,0	12 3,5	16 4,0	16 4,5	20 5,0	20 5,0	20 6,0	● 1st choice ○ suitable Emulsion	Compressed air	MMS
		f_z (mm)														
P.1.1	150	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08	○	●	○
P.1.2	170	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	○	●	○
P.1.3	130	0,03	0,04	0,03	0,05	0,05	0,04	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.1.4	120	0,03	0,04	0,03	0,05	0,05	0,04	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.1.5	170	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	○	●	○
P.2.1	130	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07	○	●	○
P.2.2	130	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07	○	●	○
P.2.3	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.2.4	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.3.1	80	0,02	0,02	0,03	0,02	0,03	0,03	0,03	0,05	0,05	0,04	0,06	0,06	○	●	○
P.3.2	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.3.3	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.4.1	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.4.2	70	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
M.1.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
M.2.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
M.3.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
K.1.1	130	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09		●	
K.1.2	100	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08		●	
K.2.1	120	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08		●	
K.2.2	100	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07		●	
K.3.1	100	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08		●	
K.3.2	90	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07		●	
N.1.1	430	0,05	0,04	0,06	0,05	0,09	0,08	0,07	0,12	0,11	0,1	0,14	0,13	●		○
N.1.2	380	0,05	0,04	0,06	0,05	0,09	0,08	0,07	0,12	0,11	0,1	0,14	0,13	●		○
N.2.1	260	0,05	0,04	0,05	0,05	0,08	0,07	0,06	0,11	0,1	0,09	0,12	0,12	●		○
N.2.2	320	0,05	0,04	0,06	0,05	0,08	0,07	0,07	0,11	0,11	0,1	0,13	0,12	●		○
N.2.3	130	0,04	0,03	0,05	0,04	0,07	0,06	0,05	0,1	0,09	0,08	0,11	0,1	●		○
N.3.1	190	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	●		○
N.3.2	170	0,02	0,02	0,02	0,02	0,03	0,03	0,03	0,04	0,04	0,04	0,05	0,05	●		○
N.3.3	140	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		○
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

For unstable applications, the cutting data can be reduced.

14

Cutting data standard values – MultiChange – Deburring milling heads

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c (m/min)	52 867 ...				52 868 ...				● 1st choice ○ suitable		
					Feedrates for extra short and short holder										
					Ø DCX (mm) =				Ø DCX (mm) =						
					10	12	16	20	10	12	16	20			
					$a_{p\,max.}$ (mm) =				$a_{p\,max.}$ (mm) =						
					5,0	6,0	4,8	6,0	1,25	1,5	2,0	2,5			
					a_e 0,1– 0,2 x DCX				a_e 0,1– 0,2 x DCX						
					f_z (mm)								Emulsion	Compressed air	MMS
P.1.1	0,9	0,7	0,6	200	0,06	0,07	0,08	0,09	0,06	0,07	0,08	0,09	○	●	○
P.1.2	0,9	0,7	0,6	190	0,06	0,06	0,08	0,09	0,06	0,06	0,08	0,09	○	●	○
P.1.3	0,9	0,7	0,6	185	0,05	0,06	0,07	0,08	0,05	0,06	0,07	0,08	○	●	○
P.1.4	0,9	0,7	0,6	175	0,05	0,06	0,07	0,08	0,05	0,06	0,07	0,08	○	●	○
P.1.5	0,9	0,7	0,6	165	0,05	0,05	0,07	0,08	0,05	0,05	0,07	0,08	○	●	○
P.2.1	0,9	0,7	0,6	185	0,06	0,07	0,08	0,09	0,06	0,07	0,08	0,09	○	●	○
P.2.2	0,9	0,7	0,6	165	0,05	0,06	0,07	0,08	0,05	0,06	0,07	0,08	○	●	○
P.2.3	0,9	0,7	0,6	150	0,05	0,05	0,07	0,08	0,05	0,05	0,07	0,08	○	●	○
P.2.4	0,9	0,7	0,6	115	0,04	0,05	0,06	0,07	0,04	0,05	0,06	0,07	○	●	○
P.3.1	0,9	0,7	0,6	110	0,05	0,06	0,07	0,08	0,05	0,06	0,07	0,08	●		○
P.3.2	0,9	0,7	0,6	100	0,05	0,06	0,07	0,08	0,05	0,06	0,07	0,08	●		○
P.3.3	0,9	0,7	0,6	90	0,05	0,05	0,06	0,07	0,05	0,05	0,06	0,07	●		○
P.4.1	0,9	0,7	0,6	75	0,04	0,04	0,05	0,06	0,04	0,04	0,05	0,06	●		○
P.4.2	0,9	0,7	0,6	75	0,04	0,04	0,05	0,06	0,04	0,04	0,05	0,06	●		○
M.1.1	0,9	0,7	0,6	50	0,03	0,04	0,04	0,05	0,03	0,04	0,04	0,05	●		
M.2.1	0,9	0,7	0,6	45	0,03	0,03	0,04	0,04	0,03	0,03	0,04	0,04	●		
M.3.1	0,9	0,7	0,6	50	0,03	0,03	0,04	0,04	0,03	0,03	0,04	0,04	●		
K.1.1	0,9	0,7	0,6	200	0,09	0,10	0,12	0,14	0,09	0,10	0,12	0,14		●	
K.1.2	0,9	0,7	0,6	150	0,06	0,07	0,09	0,10	0,06	0,07	0,09	0,10		●	
K.2.1	0,9	0,7	0,6	185	0,07	0,09	0,11	0,12	0,07	0,09	0,11	0,12		●	
K.2.2	0,9	0,7	0,6	150	0,06	0,07	0,09	0,10	0,06	0,07	0,09	0,10		●	
K.3.1	0,9	0,7	0,6	135	0,06	0,07	0,09	0,10	0,06	0,07	0,09	0,10		●	
K.3.2	0,9	0,7	0,6	125	0,05	0,06	0,07	0,08	0,05	0,06	0,07	0,08		●	
N.1.1	0,9	0,7	0,6	550	0,10	0,11	0,14	0,16	0,10	0,11	0,14	0,16	●		○
N.1.2	0,9	0,7	0,6	500	0,09	0,10	0,13	0,14	0,09	0,10	0,13	0,14	●		○
N.2.1	0,9	0,7	0,6	330	0,09	0,11	0,13	0,15	0,09	0,11	0,13	0,15	●		○
N.2.2	0,9	0,7	0,6	265	0,10	0,11	0,14	0,16	0,10	0,11	0,14	0,16	●		○
N.2.3	0,9	0,7	0,6	190	0,11	0,12	0,15	0,17	0,11	0,12	0,15	0,17	●		○
N.3.1	0,9	0,7	0,6	240	0,04	0,05	0,06	0,07	0,04	0,05	0,06	0,07	●		○
N.3.2	0,9	0,7	0,6	145	0,07	0,08	0,10	0,12	0,07	0,08	0,10	0,12	●		○
N.3.3	0,9	0,7	0,6	190	0,07	0,08	0,10	0,12	0,07	0,08	0,10	0,12	●		○
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

For unstable applications the machining parameters must be reduced.

Cutting data standard values – T-slot milling cutter

Index	v_c (m/min)	54 065 ... Ø DC (mm) = 11,0	12,5	16,0	18,0	19,0	21,0	22,0	25,0	28,0	32,0	36,0	40,0	● 1st choice ○ suitable Emulsion	Compressed air	MMS
		f_z (mm)														
P.1.1	72	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.2	68	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.3	68	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.4	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.5	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.1	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.2	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.3	56	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.4	56	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.1	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.2	60	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.3	52	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.4.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
P.4.2	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.1.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.2.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.3.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
K.1.1	68	0,040	0,048	0,056	0,067	0,075	0,080	0,080	0,080	0,093	0,093	0,105	0,117	●		
K.1.2	56	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.2.1	64	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.2.2	52	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.3.1	56	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.3.2	54	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The feed f_z must be reduced by 50% until the tool is fully engaged.

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Cutting data standard values – mini milling cutter, uncoated

Index	Extra-short type		50 608 ..., 50 664 ...															
			Ø DC (mm) =															
			0,5		1,0		1,2		1,5		1,8–2,0		2,5–3,0			3,5–4,0		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1																		
P.1.2																		
P.1.3																		
P.1.4																		
P.1.5																		
P.2.1																		
P.2.2																		
P.2.3																		
P.2.4																		
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1																		
P.4.2																		
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1																		
K.1.2																		
K.2.1																		
K.2.2																		
K.3.1																		
K.3.2																		
N.1.1	250	1,0	0,007	0,006	0,011	0,009	0,014	0,011	0,018	0,014	0,024	0,019	0,038	0,030	0,019	0,050	0,040	0,025
N.1.2	250	1,0	0,007	0,006	0,011	0,009	0,014	0,011	0,018	0,014	0,024	0,019	0,038	0,030	0,019	0,050	0,040	0,025
N.2.1	180	1,0	0,009	0,007	0,013	0,010	0,016	0,013	0,020	0,016	0,026	0,021	0,037	0,030	0,019	0,048	0,038	0,024
N.2.2	180	1,0	0,009	0,007	0,013	0,010	0,016	0,013	0,020	0,016	0,026	0,021	0,037	0,030	0,019	0,048	0,038	0,024
N.2.3	150	1,0	0,009	0,007	0,013	0,010	0,016	0,013	0,020	0,016	0,026	0,021	0,037	0,030	0,019	0,048	0,038	0,024
N.3.1	200	1,0	0,004	0,003	0,008	0,006	0,010	0,008	0,014	0,011	0,018	0,014	0,028	0,022	0,014	0,038	0,030	0,019
N.3.2	200	1,0	0,004	0,003	0,008	0,006	0,010	0,008	0,014	0,011	0,018	0,014	0,028	0,022	0,014	0,038	0,030	0,019
N.3.3	140	1,0	0,004	0,003	0,008	0,006	0,010	0,008	0,014	0,011	0,018	0,014	0,028	0,022	0,014	0,038	0,030	0,019
N.4.1	180	1,0	0,009	0,007	0,013	0,010	0,016	0,013	0,020	0,016	0,026	0,021	0,037	0,030	0,019	0,048	0,038	0,024
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	50	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.3.2	20	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Index	50 608 ..., 50 664 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	4,5–5,0			5,5–6,0			6,7–8,0			8,7–10,0					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.1.1															
P.1.2															
P.1.3															
P.1.4															
P.1.5															
P.2.1															
P.2.2															
P.2.3															
P.2.4															
P.3.1															
P.3.2															
P.3.3															
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1															
K.1.2															
K.2.1															
K.2.2															
K.3.1															
K.3.2															
N.1.1	0,064	0,051	0,032	0,077	0,062	0,039	0,104	0,083	0,052	0,130	0,104	0,065	●		○
N.1.2	0,064	0,051	0,032	0,077	0,062	0,039	0,104	0,083	0,052	0,130	0,104	0,065	●		○
N.2.1	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.2.2	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.2.3	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.3.1	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.2	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.3	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.4.1	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.2	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

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Cutting data standard values – mini milling cutter, coated

Index	Extra-short type		50 609 ..., 50 691 ...															
			Ø DC (mm) =															
			0,5		1,0		1,2		1,5		1,8–2,0		2,5–3,0			3,5–4,0		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1	110	1,0	0,011	0,009	0,014	0,011	0,015	0,012	0,017	0,014	0,020	0,016	0,027	0,022	0,014	0,034	0,027	0,017
P.1.2	90	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.1.3	90	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.1.4	80	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.1.5	80	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.2.1	90	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.2.2	70	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.2.3	70	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.2.4	55	1,0	0,006	0,005	0,008	0,006	0,010	0,008	0,012	0,010	0,015	0,012	0,022	0,018	0,011	0,028	0,022	0,014
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	50	1,0	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
P.4.2	40	1,0	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
M.1.1	40	1,0	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
M.2.1	50	1,0	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
M.3.1	50	1,0	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
K.1.1	130	1,0	0,018	0,014	0,022	0,018	0,024	0,019	0,028	0,022	0,034	0,027	0,044	0,035	0,022	0,056	0,045	0,028
K.1.2	120	1,0	0,018	0,014	0,022	0,018	0,024	0,019	0,028	0,022	0,034	0,027	0,044	0,035	0,022	0,056	0,045	0,028
K.2.1	130	1,0	0,017	0,014	0,020	0,016	0,022	0,018	0,024	0,019	0,028	0,022	0,035	0,028	0,018	0,042	0,034	0,021
K.2.2	120	1,0	0,017	0,014	0,020	0,016	0,022	0,018	0,024	0,019	0,028	0,022	0,035	0,028	0,018	0,042	0,034	0,021
K.3.1	130	1,0	0,018	0,014	0,022	0,018	0,024	0,019	0,028	0,022	0,034	0,027	0,044	0,035	0,022	0,056	0,045	0,028
K.3.2	120	1,0	0,018	0,014	0,022	0,018	0,024	0,019	0,028	0,022	0,034	0,027	0,044	0,035	0,022	0,056	0,045	0,028
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	200	1,0	0,004	0,003	0,008	0,006	0,010	0,008	0,014	0,011	0,018	0,014	0,028	0,022	0,014	0,038	0,030	0,019
N.3.2	200	1,0	0,004	0,003	0,008	0,006	0,010	0,008	0,014	0,011	0,018	0,014	0,028	0,022	0,014	0,038	0,030	0,019
N.3.3	140	1,0	0,004	0,003	0,008	0,006	0,010	0,008	0,014	0,011	0,018	0,014	0,028	0,022	0,014	0,038	0,030	0,019
N.4.1																		
S.1.1	30	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.1.2	30	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.2.1	30	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.2.2	30	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.2.3	30	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.3.1	50	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.3.2	20	0,5	0,003	0,002	0,005	0,004	0,006	0,005	0,007	0,006	0,010	0,008	0,015	0,012	0,008	0,020	0,016	0,010
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Index	50 609 ..., 50 691 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	4,5–5,0			5,5–6,0			6,7–8,0			8,7–10,0					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.1.1	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038	○	●	○
P.1.2	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.3	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.4	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.5	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.1	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.2	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.3	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.4	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.3.1															
P.3.2															
P.3.3															
P.4.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
P.4.2	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.1.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.2.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.3.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
K.1.1	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.1.2	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.2.1	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	○	●	○
K.2.2	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	○	●	○
K.3.1	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.3.2	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.2	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.3	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.4.1															
S.1.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.1.2	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.2	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.3	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.1	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.2	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

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Cutting data standard values – End mill – W version, short

Index	HPC		54 590..., 54 591..., 54 594..., 54 595..., 54 610..., 54 611..., 54 640..., 54 642...																	
			Ø DC (mm) =																	
			2,7–3,0			3,7–4,0			4,7–5,0			5,7–7,0			7,7–9,0			9,7–11,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)																	
N.1.1	560	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.1.2	560	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.1	336	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.2	336	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.3	224	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.3.1	224	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.3.2	160	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.3.3	160	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.4.1																				

* = use a_p 1.5 x DC only in a_e range 0.1–0.4 x DC

Cutting data standard values – End mill – W version, long

Index	HPC		50 960 ..., 54 590 ..., 54 592 ..., 54 591 ..., 54 593 ..., 54 594 ..., 54 595 ..., 54 596 ..., 54 597 ..., 54 610 ..., 54 611 ..., 54 612 ..., 54 613 ..., 54 620 ..., 54 630 ..., 54 631 ..., 54 640 ...																	
			Ø DC (mm) =																	
			2,7–3,0			3,7–4,0			4,7–5,0			5,7–7,0			7,7–9,0			9,7–11,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)																	
N.1.1	320	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.1.2	320	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.1	192	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.2	192	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.3	128	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.3.1	128	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.3.2	92	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.3.3	92	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.4.1																				

* = use a_p 1.5 x DC only in a_e range 0.1–0.4 x DC

Cutting data standard values – End mill – W and WR version, extra long

Index	HPC		54 590 ..., 54 592 ..., 54 610 ..., 54 612 ..., 54 630 ..., 54 631 ..., 54 632 ..., 54 633 ..., 54 650 ..., 54 640 ..., 54 642 ...																	
			Ø DC (mm) =																	
			2,7–3,0			3,7–4,0			4,7–5,0			5,7–7,0			7,7–9,0			9,7–11,0		
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)																	
N.1.1	240	0,750*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.1.2	240	0,750*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.1	144	0,750*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.2	144	0,750*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.3	100	0,750*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.3.1	100	0,750*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.3.2	72	0,750*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.3.3	72	0,750*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.4.1																				

* = use a_p 1.5 x DC only in a_e range 0.1–0.4 x DC

Cooling lubrication with emulsion

Feed rate guide values for ball nosed and torus cutters on → **Page 486**

Index	54 590..., 54 591..., 54 594..., 54 595..., 54 610..., 54 611..., 54 640..., 54 642...																		Emulsion	MMS
	Ø DC (mm) =																			
	11,7–13,0			13,7–15,0			15,7–16,0			18,0			19,7–20,0			24,7–25,0				
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
	f_z (mm)																			
N.1.1	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.1.2	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.1	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.2	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.3	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.3.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.3.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.3.3	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.4.1																				

Index	50 960 ..., 54 590 ..., 54 592 ..., 54 591 ..., 54 593 ..., 54 594 ..., 54 595 ..., 54 596 ..., 54 597 ..., 54 610 ..., 54 611 ..., 54 612 ..., 54 613 ..., 54 620 ..., 54 630 ..., 54 631 ..., 54 640 ...																		Emulsion	MMS
	Ø DC (mm) =																			
	11,7–13,0			13,7–15,0			15,7–16,0			18,0			19,7–20,0			24,7–25,0				
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
	f_z (mm)																			
N.1.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.1.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.3	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.3.1	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.3.2	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.3.3	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.4.1																				

Index	54 590 ..., 54 592 ..., 54 610 ..., 54 612 ..., 54 630 ..., 54 631 ..., 54 632 ..., 54 633 ..., 54 650 ..., 54 640 ..., 54 642 ...																		Emulsion	MMS
	Ø DC (mm) =																			
	11,7–13,0			13,7–15,0			15,7–16,0			18,0			19,7–20,0			24,7–25,0				
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
	f_z (mm)																			
N.1.1	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.1.2	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.1	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.2	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.3	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.3.1	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.3.2	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.3.3	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.4.1																				

Cutting data standard values – End mill

Index	Type short / long		54 070 ..., 54 071 ..., 54 072 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)															
P.1.1	210	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.1.2	200	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.1.3	200	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.1.4	190	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.1.5	190	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.2.1	200	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.2.2	190	1,0	0,022	0,018	0,011	0,030	0,024	0,015	0,038	0,030	0,019	0,046	0,037	0,023	0,062	0,050	0,031	
P.2.3	180	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.2.4	170	1,0	0,022	0,018	0,011	0,030	0,024	0,015	0,038	0,030	0,019	0,046	0,037	0,023	0,062	0,050	0,031	
P.3.1	180	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.3.2	170	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.3.3	140	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.4.1	100	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
P.4.2	80	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
M.1.1	100	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
M.2.1	100	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
M.3.1	100	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
K.1.1	200	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
K.1.2	180	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
K.2.1	190	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
K.2.2	170	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
K.3.1	180	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
K.3.2	160	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	350	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
N.3.2	350	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
N.3.3	280	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
N.4.1																		
S.1.1	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.1.2	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.2.1	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.2.2	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.2.3	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.3.1	90	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
S.3.2	50	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

Index	54 070 ..., 54 071 ..., 54 072 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	10			12			16			20					
	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_p 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_p 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.1.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.1.2	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.1.3	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.1.4	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.1.5	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.2.2	0,078	0,062	0,039	0,094	0,075	0,047	0,118	0,094	0,059	0,134	0,107	0,067	●	○	○
P.2.3	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.2.4	0,078	0,062	0,039	0,094	0,075	0,047	0,118	0,094	0,059	0,134	0,107	0,067	●	○	○
P.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.3.2	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.3.3	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.4.1	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
P.4.2	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.1.1	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.2.1	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.3.1	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
K.1.1	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.1.2	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
K.2.2	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
K.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
K.3.2	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●		
N.3.2	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●		
N.3.3	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●		
N.4.1															
S.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.1.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.3	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●		
S.3.2	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

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Cutting data standard values – End mill

Index	Type long		54 078 ...															
			Ø DC (mm) =															
			6			8			10			12			16			
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)															
P.1.1	120	1xDC	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038	0,089	0,071	0,045	0,110	0,088	0,055	
P.1.2	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.1.3	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.1.4	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.1.5	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.2.1	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.2.2	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.2.3	110	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.2.4	95	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.3.1	95	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.3.2	95	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.3.3																		
P.4.1	70	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
P.4.2	60	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
M.1.1	70	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
M.2.1	70	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
M.3.1	70	1xDC	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	
K.1.1	130	1xDC	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	
K.1.2	120	1xDC	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	
K.2.1	130	1xDC	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	
K.2.2	120	1xDC	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	
K.3.1	130	1xDC	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	
K.3.2	130	1xDC	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

At an a_e of < 0.3xDC, an a_p of 3xDC may be used.

Index	54 078 ... Ø DC (mm) = 20 a_e 0,1–0,2 x DC f_z (mm)	a_e 0,3–0,4 x DC f_z (mm)	a_e 0,6–1,0 x DC f_z (mm)	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1	0,123	0,098	0,062	●	●	○
P.1.2	0,111	0,089	0,056	●	●	○
P.1.3	0,111	0,089	0,056	●	●	○
P.1.4	0,111	0,089	0,056	●	●	○
P.1.5	0,111	0,089	0,056	●	●	○
P.2.1	0,111	0,089	0,056	●	●	○
P.2.2	0,111	0,089	0,056	●	●	○
P.2.3	0,111	0,089	0,056	●	●	○
P.2.4	0,111	0,089	0,056	●	●	○
P.3.1	0,111	0,089	0,056	●	●	○
P.3.2	0,111	0,089	0,056	●	●	○
P.3.3						
P.4.1	0,111	0,089	0,056	●		
P.4.2	0,111	0,089	0,056	●		
M.1.1	0,111	0,089	0,056	●		
M.2.1	0,111	0,089	0,056	●		
M.3.1	0,111	0,089	0,056	●		
K.1.1	0,200	0,160	0,100		●	●
K.1.2	0,200	0,160	0,100		●	●
K.2.1	0,139	0,111	0,070		●	●
K.2.2	0,139	0,111	0,070		●	●
K.3.1	0,200	0,160	0,100		●	●
K.3.2	0,200	0,160	0,100		●	●
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

Cutting data standard values – End mill

Index	Type extra long		54 070 ..., 54 071 ..., 54 072 ...														
			Ø DC (mm) =														
			3			4			5			6			8		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)														
P.1.1	120	0,8	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031
P.1.2	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.3	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.4	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.5	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.1	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.2	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.3	110	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.4	95	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.3.1	95	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.3.2	95	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.3.3																	
P.4.1	70	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.4.2	60	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
M.1.1	70	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
M.2.1	70	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
M.3.1	70	0,8	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
K.1.1	130	0,8	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
K.1.2	120	0,8	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
K.2.1	130	0,8	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036
K.2.2	120	0,8	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036
K.3.1	130	0,8	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
K.3.2	130	0,8	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
S.3.2																	
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Plunging angle for ramping and helical milling: 3°

Index	54 070 ..., 54 071 ..., 54 072 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	10			12			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.1.1	0,075	0,060	0,038	0,089	0,071	0,045	0,110	0,088	0,055	0,123	0,098	0,062	●	○	○
P.1.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.3	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.4	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.5	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.3	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.4	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.3.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.3.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.3.3															
P.4.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●		
P.4.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●		
M.1.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●		
M.2.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●		
M.3.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●		
K.1.1	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.1.2	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.2.1	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	0,139	0,111	0,070	●	○	○
K.2.2	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	0,139	0,111	0,070	●	○	○
K.3.1	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.3.2	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1															
N.3.2															
N.3.3															
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

14

Cutting data standard values – Finish milling cutter

Index	Type long	Type extra long	Type long / extra long	54 075 ..., 54 076 ...						● 1st choice ○ suitable		
				Ø DC (mm) =								
				6	8	10	12	16	20			
				a_e 0,05 x DC								
	v_c (m/min)		$a_{p\,max}$ x DC	f_z (mm)						Emulsion	Compressed air	MMS
P.1.1	210	145	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.2	200	140	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.3	200	140	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.4	185	130	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.5	185	130	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.1	200	140	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.2	185	130	2,0	0,021	0,028	0,035	0,042	0,053	0,060	●	○	○
P.2.3	175	125	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.4	170	115	2,0	0,021	0,028	0,035	0,042	0,053	0,060	●	○	○
P.3.1	180	125	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.3.2	170	115	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.3.3	140	95	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.4.1	95	65	2,0	0,017	0,023	0,030	0,036	0,045	0,052	●		
P.4.2	80	60	2,0	0,017	0,023	0,030	0,036	0,045	0,052	●		
M.1.1	95	65	2,0	0,017	0,023	0,030	0,036	0,045	0,052	●		
M.2.1	95	65	2,0	0,017	0,023	0,030	0,036	0,045	0,052	●		
M.3.1	95	65	2,0	0,017	0,023	0,030	0,036	0,045	0,052	●		
K.1.1	200	140	2,0	0,032	0,042	0,052	0,063	0,078	0,088	●	○	○
K.1.2	175	125	2,0	0,032	0,042	0,052	0,063	0,078	0,088	●	○	○
K.2.1	185	130	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
K.2.2	170	115	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
K.3.1	175	125	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
K.3.2	160	110	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	345	240	2,0	0,032	0,042	0,052	0,063	0,078	0,088	●	○	○
N.3.2	345	240	2,0	0,032	0,042	0,052	0,063	0,078	0,088	●	○	○
N.3.3	280	196	2,0	0,032	0,042	0,052	0,063	0,078	0,088	●	○	○
N.4.1												
S.1.1	35	25	2,0	0,014	0,018	0,023	0,027	0,034	0,038	●		
S.1.2	35	25	2,0	0,014	0,018	0,023	0,027	0,034	0,038	●		
S.2.1	35	25	2,0	0,014	0,018	0,023	0,027	0,034	0,038	●		
S.2.2	35	25	2,0	0,014	0,018	0,023	0,027	0,034	0,038	●		
S.2.3	35	25	2,0	0,014	0,018	0,023	0,027	0,034	0,038	●		
S.3.1	160	110	2,0	0,027	0,036	0,045	0,054	0,068	0,077	●		
S.3.2	100	70	2,0	0,017	0,023	0,030	0,036	0,045	0,052	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Plunging angle for ramping and helical milling = 1°

Cutting data standard values – Circular saw blades

Index	54 700 ... / 54 701 ...	
	Circular saws	
	Solid carbide Fine	
	v_c (m/min)	f_z (mm)
P.1.1	80–140	0,002–0,012
P.1.2	50–80	0,001–0,012
P.1.3	50–80	0,001–0,012
P.1.4	50–80	0,001–0,012
P.1.5	50–80	0,001–0,012
P.2.1	50–80	0,001–0,012
P.2.2	50–80	0,001–0,012
P.2.3	50–80	0,001–0,012
P.2.4	50–80	0,001–0,012
P.3.1	50–80	0,001–0,012
P.3.2	50–80	0,001–0,012
P.3.3	50–80	0,001–0,012
P.4.1	80–120	0,001–0,012
P.4.2	50–80	0,001–0,012
M.1.1	50–80	0,001–0,012
M.2.1	50–80	0,001–0,012
M.3.1	50–80	0,001–0,012
K.1.1	80–140	0,002–0,012
K.1.2	50–80	0,001–0,010
K.2.1	50–80	0,001–0,010
K.2.2	50–80	0,001–0,010
K.3.1	50–80	0,001–0,010
K.3.2	50–80	0,001–0,010
N.1.1	200–500	0,003–0,012
N.1.2	200–500	0,003–0,012
N.2.1	200–450	0,003–0,012
N.2.2	200–450	0,003–0,012
N.2.3	200–450	0,003–0,012
N.3.1	200–450	0,003–0,012
N.3.2	200–450	0,003–0,012
N.3.3	200–450	0,003–0,012
N.4.1		
S.1.1	20–30	0,001–0,012
S.1.2	20–30	0,001–0,012
S.2.1	20–30	0,001–0,012
S.2.2	20–30	0,001–0,012
S.2.3	20–30	0,001–0,012
S.3.1	30–70	0,001–0,012
S.3.2	30–70	0,001–0,012
S.3.3	30–70	0,001–0,012
H.1.1		
H.1.2		
H.1.3		
H.1.4		
H.2.1		
H.3.1		
O.1.1	130–200	0,003–0,015
O.1.2	130–200	0,003–0,015
O.2.1		
O.2.2		
O.3.1		

14

The cutting data depends extremely on the external conditions, e.g. stability of the tool and tool clamping, material and machine type.
The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values – NTR roughing-finishing milling cutter

Index	a_s 0,1–0,4 x DC	a_s 0,6–1,0 x DC	$a_{p\,max}$ in mm	52 318 ...															
				Ø DC (mm) =															
				6			8			10			12			14			
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)			f_z (mm)															
P.1.1	250	140	1xDC	0,074	0,047	0,028	0,095	0,060	0,035	0,114	0,072	0,042	0,131	0,083	0,049	0,145	0,092	0,055	
P.1.2	250	140	1xDC	0,074	0,047	0,028	0,095	0,060	0,035	0,114	0,072	0,042	0,131	0,083	0,049	0,145	0,092	0,055	
P.1.3	205	115	1xDC	0,069	0,044	0,026	0,089	0,056	0,033	0,106	0,067	0,040	0,122	0,077	0,046	0,135	0,086	0,051	
P.1.4	205	115	1xDC	0,069	0,044	0,026	0,089	0,056	0,033	0,106	0,067	0,040	0,122	0,077	0,046	0,135	0,086	0,051	
P.1.5	205	115	1xDC	0,069	0,044	0,026	0,089	0,056	0,033	0,106	0,067	0,040	0,122	0,077	0,046	0,135	0,086	0,051	
P.2.1	225	125	1xDC	0,074	0,047	0,028	0,095	0,060	0,035	0,114	0,072	0,042	0,131	0,083	0,049	0,145	0,092	0,055	
P.2.2	225	125	1xDC	0,074	0,047	0,028	0,095	0,060	0,035	0,114	0,072	0,042	0,131	0,083	0,049	0,145	0,092	0,055	
P.2.3	135	75	1xDC	0,068	0,043	0,025	0,087	0,055	0,033	0,104	0,066	0,039	0,120	0,076	0,045	0,133	0,085	0,055	
P.2.4	135	75	1xDC	0,068	0,043	0,025	0,087	0,055	0,033	0,104	0,066	0,039	0,120	0,076	0,045	0,133	0,085	0,050	
P.3.1	145	85	1xDC	0,072	0,045	0,027	0,092	0,058	0,034	0,110	0,070	0,041	0,127	0,080	0,047	0,141	0,089	0,053	
P.3.2	125	70	1xDC	0,064	0,041	0,024	0,082	0,052	0,031	0,099	0,062	0,037	0,113	0,072	0,042	0,126	0,080	0,047	
P.3.3	125	70	1xDC	0,064	0,041	0,024	0,082	0,052	0,031	0,099	0,062	0,037	0,113	0,072	0,042	0,126	0,080	0,047	
P.4.1	100	55	1xDC	0,050	0,031	0,018	0,063	0,040	0,024	0,076	0,048	0,028	0,087	0,055	0,033	0,097	0,061	0,037	
P.4.2	100	55	1xDC	0,050	0,031	0,018	0,063	0,040	0,024	0,076	0,048	0,028	0,087	0,055	0,033	0,097	0,061	0,037	
M.1.1	75	40	1xDC	0,043	0,027	0,016	0,055	0,035	0,021	0,066	0,042	0,025	0,076	0,048	0,028	0,084	0,054	0,032	
M.2.1	85	40	1xDC	0,047	0,030	0,018	0,060	0,038	0,022	0,072	0,046	0,027	0,083	0,052	0,031	0,092	0,058	0,035	
M.3.1	70	35	1xDC	0,036	0,023	0,013	0,046	0,029	0,017	0,055	0,035	0,021	0,063	0,040	0,024	0,070	0,045	0,027	
K.1.1	310	150	1xDC	0,124	0,078	0,046	0,158	0,100	0,059	0,190	0,120	0,071	0,218	0,138	0,081	0,242	0,154	0,090	
K.1.2	260	100	1xDC	0,100	0,060	0,026	0,138	0,080	0,039	0,160	0,100	0,051	0,188	0,120	0,061	0,212	0,135	0,070	
K.2.1	285	140	1xDC	0,105	0,067	0,039	0,135	0,085	0,050	0,161	0,102	0,060	0,185	0,117	0,069	0,205	0,130	0,077	
K.2.2	130	65	1xDC	0,050	0,031	0,018	0,063	0,040	0,024	0,076	0,048	0,028	0,087	0,055	0,033	0,097	0,061	0,037	
K.3.1	205	100	1xDC	0,087	0,055	0,032	0,111	0,070	0,041	0,133	0,084	0,050	0,153	0,097	0,057	0,170	0,108	0,064	
K.3.2	195	95	1xDC	0,074	0,047	0,028	0,095	0,060	0,035	0,114	0,072	0,042	0,131	0,083	0,049	0,145	0,092	0,055	
N.1.1	825	535	1xDC	0,092	0,066	0,047	0,117	0,084	0,060	0,140	0,101	0,072	0,161	0,116	0,083	0,179	0,129	0,092	
N.1.2	825	535	1xDC	0,092	0,066	0,047	0,117	0,084	0,060	0,140	0,101	0,072	0,161	0,116	0,083	0,179	0,129	0,092	
N.2.1	550	355	1xDC	0,096	0,069	0,049	0,123	0,088	0,063	0,147	0,106	0,076	0,169	0,122	0,087	0,188	0,136	0,097	
N.2.2	440	285	1xDC	0,101	0,073	0,052	0,129	0,093	0,066	0,154	0,111	0,079	0,178	0,128	0,091	0,198	0,142	0,101	
N.2.3	315	205	1xDC	0,110	0,079	0,057	0,141	0,101	0,072	0,168	0,121	0,087	0,194	0,139	0,099	0,216	0,155	0,110	
N.3.1	395	255	1xDC	0,046	0,033	0,024	0,059	0,042	0,030	0,070	0,050	0,036	0,081	0,058	0,041	0,090	0,065	0,046	
N.3.2	315	205	1xDC	0,073	0,053	0,038	0,094	0,067	0,048	0,112	0,081	0,058	0,129	0,093	0,066	0,144	0,103	0,074	
N.3.3	235	155	1xDC	0,073	0,053	0,038	0,094	0,067	0,048	0,112	0,081	0,058	0,129	0,093	0,066	0,144	0,103	0,074	
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1																			
S.3.2																			
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

Index	52 318 ...									● 1st choice ○ suitable		
	Ø DC (mm) =											
	16			18			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)											
P.1.1	0,160	0,101	0,060	0,171	0,109	0,064	0,183	0,116	0,068	●	○	○
P.1.2	0,160	0,101	0,060	0,171	0,109	0,064	0,183	0,116	0,068	●	○	○
P.1.3	0,149	0,094	0,056	0,160	0,101	0,060	0,171	0,108	0,064	●	○	○
P.1.4	0,149	0,094	0,056	0,160	0,101	0,060	0,171	0,108	0,064	●	○	○
P.1.5	0,149	0,094	0,056	0,160	0,101	0,060	0,171	0,108	0,064	●	○	○
P.2.1	0,160	0,101	0,060	0,171	0,109	0,064	0,183	0,116	0,068	●	○	○
P.2.2	0,160	0,101	0,060	0,171	0,109	0,064	0,183	0,116	0,068	●	○	○
P.2.3	0,147	0,093	0,055	0,157	0,100	0,059	0,168	0,106	0,062	●	○	○
P.2.4	0,147	0,093	0,055	0,157	0,100	0,059	0,168	0,106	0,062	●	○	○
P.3.1	0,155	0,098	0,058	0,166	0,105	0,062	0,177	0,112	0,066	●	○	○
P.3.2	0,139	0,088	0,052	0,148	0,094	0,056	0,158	0,100	0,059	●	○	○
P.3.3	0,139	0,088	0,052	0,148	0,094	0,056	0,158	0,100	0,059	●	○	○
P.4.1	0,107	0,067	0,040	0,114	0,072	0,043	0,122	0,077	0,045	●	○	○
P.4.2	0,107	0,067	0,040	0,114	0,072	0,043	0,122	0,077	0,045	●	○	○
M.1.1	0,093	0,059	0,035	0,100	0,063	0,038	0,107	0,067	0,040	●	○	○
M.2.1	0,101	0,064	0,038	0,108	0,069	0,041	0,116	0,073	0,043	●	○	○
M.3.1	0,077	0,049	0,029	0,082	0,053	0,031	0,088	0,056	0,033	●	○	○
K.1.1	0,266	0,169	0,099	0,286	0,181	0,107	0,305	0,193	0,114	●	○	○
K.1.2	0,236	0,149	0,079	0,256	0,161	0,087	0,275	0,173	0,094	●	○	○
K.2.1	0,226	0,143	0,084	0,243	0,154	0,091	0,259	0,164	0,097	●	○	○
K.2.2	0,107	0,067	0,040	0,115	0,072	0,043	0,122	0,077	0,045	●	○	○
K.3.1	0,187	0,118	0,070	0,200	0,127	0,075	0,213	0,135	0,080	●	○	○
K.3.2	0,160	0,101	0,060	0,172	0,109	0,064	0,183	0,116	0,068	●	○	○
N.1.1	0,197	0,142	0,101	0,211	0,152	0,109	0,225	0,162	0,116	●	○	○
N.1.2	0,197	0,142	0,101	0,211	0,152	0,109	0,225	0,162	0,116	●	○	○
N.2.1	0,207	0,149	0,106	0,222	0,160	0,114	0,237	0,170	0,122	●	○	○
N.2.2	0,217	0,156	0,111	0,233	0,167	0,119	0,248	0,178	0,127	●	○	○
N.2.3	0,237	0,170	0,121	0,254	0,182	0,130	0,270	0,194	0,139	●	○	○
N.3.1	0,099	0,071	0,051	0,106	0,076	0,055	0,113	0,081	0,058	●	○	○
N.3.2	0,158	0,113	0,081	0,169	0,122	0,087	0,180	0,130	0,093	●	○	○
N.3.3	0,158	0,113	0,081	0,169	0,122	0,087	0,180	0,130	0,093	●	○	○
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – Rough milling cutter

Index	Type long		54 077 ...															
			Ø DC (mm) =															
			4			5			6			8			10			
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)															
P.1.1	185	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.1.2	175	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.1.3	175	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.1.4	170	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.1.5	170	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.2.1	175	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.2.2	170	1,0	0,034	0,027	0,017	0,044	0,035	0,022	0,054	0,043	0,027	0,072	0,058	0,036	0,090	0,072	0,045	
P.2.3	160	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.2.4	150	1,0	0,034	0,027	0,017	0,044	0,035	0,022	0,054	0,043	0,027	0,072	0,058	0,036	0,090	0,072	0,045	
P.3.1	160	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.3.2	150	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.3.3	130	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
P.4.1	90	1,0	0,022	0,017	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,047	0,037	0,023	0,059	0,048	0,030	
P.4.2	70	1,0	0,022	0,017	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,047	0,037	0,023	0,059	0,048	0,030	
M.1.1	90	1,0	0,022	0,017	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,047	0,037	0,023	0,059	0,048	0,030	
M.2.1	90	1,0	0,022	0,017	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,047	0,037	0,023	0,059	0,048	0,030	
M.3.1	90	1,0	0,022	0,017	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,047	0,037	0,023	0,059	0,048	0,030	
K.1.1	175	1,0	0,056	0,045	0,028	0,070	0,056	0,035	0,085	0,068	0,042	0,113	0,091	0,057	0,144	0,115	0,072	
K.1.2	160	1,0	0,056	0,045	0,028	0,070	0,056	0,035	0,085	0,068	0,042	0,113	0,091	0,057	0,144	0,115	0,072	
K.2.1	170	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
K.2.2	155	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
K.3.1	160	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
K.3.2	145	1,0	0,043	0,035	0,022	0,054	0,043	0,027	0,063	0,050	0,032	0,085	0,068	0,042	0,104	0,084	0,052	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	280	1,0	0,056	0,045	0,028	0,070	0,056	0,035	0,085	0,068	0,042	0,113	0,091	0,057	0,144	0,115	0,072	
N.3.2	280	1,0	0,056	0,045	0,028	0,070	0,056	0,035	0,085	0,068	0,042	0,113	0,091	0,057	0,144	0,115	0,072	
N.3.3	225	1,0	0,056	0,045	0,028	0,070	0,056	0,035	0,085	0,068	0,042	0,113	0,091	0,057	0,144	0,115	0,072	
N.4.1																		
S.1.1	25	1,0	0,018	0,014	0,009	0,023	0,018	0,011	0,027	0,022	0,014	0,036	0,029	0,018	0,045	0,036	0,023	
S.1.2	25	1,0	0,018	0,014	0,009	0,023	0,018	0,011	0,027	0,022	0,014	0,036	0,029	0,018	0,045	0,036	0,023	
S.2.1	25	1,0	0,018	0,014	0,009	0,023	0,018	0,011	0,027	0,022	0,014	0,036	0,029	0,018	0,045	0,036	0,023	
S.2.2	25	1,0	0,018	0,014	0,009	0,023	0,018	0,011	0,027	0,022	0,014	0,036	0,029	0,018	0,045	0,036	0,023	
S.2.3	25	1,0	0,018	0,014	0,009	0,023	0,018	0,011	0,027	0,022	0,014	0,036	0,029	0,018	0,045	0,036	0,023	
S.3.1	70	1,0	0,034	0,027	0,017	0,044	0,035	0,022	0,054	0,043	0,027	0,072	0,058	0,036	0,090	0,072	0,045	
S.3.2	40	1,0	0,022	0,017	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,047	0,037	0,023	0,059	0,048	0,030	
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

Index	54 077 ... Ø DC (mm) = 12			16			20			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z (mm)											
P.1.1	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.1.2	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.1.3	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.1.4	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.1.5	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.2.1	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.2.2	0,108	0,086	0,054	0,135	0,108	0,068	0,153	0,122	0,077	●	○	○
P.2.3	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.2.4	0,108	0,086	0,054	0,135	0,108	0,068	0,153	0,122	0,077	●	○	○
P.3.1	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.3.2	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.3.3	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
P.4.1	0,072	0,058	0,036	0,091	0,073	0,045	0,104	0,083	0,052	●		
P.4.2	0,072	0,058	0,036	0,091	0,073	0,045	0,104	0,083	0,052	●		
M.1.1	0,072	0,058	0,036	0,091	0,073	0,045	0,104	0,083	0,052	●		
M.2.1	0,072	0,058	0,036	0,091	0,073	0,045	0,104	0,083	0,052	●		
M.3.1	0,072	0,058	0,036	0,091	0,073	0,045	0,104	0,083	0,052	●		
K.1.1	0,173	0,138	0,086	0,216	0,173	0,108	0,247	0,197	0,123	●	○	○
K.1.2	0,173	0,138	0,086	0,216	0,173	0,108	0,247	0,197	0,123	●	○	○
K.2.1	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
K.2.2	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
K.3.1	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
K.3.2	0,126	0,101	0,063	0,156	0,125	0,078	0,176	0,141	0,088	●	○	○
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	0,173	0,138	0,086	0,216	0,173	0,108	0,247	0,197	0,123	●		
N.3.2	0,173	0,138	0,086	0,216	0,173	0,108	0,247	0,197	0,123	●		
N.3.3	0,173	0,138	0,086	0,216	0,173	0,108	0,247	0,197	0,123	●		
N.4.1												
S.1.1	0,054	0,043	0,027	0,068	0,054	0,034	0,076	0,060	0,038	●		
S.1.2	0,054	0,043	0,027	0,068	0,054	0,034	0,076	0,060	0,038	●		
S.2.1	0,054	0,043	0,027	0,068	0,054	0,034	0,076	0,060	0,038	●		
S.2.2	0,054	0,043	0,027	0,068	0,054	0,034	0,076	0,060	0,038	●		
S.2.3	0,054	0,043	0,027	0,068	0,054	0,034	0,076	0,060	0,038	●		
S.3.1	0,108	0,086	0,054	0,135	0,108	0,068	0,153	0,122	0,077	●		
S.3.2	0,072	0,058	0,036	0,091	0,073	0,045	0,104	0,083	0,052	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – Rough milling cutter

Index	Full slot milling v_c (m/min)	Contour milling v_c (m/min)	52 338 ..., 52 339 ..., 52 341 ..., 52 342 ..., 52 343 ... Ti1000 Ø DC (mm) = 6 f_z (mm)		8 f_z (mm)		10 f_z (mm)		12 f_z (mm)		14 f_z (mm)	
P.1.1	170	190	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.2	160	180	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.3	150	170	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.4	150	170	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.5	130	150	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.1	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.2	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.3	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.4	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.1	160	180	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.2	90	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.3	90	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.4.1	55	65	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
P.4.2	35	45	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.1.1	60	70	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.2.1	45	55	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.3.1	50	60	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
K.1.1	120	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.1.2	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.2.1	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.2.2	90	100	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.3.1	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.3.2	100	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

For **Full slot milling** the values indicated in the table are based on:
a_e = 1,0 x DC / a_p = 1,0 x DC

For **Contour milling** the values indicated in the table are based on:
a_e = 0,4 x DC / a_p = 1,0 x DC

Index	52 338 ..., 52 339 ..., 52 340 ..., 52 341 ..., 52 342 ..., 52 343 ...								● 1st choice ○ suitable		
	Ti1000										
	Ø DC (mm) =										
	16		18		20		25				
	f_z (mm)										
									Emulsion	Compressed air	MMS
P.1.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.4	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.5	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.4	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.4.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
P.4.2	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.1.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.2.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.3.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
K.1.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.1.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.2.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.2.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.3.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.3.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

With tools with internal cooling (52 338…/52 339…) the cutting speed (v_c) can be increased by 20–30 %!

Cutting data standard values – Ball-nosed end mill

Index	Type short		54 073 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC
			f_z (mm)															
P.1.1	180	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.2	160	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.3	160	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.4	150	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.1.5	150	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.1	170	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.2	140	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.3	140	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.2.4	130	0,08	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	100	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
P.4.2	40	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
M.1.1	50	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
M.2.1	50	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
M.3.1	50	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
K.1.1	120	0,08	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
K.1.2	80	0,08	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
K.2.1	120	0,08	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036
K.2.2	200	0,08	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036
K.3.1	120	0,08	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
K.3.2	100	0,08	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	200	0,08	0,032	0,026	0,016	0,043	0,034	0,022	0,054	0,043	0,027	0,066	0,053	0,033	0,088	0,070	0,044
N.3.2	200	0,08	0,032	0,026	0,016	0,043	0,034	0,022	0,054	0,043	0,027	0,066	0,053	0,033	0,088	0,070	0,044
N.3.3	140	0,08	0,032	0,026	0,016	0,043	0,034	0,022	0,054	0,043	0,027	0,066	0,053	0,033	0,088	0,070	0,044
N.4.1																		
S.1.1	30	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.1.2	30	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.1	30	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.2	30	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.3	30	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.3.1	50	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.3.2	20	0,08	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Index	54 073 ... Ø DC (mm) = 10			12			16			20			● 1st choice ○ suitable		
	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.1.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.3	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.4	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.5	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.3	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.4	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.3.1															
P.3.2															
P.3.3															
P.4.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
P.4.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
M.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
M.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
M.3.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
K.1.1	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.1.2	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.2.1	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	0,139	0,111	0,070	●	○	○
K.2.2	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	0,139	0,111	0,070	●	○	○
K.3.1	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.3.2	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1	0,110	0,088	0,055	0,132	0,106	0,066	0,166	0,133	0,083	0,188	0,150	0,094	●		
N.3.2	0,110	0,088	0,055	0,132	0,106	0,066	0,166	0,133	0,083	0,188	0,150	0,094	●		
N.3.3	0,110	0,088	0,055	0,132	0,106	0,066	0,166	0,133	0,083	0,188	0,150	0,094	●		
N.4.1															
S.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.1.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.3	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.3.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.3.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

14

Cutting data standard values – Ball-nosed end mill

Index	Type short / long		54 074 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC
			f_z (mm)															
P.1.1	130	0,08xD	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	
P.1.2	110	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.1.3	110	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.1.4	95	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.1.5	95	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.2.1	110	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.2.2	85	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.2.3	85	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.2.4	65	0,08xD	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	60	0,08xD	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
P.4.2	50	0,08xD	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
M.1.1	50	0,08xD	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
M.2.1	60	0,08xD	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
M.3.1	60	0,08xD	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
K.1.1	155	0,08xD	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	
K.1.2	145	0,08xD	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	
K.2.1	155	0,08xD	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	
K.2.2	145	0,08xD	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	
K.3.1	155	0,08xD	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	
K.3.2	145	0,08xD	0,044	0,035	0,022	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	240	0,08xD	0,032	0,026	0,016	0,043	0,034	0,022	0,054	0,043	0,027	0,066	0,053	0,033	0,088	0,070	0,044	
N.3.2	240	0,08xD	0,032	0,026	0,016	0,043	0,034	0,022	0,054	0,043	0,027	0,066	0,053	0,033	0,088	0,070	0,044	
N.3.3	170	0,08xD	0,032	0,026	0,016	0,043	0,034	0,022	0,054	0,043	0,027	0,066	0,053	0,033	0,088	0,070	0,044	
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Index	54 074 ... Ø DC (mm) = 10			12			16			20			● 1st choice ○ suitable		
	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	Emulsion	Compressed air	MMS
	f_z (mm)														
P.1.1	0,075	0,060	0,038	0,089	0,071	0,045	0,110	0,088	0,055	0,123	0,098	0,062	●	○	○
P.1.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.3	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.4	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.1.5	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.1	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.2	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.3	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.2.4	0,066	0,053	0,033	0,079	0,063	0,040	0,099	0,079	0,050	0,111	0,089	0,056	●	○	○
P.3.1															
P.3.2															
P.3.3															
P.4.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
P.4.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
M.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
M.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
M.3.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
K.1.1	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.1.2	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.2.1	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	0,139	0,111	0,070	●	○	○
K.2.2	0,086	0,069	0,043	0,102	0,082	0,051	0,124	0,099	0,062	0,139	0,111	0,070	●	○	○
K.3.1	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
K.3.2	0,122	0,098	0,061	0,144	0,115	0,072	0,177	0,142	0,089	0,200	0,160	0,100	●	○	○
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1	0,110	0,088	0,055	0,132	0,106	0,066	0,166	0,133	0,083	0,188	0,150	0,094	●		
N.3.2	0,110	0,088	0,055	0,132	0,106	0,066	0,166	0,133	0,083	0,188	0,150	0,094	●		
N.3.3	0,110	0,088	0,055	0,132	0,106	0,066	0,166	0,133	0,083	0,188	0,150	0,094	●		
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

Cutting Speeds – Depending upon Coating

Index	uncoated		Ti400		● 1st choice ○ suitable			Ti1000 / DPX72S		● 1st choice ○ suitable		
					Emulsion	Compressed air	MMS			Emulsion	Compressed air	MMS
	v_c (m/min)		v_c (m/min)					v_c (m/min)				
P.1.1	90–110	130–160	90–130	140–200	●	○	○	150–170	220–240	○	●	○
P.1.2	80–100	120–140	90–110	100–160	●	○	○	130–150	180–220	○	●	○
P.1.3	80–100	120–140	90–110	100–160	●	○	○	130–150	180–220	○	●	○
P.1.4	50–60	70–90	60–70	80–110	●	○	○	70–100	100–140	○	●	○
P.1.5	50–60	70–90	60–70	80–110	●	○	○	70–100	100–140	○	●	○
P.2.1	70–90	100–130	80–100	140–160	●	○	○	120–140	170–200	○	●	○
P.2.2	70–90	100–130	80–100	100–150	●	○	○	120–140	170–200	○	●	○
P.2.3	40–60	60–80	50–70	70–100	●	○	○	60–80	90–120	○	●	○
P.2.4	40–60	60–80	50–70	70–100	●	○	○	60–80	90–120	○	●	○
P.3.1	50–60	70–90	60–80	70–110	●	○	○	70–100	100–140	○	●	○
P.3.2	30–50	40–70	40–60	70–100	●	○	○	60–80	80–120	○	●	○
P.3.3	25–40	40–60	40–60	70–100	●	○	○	50–80	70–110	○	●	○
P.4.1	40–50	60–70	40–50	60–80	●	○	○	60–80	90–120	●		○
P.4.2	40–50	60–70	40–50	60–80	●	○	○	60–80	90–120	●		○
M.1.1	40–50	60–70	50–60	80–110	●	○	○	70–80	100–120	●		○
M.2.1	20–30	30–40	25–35	40–70	●	○	○	40–60	60–80	●		○
M.3.1	30–40	40–50	40–50	70–100	●	○	○	50–70	80–100	●		○
K.1.1	60–80	90–120	70–90	100–130	●	○	○	100–110	140–160	○	●	○
K.1.2	60–70	80–100	60–80	90–120	●	○	○	80–100	120–140	○	●	○
K.2.1	60–70	80–100	70–90	100–130	●	○	○	80–100	120–140	○	●	○
K.2.2	50–60	70–90	60–80	90–120	●	○	○	70–80	100–120	○	●	○
K.3.1	60–80	90–120	60–80	90–120	●	○	○	100–110	140–160	○	●	○
K.3.2	50–60	70–90	60–80	90–120	●	○	○	70–80	100–120	○	●	○
N.1.1	<300	<400	280–320	250–350	●	○	○	180–350	250–500	●		○
N.1.2	<300	<400	280–320	220–320	●	○	○	180–350	250–500	●		○
N.2.1	130–180	200–250	220–270	200–300	●	○	○	140–200	200–300	●		○
N.2.2	100–120	140–170	170–200	200–250	●	○	○	110–130	160–180	●		○
N.2.3	40–60	60–80	120–180	150–200	●	○	○	50–70	80–100	●		○
N.3.1	160–200	230–280	100–130	120–200	●	○	○	180–210	250–300	●	○	○
N.3.2	150–180	210–260	100–130	120–180	●	○	○	180–210	250–300	●		○
N.3.3	150–180	210–260	100–130	120–180	●	○	○	180–210	250–300	●		○
N.4.1	150–180	220–260	170–200	170–250		●	○	180–210	250–300		●	○
S.1.1			25–35	30–50	●	○	○	30–40	40–60	●	○	○
S.1.2			25–35	30–50	●	○	○	30–40	40–60	●	○	○
S.2.1	15–25	20–35	40–60	50–80	●	○	○	35–50	50–70	●	○	○
S.2.2			30–40	40–60	●	○	○	30–40	40–60	●	○	○
S.2.3												
S.3.1	30–50	40–70	40–50	70–100	●	○	○	50–70	80–100	●	○	○
S.3.2	30–40	40–50	50–60	80–120	●	○	○	50–60	70–90	●	○	○
S.3.3			30–40	40–60	●	○	○	20–30	30–40	●	○	○
H.1.1								60–70	80–100		●	○
H.1.2								40–60	60–80		●	○
H.1.3								30–40	40–60		●	○
H.1.4								20–30	30–40		●	○
H.2.1								70–80	100–120		●	○
H.3.1								60–70	80–100		●	○
O.1.1	50–70	70–100	120–180	150–220	●	○	○	60–80	80–120	○	●	○
O.1.2	40–60	60–90	70–90	90–120	●	○	○	40–70	60–100	○	●	○
O.2.1	30–50	40–70	50–70	70–110	●	○	○	40–60	60–80	○	●	○
O.2.2	30–50	40–70	50–70	70–110	●	○	○	40–60	60–80	○	●	○
O.3.1	70–100	100–140	100–120	130–180		●	○	80–120	120–180		●	○

Index	Ti1001		● 1st choice ○ suitable			Ti10 / Ti20		● 1st choice ○ suitable		
										
	v_c (m/min)		Emulsion	Compressed air	MMS	v_c (m/min)		Emulsion	Compressed air	MMS
P.1.1										
P.1.2										
P.1.3										
P.1.4										
P.1.5										
P.2.1										
P.2.2										
P.2.3										
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1										
K.2.2										
K.3.1										
K.3.2										
N.1.1	300–400	300–500	●		○	150–350	250–500	●		○
N.1.2	300–400	300–500	●		○	120–220	150–300	●		○
N.2.1	250–300	300–450	●		○	150–180	220–250	●		○
N.2.2	200–250	250–350	●		○	100–130	150–180	●		○
N.2.3	150–200	200–250	●		○					○
N.3.1						170–180	240–260	●		○
N.3.2	220–280	250–330	●		○	120–150	170–220	●		○
N.3.3	220–280	250–330	●		○	120–150	170–220	●		○
N.4.1						140–170	200–250		●	
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1							80–100	●		○
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1						220–280	300–400	●		○
O.1.2						140–170	200–240	●		○
O.2.1						70–100	100–140	●		○
O.2.2						70–100	100–140	●		○
O.3.1										

Depths of Cut Reference Values – Milling Cutters – extra short – long

Index	$a_{p\,max.}$ x DC		Ø DC (mm) = 2,5			3,0			$a_{p\,max.}$ x DC		Ø DC (mm) = 4,0			5,0			6,0		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)								f_z (mm)								
P.1.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,041	0,027	0,020	0,054	0,035	0,026
P.1.2	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.3	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.4	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.5	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.2.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.2.2	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.2.3	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.2.4	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.3.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.3.2	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.3.3	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.4.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
P.4.2	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.1.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.2.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.3.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
K.1.1	1,0	0,5	0,020	0,013	0,010	0,029	0,019	0,014	1,5	1,0	0,039	0,026	0,019	0,052	0,034	0,025	0,064	0,042	0,031
K.1.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.2.1	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.2.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.3.1	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.3.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
N.1.1	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.1.2	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.1	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.2	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.3	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.3.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.3.2	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.3.3	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.4.1	1,0	0,5	0,026	0,017	0,012	0,038	0,025	0,018	1,5	1,0	0,051	0,033	0,025	0,067	0,044	0,033	0,083	0,054	0,040
S.1.1	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.1.2	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.2.1	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1,0	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
S.2.2	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.2.3	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1,0	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
S.3.1	0,7	0,3	0,017	0,011	0,008	0,024	0,016	0,012	1,0	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
S.3.2	0,7	0,3	0,018	0,012	0,009	0,026	0,017	0,013	1,0	1,0	0,035	0,023	0,017	0,046	0,030	0,023	0,058	0,038	0,028
S.3.3	0,7	0,3	0,018	0,012	0,009	0,026	0,017	0,013	1,0	1,0	0,035	0,023	0,017	0,046	0,030	0,023	0,058	0,038	0,028
H.1.1	0,5*		0,019**			0,027**			1,0		0,037**			0,049**			0,061**		
H.1.2	0,5*		0,017**			0,025**			1,0		0,034**			0,045**			0,056**		
H.1.3	0,5*		0,015**			0,022**			1,0		0,030**			0,040**			0,050**		
H.1.4	0,5*		0,013**			0,020**			1,0		0,026**			0,035**			0,043**		
H.2.1	0,5*		0,021**			0,030**			1,0		0,041**			0,054**			0,067**		
H.3.1	0,5*		0,019**			0,027**			1,0		0,037**			0,049**			0,061**		
O.1.1	1,0	0,5	0,044	0,029	0,021	0,064	0,042	0,031	1,5	1,0	0,086	0,057	0,042	0,114	0,074	0,055	0,141	0,092	0,068
O.1.2	1,0	0,5	0,040	0,026	0,019	0,058	0,038	0,028	1,5	1,1	0,078	0,051	0,038	0,103	0,068	0,050	0,128	0,084	0,062
O.2.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,2	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
O.2.2	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,3	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
O.3.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,4	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030

* = Trimming and trochoidal slot milling

** = With an a_e = 0.1xDC

Depths of cut reference values – Finish milling, extra short – long

$a_{p\,max.}$ x DC	Ø DC (mm) = 2,5			3,0			$a_{p\,max.}$ x DC	Ø DC (mm) = 4,0			5,0			6,0		
								a_e : 0,2–0,3 mm			a_e : 0,2–0,3 mm			a_e : 0,2–0,3 mm		
	f_z (mm)							f_z (mm)								
0,7							1,5	0,080***			0,090***			0,100***		

*** = To improve the surface quality reduce the f_z

Cutting data for Micro-Mini cutters for milling with diameter < 2.5 mm → v_c/f_z Page 432–439

Index	Ø DC (mm) = 8,0			10,0			12,0			14,0			16,0			18,0			20,0–25,0		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	f_z (mm)																				
P.1.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.3	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.4	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.5	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.2.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.2.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.2.3	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.2.4	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.3.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.3.3	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.4.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
P.4.2	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.1.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.2.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.3.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
K.1.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,060	0,140	0,080	0,060	0,160	0,100	0,070	0,170	0,110	0,080	0,200	0,130	0,08
K.1.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.2.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.2.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.3.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
N.1.1	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.1.2	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.1	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.2	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.3	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.3.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.3.2	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.3.3	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.4.1	0,110	0,070	0,050	0,130	0,090	0,070	0,150	0,100	0,070	0,180	0,110	0,080	0,210	0,130	0,090	0,230	0,150	0,100	0,250	0,170	0,11
S.1.1	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.1.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.2.1	0,060	0,040	0,030	0,080	0,050	0,040	0,090	0,060	0,040	0,110	0,060	0,050	0,120	0,080	0,050	0,130	0,090	0,060	0,150	0,100	0,06
S.2.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.2.3	0,060	0,040	0,030	0,080	0,050	0,040	0,090	0,060	0,040	0,110	0,060	0,050	0,120	0,080	0,050	0,130	0,090	0,060	0,150	0,100	0,06
S.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
S.3.2	0,070	0,050	0,040	0,090	0,060	0,050	0,100	0,070	0,050	0,130	0,070	0,050	0,140	0,090	0,060	0,160	0,100	0,070	0,180	0,120	0,08
S.3.3	0,070	0,050	0,040	0,090	0,060	0,050	0,100	0,070	0,050	0,130	0,070	0,050	0,140	0,090	0,060	0,160	0,100	0,070	0,180	0,120	0,08
H.1.1	0,080**			0,100**			0,110**			0,120**			0,130**			0,150**			0,170**		
H.1.2	0,070**			0,090**			0,100**			0,110**			0,120**			0,140**			0,150**		
H.1.3	0,060**			0,080**			0,090**			0,100**			0,110**			0,120**			0,130**		
H.1.4	0,060**			0,070**			0,080**			0,080**			0,100**			0,110**			0,120**		
H.2.1	0,090**			0,110**			0,120**			0,130**			0,150**			0,160**			0,180**		
H.3.1	0,080**			0,100**			0,110**			0,120**			0,130**			0,150**			0,170**		
O.1.1	0,180	0,120	0,090	0,230	0,150	0,110	0,250	0,160	0,120	0,310	0,180	0,130	0,350	0,230	0,150	0,380	0,250	0,170	0,430	0,280	0,19
O.1.2	0,170	0,110	0,080	0,210	0,140	0,100	0,230	0,150	0,110	0,280	0,160	0,120	0,320	0,210	0,140	0,350	0,230	0,150	0,390	0,260	0,17
O.2.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
O.2.2	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
O.3.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08

Ø DC (mm) = 8,0	10,0	12,0	14,0	16,0	18,0	20,0–25,0
a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm
f_z (mm)						
0,110***	0,130***	0,150***	0,170***	0,190***	0,210***	0,230***

Plunging angle for ramping and helical milling: 3°

Feed rate guide values for ball nosed and torus cutters on → **Page 486**

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Depths of Cut Reference Values – Milling Cutters – extra long

Index	$a_{p\,max.}$ x DC	Ø DC (mm) = 2,5		3,0		$a_{p\,max.}$ x DC	4,0		5,0		6,0		8,0		10,0		12,0	
		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
		f_z (mm)					f_z (mm)											
P.1.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,052	0,034	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.2	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.3	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.4	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.5	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.2.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.2.2	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.2.3	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.2.4	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.3.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.3.2	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.3.3	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.4.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
P.4.2	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.1.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.2.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.3.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
K.1.1	0,6	0,015	0,010	0,029	0,019	1,0	0,039	0,025	0,048	0,032	0,058	0,038	0,080	0,050	0,100	0,060	0,110	0,070
K.1.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.2.1	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.2.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.3.1	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.3.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
N.1.1	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.1.2	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.1	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.2	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.3	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.3.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.3.2	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.3.3	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.4.1	0,6	0,020	0,013	0,038	0,025	1,0	0,050	0,033	0,063	0,041	0,076	0,049	0,100	0,070	0,130	0,080	0,140	0,090
S.1.1	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.1.2	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.2.1	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,060	0,040	0,070	0,050	0,080	0,050
S.2.2	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.2.3	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,060	0,040	0,070	0,050	0,080	0,050
S.3.1	0,3	0,013	0,009	0,024	0,016	0,5	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
S.3.2	0,3	0,014	0,009	0,026	0,017	0,5	0,035	0,023	0,044	0,029	0,052	0,034	0,070	0,050	0,090	0,060	0,100	0,060
S.3.3	0,3	0,014	0,009	0,026	0,017	0,5	0,035	0,023	0,044	0,029	0,052	0,034	0,070	0,050	0,090	0,060	0,100	0,060
H.1.1	0,3*	0,012**		0,022**		0,5*	0,029**		0,037**		0,044**		0,060**		0,070**		0,080**	
H.1.2	0,3*	0,011**		0,020**		0,5*	0,027**		0,034**		0,041**		0,050**		0,070**		0,080**	
H.1.3	0,3*	0,010**		0,018**		0,5*	0,024**		0,030**		0,036**		0,050**		0,060**		0,070**	
H.1.4	0,3*	0,008**		0,016**		0,5*	0,021**		0,026**		0,031**		0,040**		0,050**		0,060**	
H.2.1	0,3*	0,013**		0,024**		0,5*	0,033**		0,041**		0,049**		0,070**		0,080**		0,090**	
H.3.1	0,3*	0,012**		0,022**		0,5*	0,029**		0,037**		0,044**		0,060**		0,070**		0,080**	
O.1.1	0,6	0,034	0,022	0,064	0,042	1,0	0,085	0,056	0,107	0,070	0,128	0,084	0,170	0,110	0,210	0,140	0,230	0,150
O.1.2	0,6	0,031	0,020	0,058	0,038	1,0	0,077	0,051	0,097	0,063	0,116	0,076	0,160	0,100	0,190	0,130	0,210	0,140
O.2.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
O.2.2	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
O.3.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070

* = Trimming and trochoidal slot milling

** = With an a_e = 0.1xDC

Depths of cut reference values – Finish milling, extra long

$a_{p\,max.}$ x DC	Ø DC (mm) = 2,5	3,0	$a_{p\,max.}$ x DC	4,0	5,0	6,0	8,0	10,0	12,0
	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm		a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm
	f_z (mm)			f_z (mm)					
0,7			0,7	0,080***	0,090***	0,100***	0,110***	0,130***	0,150***

*** = With an a_p of 1.5 x DC multiply the f_z by 0.75

Cutting data for Micro-Mini cutters for milling with diameter < 2.5 mm → v_c/f_z Page 432–439

Index	Ø DC (mm) = 14,0		16,0		18,0		20,0–25,0	
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
	f_z (mm)							
P.1.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.2	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.3	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.4	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.5	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.2.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.2.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.2.3	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.2.4	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.3.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.3.2	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.3.3	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.4.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
P.4.2	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.1.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.2.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.3.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
K.1.1	0,120	0,080	0,130	0,090	0,150	0,100	0,160	0,110
K.1.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.2.1	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.2.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.3.1	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.3.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
N.1.1	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.1.2	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.1	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.2	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.3	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.3.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.3.2	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.3.3	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.4.1	0,150	0,100	0,170	0,110	0,190	0,120	0,210	0,140
S.1.1	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.1.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.2.1	0,090	0,060	0,100	0,070	0,110	0,070	0,120	0,080
S.2.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.2.3	0,090	0,060	0,100	0,070	0,110	0,070	0,120	0,080
S.3.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
S.3.2	0,110	0,070	0,120	0,080	0,130	0,090	0,150	0,100
S.3.3	0,110	0,070	0,120	0,080	0,130	0,090	0,150	0,100
H.1.1	0,090**		0,100**		0,110**		0,120**	
H.1.2	0,080**		0,090**		0,100**		0,110**	
H.1.3	0,070**		0,080**		0,090**		0,100**	
H.1.4	0,060**		0,070**		0,080**		0,090**	
H.2.1	0,100**		0,110**		0,120**		0,140**	
H.3.1	0,090**		0,100**		0,110**		0,120**	
O.1.1	0,260	0,170	0,290	0,190	0,320	0,210	0,360	0,230
O.1.2	0,230	0,150	0,260	0,170	0,290	0,190	0,330	0,210
O.2.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
O.2.2	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
O.3.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100

	Ø DC (mm) = 14,0	16,0	18,0	20,0–25,0
	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm	a_e 0,2–0,3 mm
	f_z (mm)			
	0,170***	0,190***	0,210***	0,230***

Plunging angle for ramping and helical milling: 3°

Feed rate guide values for ball nosed and torus cutters on → **Page 486**

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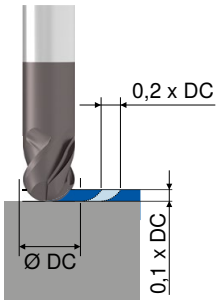
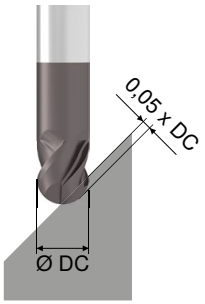
Feedrate for machining in steel, iron and non-ferrous materials with torus and ball nosed end mills

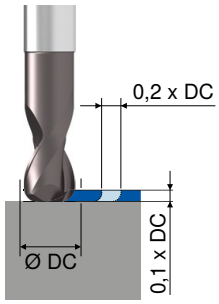
Ball nose end milling cutters



Ball Nosed and Torus Cutters



Torus end milling cutters



Ø DC mm	f_z mm	f_z mm	f_z mm
2	0,015	0,010	0,010
3	0,030	0,020	0,015
4	0,040	0,030	0,020
5	0,060	0,050	0,030
6	0,070	0,060	0,050
8	0,100	0,080	0,070
10	0,120	0,100	0,080
12	0,150	0,120	0,100
16	0,180	0,150	0,120
18	0,200	0,180	0,140
20	0,220	0,200	0,150

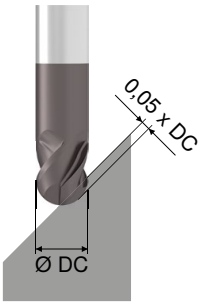
The feed should be reduced by 10–20% for uncoated tools.

Feedrates for the machining of hardened materials with Ti1000 coated torus and ball nosed cutters

Ball Nosed and Torus Cutters

Hardness = 40–60 HRC

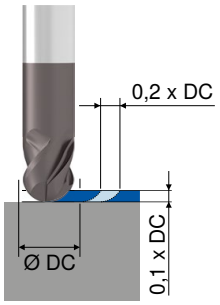
v_c = 80 -120 m/min



Ball Nosed and Torus Cutters

Hardness = 40–60 HRC

v_c = 80 -120 m/min



Ø DC mm	f_z mm	f_z mm
2	0,005	0,005
3	0,015	0,010
4	0,030	0,015
5	0,050	0,020
6	0,060	0,030
8	0,070	0,035
10	0,080	0,040
12	0,080	0,050
16	0,100	0,080

Trochoidal Milling

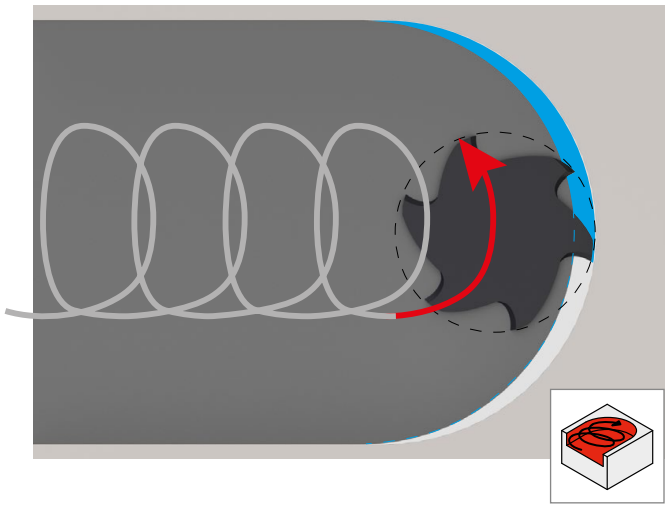
Due to the trochoidal milling process, large depths of cut are also possible on unstable and weak machines.

Depending on the tensile strength of the material, the radial infeed is 5–20% of the cutting edge diameter.
As trochoidal milling is a plain milling process, the forces that occur are lower.

When trochoidal milling a slot, the milling cutter diameter should be a maximum of 70% of the slot width.
Example: Slot 20 mm x 70% = 14 mm
A Ø 14 mm milling cutter would be the perfect tool.

Advantages/Benefits

- ▲ Reduced tool wear
- ▲ Reduced cycle time
- ▲ Exploiting the full length of the cutting edge
- ▲ Reduced cutting pressure



Most CAM providers offer an application for trochoidal milling.
Our recommendations for this application are as follows:

Material	Depth of Cut	Radial Infeed	Feed rate Correction Factor	v_c Correction Factor
Steel	2xDC	0,05xD	3,5	1,6
	2xDC	0,10xD	2,5	1,3
Stainless steel	2xDC	0,05xD	3,5	1,4
	2xDC	0,10xD	2,5	1,2
Cast iron	2xDC	0,05xD	3,5	1,6
	2xDC	0,10xD	2,5	1,3
Non-ferrous metals	2xDC	0,05xD	3,5	1,8
	2xDC	0,10xD	2,5	1,4
	2xDC	0,20xD	1,5	1,2
Heat-resistant	2xDC	0,05xD	2,5	1,4
	2xDC	0,10xD	2,0	1,2
Tempered steel	2xDC	0,02xD	2,5	1,5
	2xDC	0,05xD	2,0	1,3

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Please note that the indicated values may require reducing due to the component design, machine rigidity and machine dynamics.
In optimal conditions, the values can also be increased.

Technical references

Feedrate Adjustment

If the speed stated in the tables cannot be achieved by the machine spindle you are using, reduce the feed rate as a percentage of the speed.

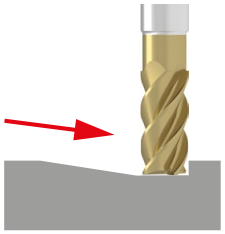
Example:
required according to table = n 50,000 rpm and v_f 1000 mm/min,
available machine speed = 40,000 rpm

Calculation of the feed rate to be entered:
40,000 rpm / 50,000 rpm *100= corresponds to 80%
1000 mm/min * 80% = 800 mm/min

The feed rate to be entered = **800 mm/min.**

Angled ramping with solid carbide cutters

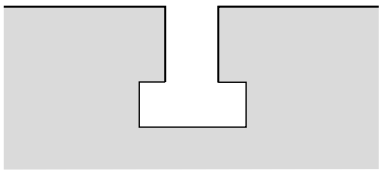
Angled ramping with solid carbide cutters is possible at an angle of 2° to 10° depending on the cutter type.
A protective edge chamfer or corner radius is an advantage.



Recommended plunging angle for solid carbide milling cutter:

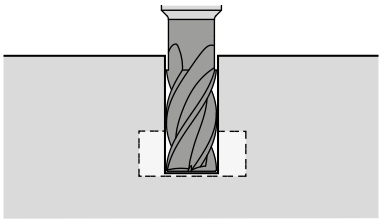
- ▲ Plunging angle up to ≤ 3 cutting edges → 6°–10°
- ▲ Plunging angle for 4 cutting edges → 3°–6°
- ▲ Plunging angle for 5 cutting edges → 2°–3°
- ▲ Plunging angle for > 5 cutting edges → only possible to a limited extent

Preparation for T-slot milling cutter



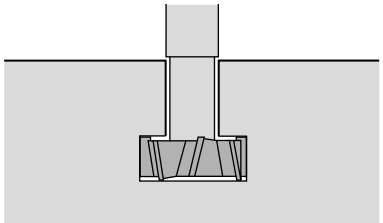
To produce a T-slot with the solid carbide T-slot milling cutter, proceed as follows:

1



Rough-mill the slot up to approx. 0.5 mm above the bottom.
Bottom corresponds to the finished dimension of the T-slot.
The slot width should be milled to the finished dimension during this step.

2



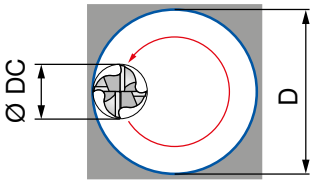
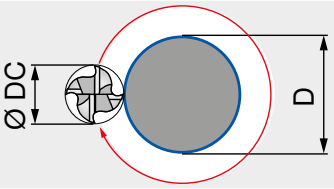
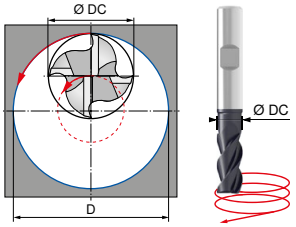
Then finish milling the slot with the T-slot milling cutter.
Reduce the feed by 50% when entering the material

General formula for calculating the cutting parameters

Designation	Abbreviation	Unit	Formula	Example	
Number of revolutions	**n**	**min^{-1}**	$n = \frac{v_c \times 1000}{DC \times \pi}$	v_c = 25 m/min DC = 20 mm	$n = \frac{25 \times 1000}{20 \times \pi}$ = 398 min^{-1}
Cutting speed	**v_c**	**m/min**	$v_c = \frac{DC \times \pi \times n}{1000}$	n = 400 min^{-1} DC = 20 mm	$v_c = \frac{20 \times \pi \times 400}{1000}$ = 25 m/min
Feed per tooth	**f_z**	**mm**	$f_z = \frac{v_f}{ZEFP \times n}$	v_f = 320mm/min. n = 400 min^{-1} ZEFP = 4	$f_z = \frac{320}{4 \times 400}$ = 0,2 mm
Feed per revolution	**f**	**mm/rev.**	$f = f_z \times ZEFP$	f_z = 0,2 mm ZEFP = 4	f = 0,2 x 4 = 0,8 mm
Feed rate	**v_f**	**mm/min.**	$v_f = f_z \times ZEFP \times n$	f_z = 0,2 mm ZEFP = 4 n = 400 min^{-1}	v_f = 0,2 x 4 x 400 = 320 mm/min.
Average chip thickness	**h_m**	**mm**	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$	f_z = 0,2 mm a_e = 0,3 mm DC = 20 mm	h_m = 0,2 x $\sqrt{\frac{0,3}{20}}$ = 0,024 mm

ZEFP = Number of flutes
a_e = cutting width

Calculation of the feed rate on the midpoint path of the milling cutter (v_{fM})

Designation	Abbreviation	Unit	Formula	Example
Internal contour	**v_{fM}**	**mm/min.**	$v_{fM} = \frac{v_f \times (D - DC)}{D}$	
Outside profile	**v_{fM}**	**mm/min.**	$v_{fM} = \frac{v_f \times (D + DC)}{D}$	
Helical ramping	**v_{fM}**	**mm/min.**	$v_{fM} = \frac{n \times f_z \times ZEFP \times (D - D_C)}{D}$	

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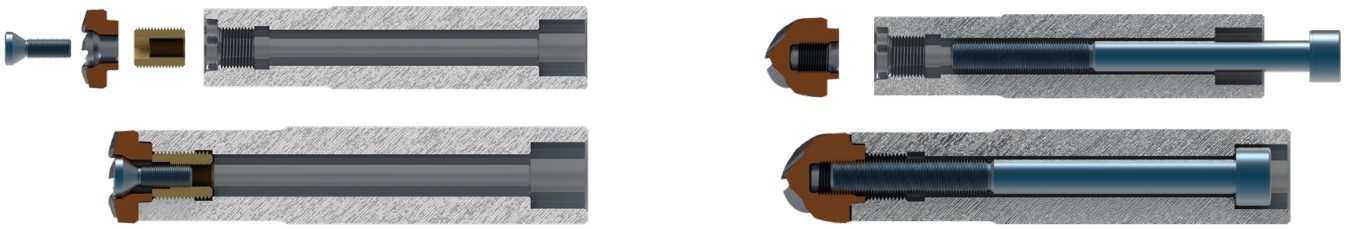
Assembly instructions

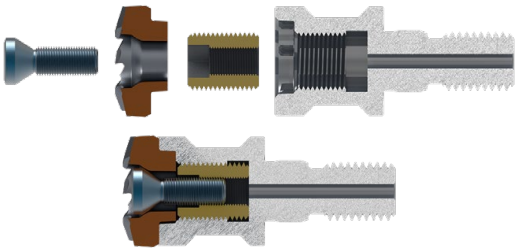
Image of MultiLock cylindrical shank adapter assembly



▲ The cylindrical shank adapter can be used universally. In this case, the MultiLock high-feed and torus cutters are clamped from the front using a threaded bush and clamping screw. The MultiLock radius milling and deburring cutters are clamped via the shank using a cylindrical screw.

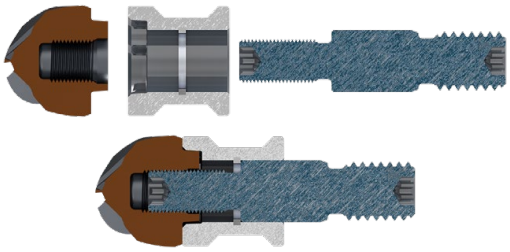
Image of MultiLock screw-in adapter assembly

Type A



▲ The type A screw-in adapter must be used for MultiLock high-feed and torus cutters. These are clamped from the front using a threaded bush and clamping screw.

Type B



▲ The type B screw-in adapter has two parts and must be used for MultiLock radius milling and deburring cutters. These are tensioned from the rear using a clamping screw. The clamping screw is simultaneously used for screwing in the adapter.

Detailed assembly instructions are enclosed with the respective holders. You can also find this in our online shop.

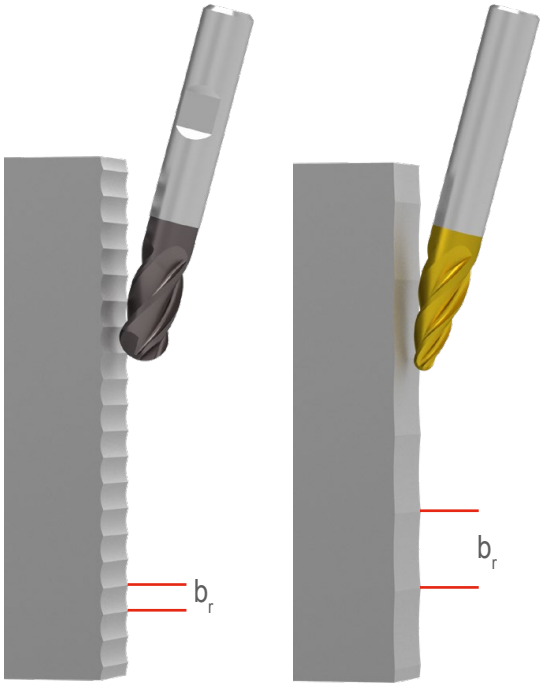
Comparison – ball nose end milling cutters vs. 3D Finish

3D Finish

- Radius does not depend on the tool diameter
- High depths of cut possible owing to the large radius
- Tools with a large radius and small shank diameter are more economical as the carbide content is lower, e.g. diameter 16 mm, radius 1500 mm

Ball nose end milling cutters

- Radius depends on the tool diameter
- Only low widths of cut are possible; linked to the small radius
- Tools with a large diameter/radius are expensive due to the high carbide content, e.g. diameter 16 mm radius 8 mm



Formulae for calculations:

$$b_r = 2 \times \sqrt{R_{th} \times (r \times 2 - R_{th})}$$

$$R_{th} = r - \sqrt{\frac{(r \times 2)^2 - b_r^2}{4}}$$

$$R_a \simeq 0{,}1 \times R_{th}$$

$$R_{th} \simeq R_a / 0{,}1$$

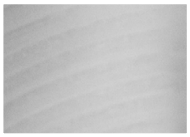
Result

Required surface quality = R_a 0,4
$R_{th} \simeq 0{,}4 / 0{,}1 \simeq 4\ \mu m = 0{,}004$ mm

Ball nose end milling cutters
Diameter 16 mm, radius 8 mm
$b_r = 2 \times \sqrt{0{,}004 \times (8 \times 2 - 0{,}004)}$
b_r = 0,51 mm



3D Finish
Diameter 16 mm, radius 1500 mm
$b_r = 2 \times \sqrt{0{,}004 \times (1500 \times 2 - 0{,}004)}$
b_r = 6,93 mm



Key

R_{th} = Theoretical roughness
r = Radius
R_a = Average roughness
b_r = Step down

Application information



3D Finish – barrel shape

- Suitable for easily accessible areas

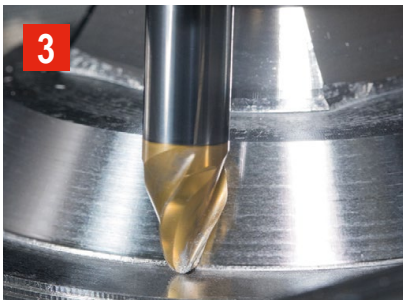




3D Finish – oval shape

- Suitable for easily accessible flanks
- Not suitable for deep areas

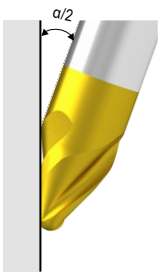




3D Finish – taper shape

- Suitable for steep walls and deep cavities
- α/2 is the angle to the surface to be used
- If the surface exhibits a tilt angle of α/2, the surface can also be machined on three axes



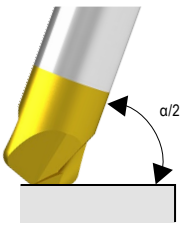


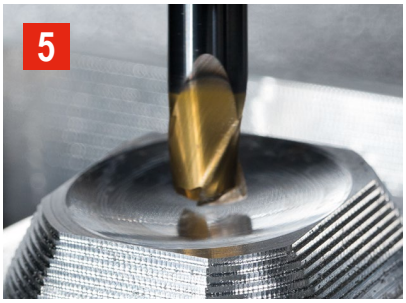


3D Finish – taper shape

- Suitable for flat areas
- α/2 is the angle to the surface to be used
- If the surface exhibits a tilt angle of α/2, the surface can also be machined on three axes



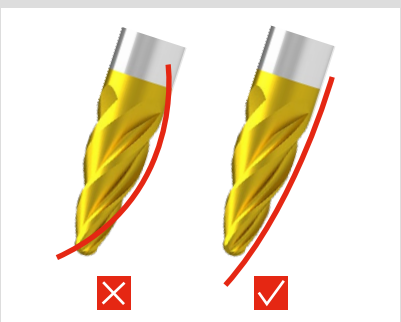




3D Finish – lens shape

- Suitable for flat areas



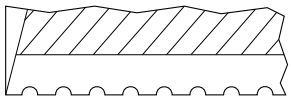
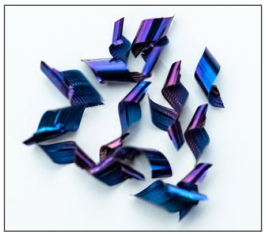
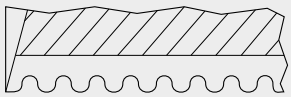


Please note:

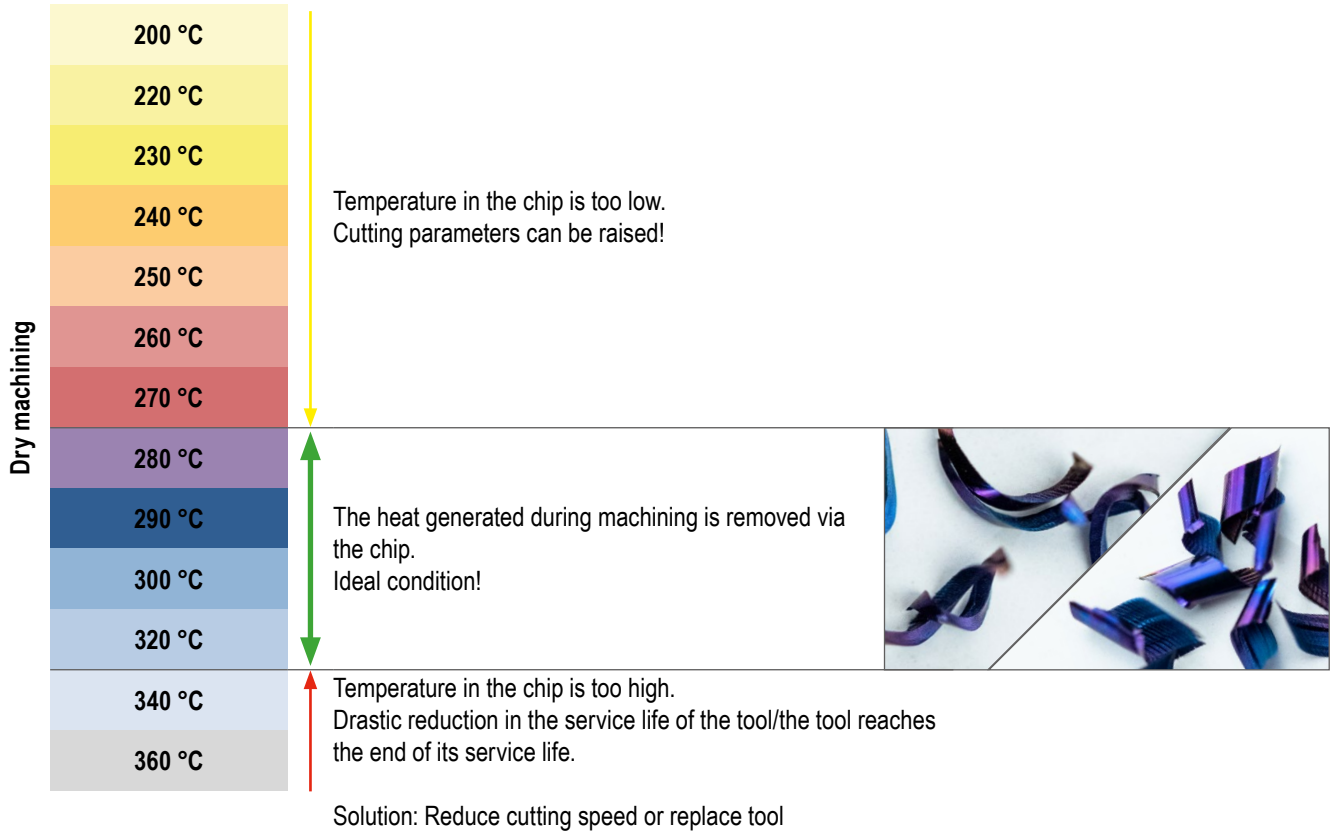
Note that the curvature of the component should be greater than the curvature of the tool.

Check whether your programming system supports the tool geometry of the 3D Finish and can work with it.

Differences between the milling cutter types

Designation	Type	Shape of the chip breaker	Application description	Chip shape
Rough and finish milling cutters	WF NF HF		▲ High chip volume, even on less powerful machines ▲ Surface quality mostly sufficient ▲ Lower cutting pressure compared to smooth-edged milling cutters ▲ Finish machining not needed	
Rough milling cutters	WR NR HR		▲ Produces very small and short chips ▲ Problem-solver in unstable conditions ▲ High chip volume, even on the weakest machines ▲ Exceptionally well suited to full slot milling ▲ Additional finish machining needed ▲ High feeds possible	

Temperature scale for chips when dry machining steel



14

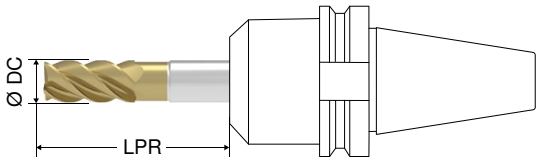
Tips for Tool Selection

Rake and helix angles combined with the coating are decisive factors for the operational area.

Characteristics	Benefits
Helix angle with slow spiral	
▲ For materials with high tensile strength	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For slot milling, pocket milling, rough milling	
Helix angle with quick spiral	
▲ For soft steels, non ferrous metals, etc.	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ Typical for finishing processes	
Small rake angles are applied	
▲ For hard, brittle materials	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For rough machining	
Large rake angles are applied	
▲ For soft materials	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ For finishing	▲ Favorable chip flow
	▲ Low tendency to stick

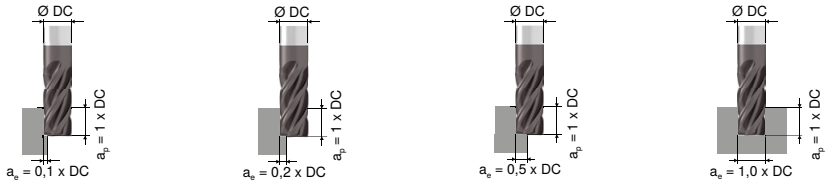
Correction factor for solid carbide milling cutters

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the overhang length (LPR)



Length					
Overhang length (LPR)	1,5 x DC	4 x DC	8 x DC	12 x DC	> 12 x DC
Factor for v_c (Kf v_c)	1,0	1,0	0,9	0,85	0,7
Factor for f_z (Kf f_z)	1,2	1,0	0,8	0,7	0,5

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the cutting depth (a_p) and cutting width (a_e)



Factor for v_c (Kf v_c)	1,3	1,1	1,0	0,85
Factor for f_z (Kf f_z)	1,5	1,3	1,0	0,8

Calculation aid for copy milling

Theoretical surface roughness (R_{th}) and step over (b_r)

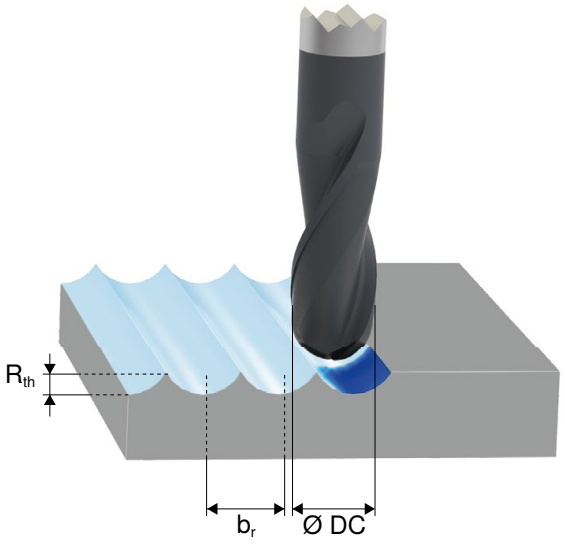
$$R_{th} = r - \sqrt{\frac{(r \times 2)^2 - b_r^2}{4}}$$

$$b_r = 2 \times \sqrt{R_{th} \times (r \times 2 - R_{th})}$$

$$R_{th} \simeq R_a / 0{,}1$$

$$R_a \simeq 0{,}1 \times R_{th}$$

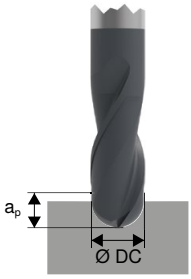
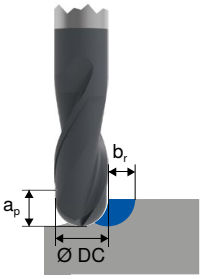
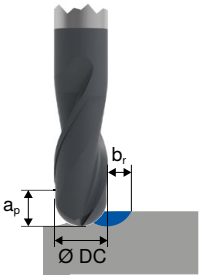
When copy milling, in order to achieve as smooth a surface as possible, the step over b_r should be adapted to the cutter diameter DC. The smaller the cutter diameter DC is, the smaller the step over b_r must be.



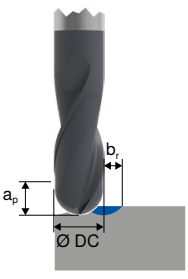
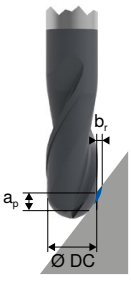
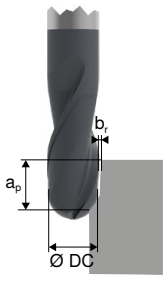
RPM correction factor (Kf n) for copy milling

$$n = \frac{v_c \times 1000}{DC \times \pi} \times Kf\,n$$

Rough machining

	Peripheral and ball nose copy milling	Ball nose copy milling	
			
Axial milling depth a_p	0,5 x DC	> 0,5 x DC	0,2 x DC – 0,5 x DC
Step over b_r	1 x DC	0,2 x DC – 0,5 x DC	0,2 x DC – 0,5 x DC
Correction factor (Kf n)	1	1	1,1

Finish milling

	Ball nose copy milling		
			
Axial milling depth a_p	< 0,2 x DC	0,2 x DC – 0,5 x DC	> 0,5 x DC
Step over b_r	< 0,2 x DC	< 0,2 x DC	< 0,2 x DC
Correction factor (Kf n)	2	1,3	1

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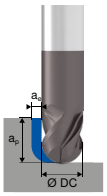
Calculation aid for copy milling

For peripheral milling or ball nosed copy milling at cutting depths of $\mathbf{a_p} \geq 0.5 \times DC$ and $\mathbf{a_e}$ = **0.2 to 0.5 x DC** the rpm can be calculated with the following fomula:

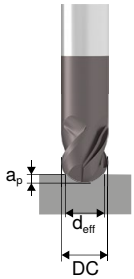
$$n = \frac{v_C \times 1000}{DC \times \pi}$$



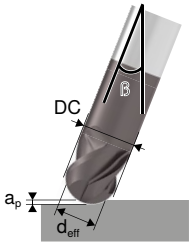
When ball milling the effective milling diameter $\mathbf{d_{eff.}}$ must be determined using the following formula:

Ball nose milling cutters

$$d_{eff.} = 2 \times \sqrt{a_p \times (DC - a_p)}$$

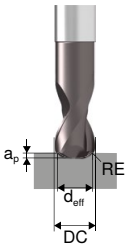


$$d_{eff.} = DC \times \sin\left(\beta \pm \arccos\left(\frac{DC - 2a_p}{DC}\right)\right)$$



Torus end milling cutters

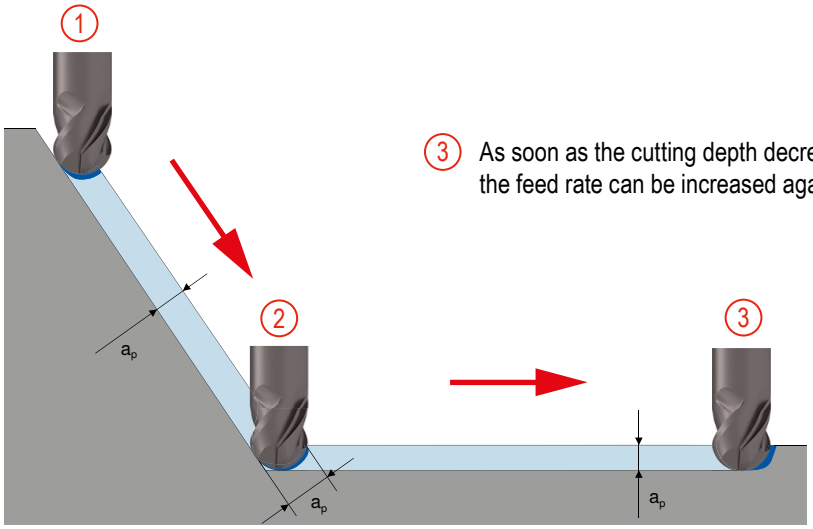
$$d_{eff.} = (DC - 2RE) + 2 \times \sqrt{a_p \times (2RE - a_p)}$$



Information concerning plunge and draw milling

(1) When machining the profile flanks relatively high feed rates are possible as the cutting depth is relatively low (area highlighted in blue).

(2) A large increase in cutting depth occurs when the base of the profile is reached. Here the feed rate must be reduced as othwerwise tool breakage can occur due to vibrations, misalignment or chattering.



(3) As soon as the cutting depth decreases during the machining of the profile base, the feed rate can be increased again.

Rule:
The steeper the angle, the lower the feed rate.
The shallower the angle, the larger the feed rate.

When plunge or draw milling dies, the feed rate has to be adapted to the various milling positions. Otherwise the cutting edge can be damaged due to overload (vibrations, misalignment or chattering).

Version description

CCR AL	Circular Cutter – Non-ferrous metals
CCR H	Circular Cutter – Tempered steel
CCR Ti	Circular Cutter – Heat-resistant alloys
CCR UNI	Circular Cutter – Universal
CCR VA	Circular Cutter – stainless steels
H	For high-strength steels and tempered materials
HR	For high-strength steels and tempered materials – with roughing profile
N	For machining steel and cast materials, as well as stainless steels
NR	For machining steel and cast materials, as well as stainless steels – with roughing profile
NTR	For machining steel and cast materials, as well as stainless steels – with trapezoidal chip breakers
SC UNI	Soft Cut – Universal
SC NR	Soft Cut – with round cord profile
W	For soft materials and non-ferrous metals (aluminium, copper, brass)
WF	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing-finishing profile
WR	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing profile

MonsterMill

FRP	Fibre Cutter
FRP CR	Fibre cutter – with length-independent compression zone
HCR	Hard Cutter
ICR	Inox Cutter
MCR	Multi Cutter
NCR	Nickel Alloy Cutter
PCR ALU	Plunging Cutter – Non-ferrous metals
PCR UNI	Plunging Cutter – Universal
SCR	Steel Cutter
TCR	Titanium Cutter

Deburring cutters

KEL	Round cone (shape L)
KSJ	Conical 60" (shape J)
KSK	Conical 90" (shape K)
KUD	Spherical (shape D)
RBF	Round arch (shape F)
SKM	Tapered cone (shape M)
SPG	Ogival (shape G)
TRE	Droplet (shape E)
WKN	Angular without spur gearing (shape N)
WRC	Round roller (shape C)
ZYA	Cylindrical without spur gearing (shape A)

Coatings

APA72S
- AlCrN multilayer coating
- $HV_{0.05}$ = 3500
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1100 °C

APB72S
- Special nanolayer coating
- $HV_{0.05}$ = 3300
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 900 °C

APX72S
- Special nanolayer coating
- $HV_{0.05}$ = 3800
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 1100 °C

CTC5240
- TiB2-based coating
- HIT 43 GPa ~ 4300 $HV_{0.05}$
- Friction value against steel 0.3
- Maximum application temperature 1000 °C

CTPX225
- AlTiN-based coating
- HIT 35 GPa ~ 3500 $HV_{0.05}$
- Friction value against steel 0.5
- Maximum application temperature 1000 °C

DIAMOND
- Diamond monolayer coating
- $HV_{0.025}$ = 10,000
- Coefficient of friction (against steel) = 0.2
- Maximum application temperature: 700 °C

DLC
- Diamond-like carbon coating
- Specially for machining non-ferrous metals
- Maximum application temperature: 400 °C

DPA52S
- Special nanolayer coating
- $HV_{0.05}$ = 3400
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1100 °C

DPA72S
- Special nanolayer coating
- $HV_{0.05}$ = 3200
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1000 °C

DPB72S
- TiAlCrN multilayer coating
- $HV_{0.05}$ = 3200
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1000 °C

DPX22S
- TiSiXN multilayer coating
- Layer hardness: H_{IT} [GPa] 38
- Maximum application temperature: 1100 °C

DPX52S
- TiSiN multilayer coating
- $HV_{0.05}$ = 3500
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 1000 °C

DPX62S
- TiAlN multilayer coating
- $HV_{0.05}$ = 3800
- Coefficient of friction (against steel) = 0.4
- Maximum application temperature: 800 °C

DPX62U
- Special TiAlN coating
- $HV_{0.05}$ = 4000
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 1150 °C

DPX72S
- Special multilayer coating
- $HV_{0.05}$ = 3400
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 900 °C

Ti28
- Ti multilayer coating
- $HV_{0.05}$ = 2800
- Coefficient of friction (against steel) = 0.1
- Maximum application temperature: 500 °C

Ti40
- Ti monolayer coating
- $HV_{0.05}$ = 4000
- Maximum application temperature: 900 °C

Ti400
- Ti multilayer coating
- $HV_{0.05}$ = 3500
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 400 °C

Ti1000
- Ti monolayer coating
- $HV_{0.05}$ = 3500
- Coefficient of friction (against steel) = 0.3
- Maximum application temperature: 800 °C

Ti1001
- Ti monolayer coating
- $HV_{0.05}$ = 3500
- Coefficient of friction (against steel) = 0.6
- Maximum application temperature: 800 °C

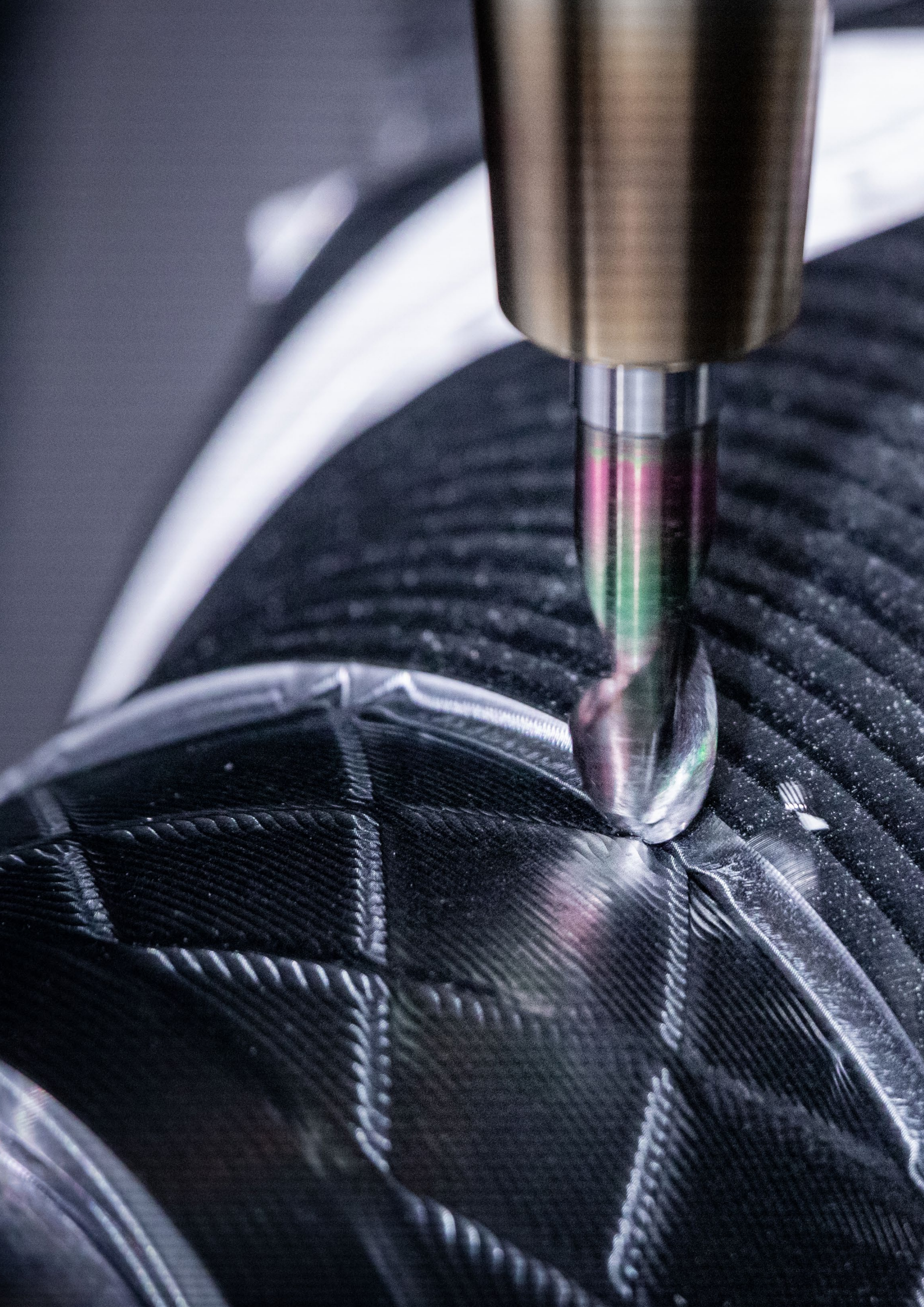
Ti1050
- Ti multilayer coating
- $HV_{0.005}$ = 3300
- Coefficient of friction (against steel) = 0.3-0.5
- Maximum application temperature: 900 °C

Ti1100
- Ti multilayer coating
- $HV_{0.05}$ = 3200
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1100 °C

Ti1200
- Ti nanolayer coating
- Maximum application temperature: 1100-1200 °C

Ti1500
- Ti nanolayer coating
- $HV_{0.05}$ = 3400
- Coefficient of friction (against steel) = 0.7
- Maximum application temperature: 900 °C

Ti2000
- Ti multilayer coating
- $HV_{0.05}$ = 3500
- Coefficient of friction (against steel) = 0.5
- Maximum application temperature: 900 °C



New products for machining technicians

NEW

MaxiMill Slot-SX



→ Page 126–141

New side and face milling system with SX inserts from SX grooving system

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NEW

MaxiMill 242



→ Page 90

Update to chamfer milling cutter

NEW

MaxiMill 490



→ Page 78+80

Update to adjustable single angle milling cutter

NEW

CTPX715



New multi-range grade

NEW

MaxiMill 273-08



→ Page 35+36

NEW

MaxiMill 252



→ Page 115+116



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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CERATIZIT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

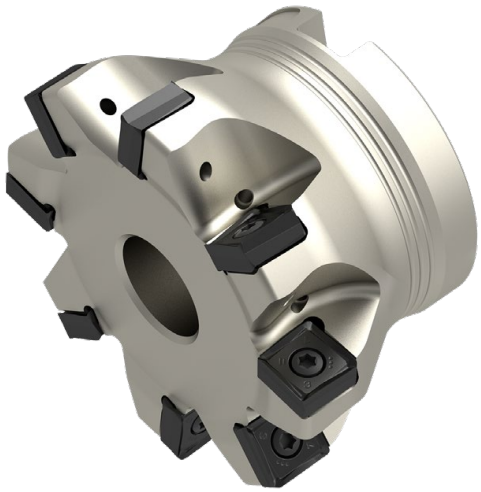
Symbol explanation


central internal coolant


lateral internal coolant



Cutting edge angle



ZNF = Number of flutes

● = **Main Application**

○ = Extended application

Application symbols


Face milling


Angled ramping


Helical plunging


Axial ramping


Plunge milling


Slot milling


Shoulder milling


Slot milling (45°)


Chamfer milling

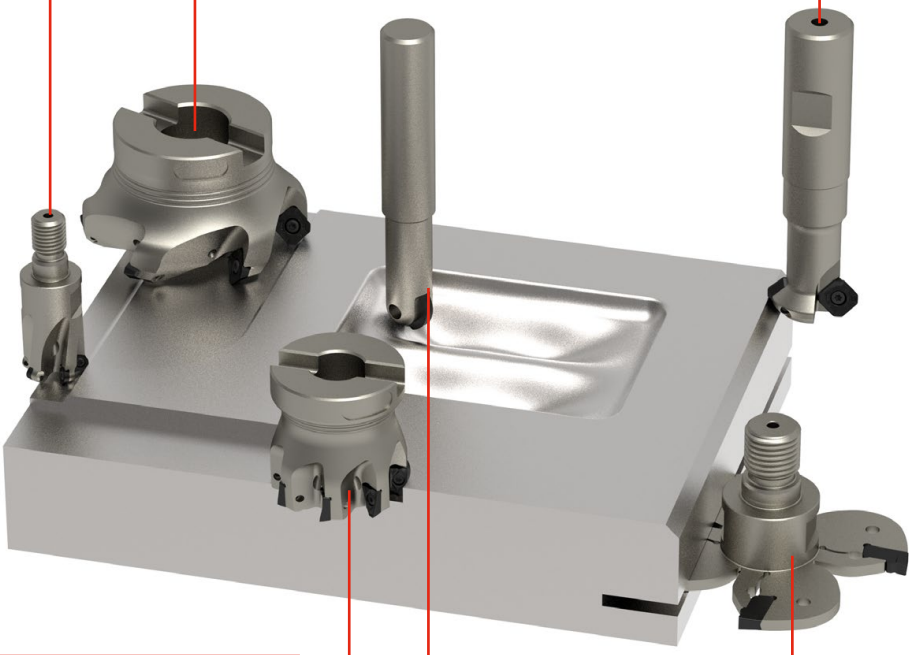

Free form milling

Toolfinder – Application Selection Guide

Form milling
→ System Selection:
10+11

Face milling
→ System Selection:
6+7

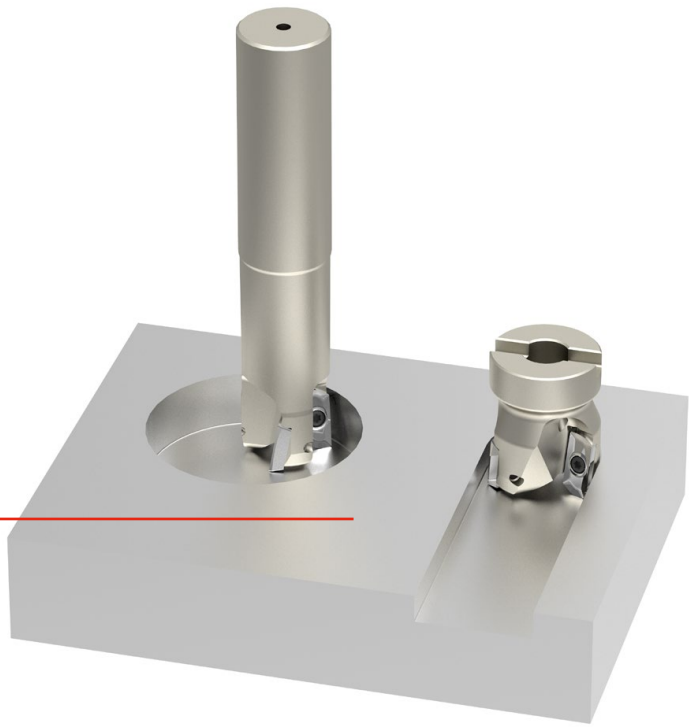
Chamfer/Angle milling cutters
→ System Selection:
12



Shoulder milling
→ System Selection:
8+9

Slot milling and saws
→ System Selection:
12

Form milling
→ System Selection:
10+11



HSC-/HPC-milling
→ System Selection:
8+9

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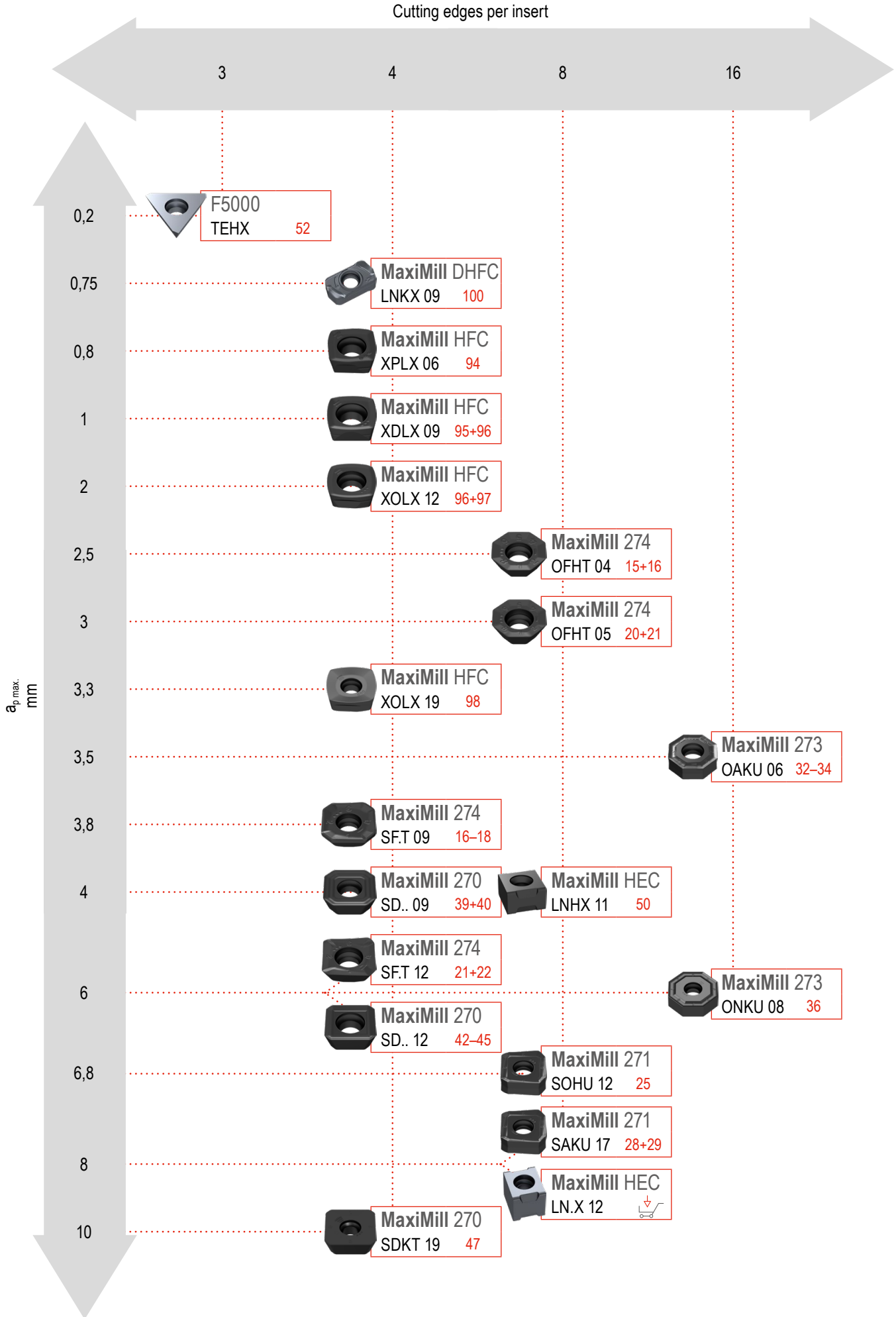
Toolfinder – Face Milling Cutters



Overview – Face Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill 274	**OFH.** 04.. / 05.. | **SF.T** 09.. / 12..	8 | 4	2,5–6	Ø 20–32	Ø 20–32	Ø 32–160	●	●	●	●	●		○	13–22
MaxiMill 271	**SOHU** 1204.. | **SAKU** 1706..	8	6,8 | 8,4		Ø 32–40	Ø 40–250	●	●	●		●			23–29
MaxiMill 273	**OAKU** 0605.. | **ONKU** 0806..	16	3,5 | 6			Ø 40–250	●	●	●		●			30–36
MaxiMill 270	**SD..** 0903.. / 1204.. / 19..	4	4–10		Ø 6–32	Ø 32–315	●	●	●	●	●			37–47
MaxiMill HEC	**LNHX** 1106..	8	4–8			Ø 50–160	●		●				○	48–50
MaxiMill HEC	**LN.X** 1210..	8	4–8			Ø 125–160		●						
F 5000	**TEHX** 16T3..	3	0,2			Ø 42–100	●	●	●			●		51+52
MaxiMill HFC	**X..X** 06.. / 09.. / 12.. / 19..	4	0,8–3,3	Ø 16–42	Ø 16–35	Ø 32–160	●	●	●		●			92–98
MaxiMill DHFC	**LNKX** 09..	4	0,75	Ø 16–42	Ø 16–20		●	●	●		○			99+100

Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

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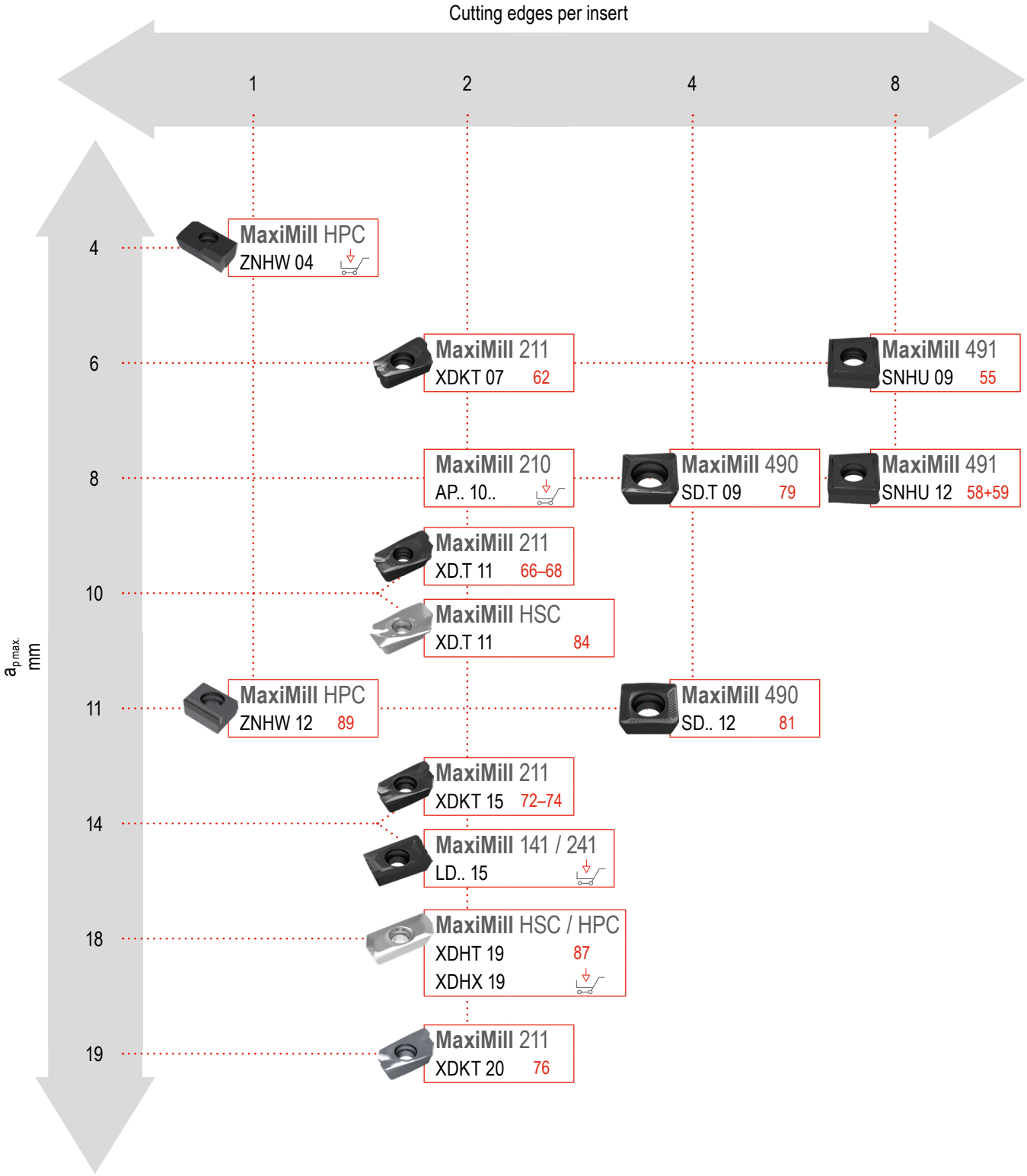
Toolfinder – shoulder milling



Overview – Shoulder Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill 491	**SNHU** 09T3.. / 1204..	8	6–8	 Ø 25–32	 Ø 25–32	 Ø 40–160	●	●	●	●	●		○	53–59
MaxiMill 211	**XD.T** 0703.. / 11T3.. / 1505.. / 2007..	2	6–19	 Ø 16–40	 Ø 10–40	 Ø 32–160	●	●	●	●	●	●	○	60–76
MaxiMill 211KN	**XD.T** 11T3.. / 1505.. / 2007..	2	27–75,5		 Ø 25–50	 Ø 40–80	●	●	●	●	●		○	65+71
MaxiMill 490	**SD..** 09T3.. / 1205..	4	8–11	 Ø 25–32	 Ø 25–32	 Ø 40–125	●	●	●	●	●		○	77
MaxiMill 490K	**SD..** 09T3..	4	41			 Ø 40–63	●	●	●	●	●		○	78
MaxiMill HSC	**XD..** 11T3.. / 1904..	2	10–18	 Ø 16–40	 Ø 16–32	 Ø 40–125		○	●				○	82–87
MaxiMill HPC	**XD..** 1904..	2	10–18		 Ø 22–32	 Ø 40–63	 Ø 25–50		○	●				○	
MaxiMill HPC	**ZNHW** 1205..	1	4–11			 Ø 40–315			●	●		○	○	88+89
MaxiMill HPC	**ZNHW** 04T3..	1	4–11	 Ø 20–40	 Ø 20–40				●	●		○	○	
MaxiMill 210	**AP..** 1003..	2	8			 Ø 40–80	●	●	●	●	●	●	○	

Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

This article can be found in our online shop at cuttingtools.ceratizit.com

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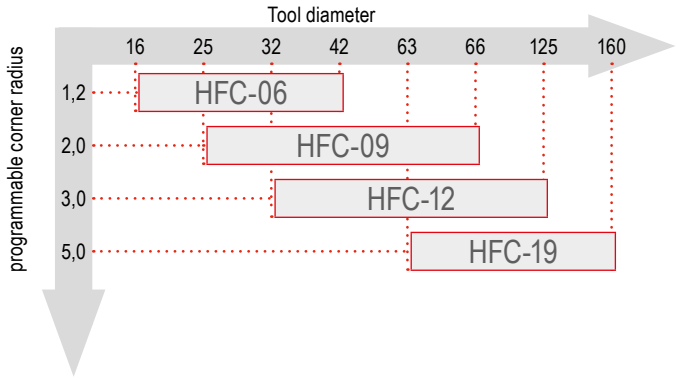
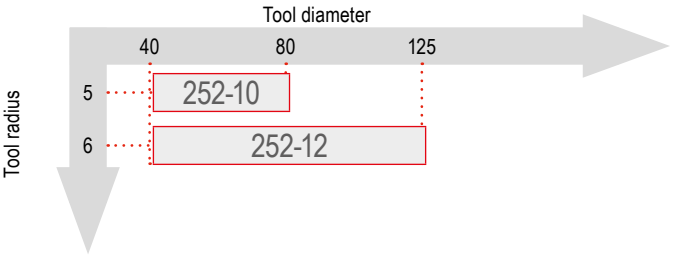
Toolfinder – form milling

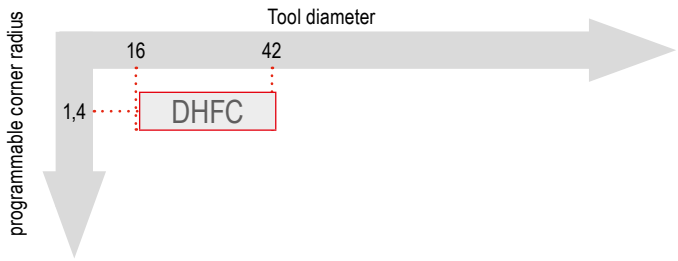
MaxiMill HFC 92–98



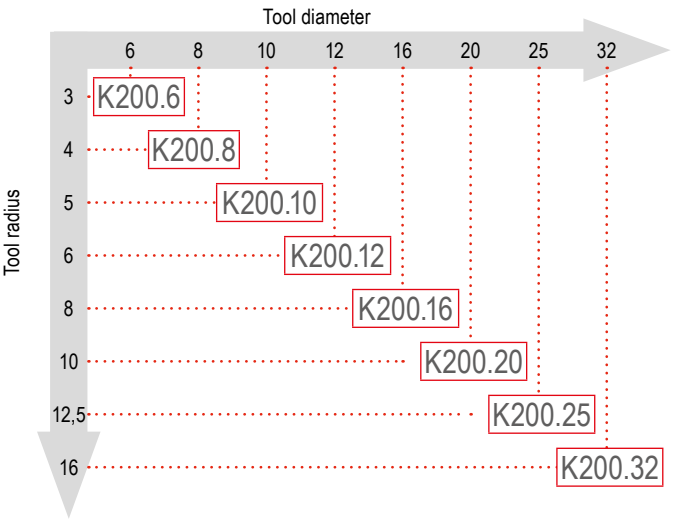
MaxiMill 252 115+116



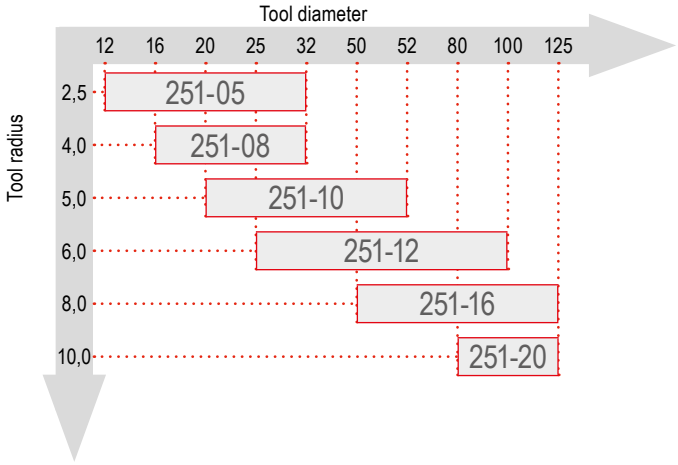
MaxiMill DHFC 99+100



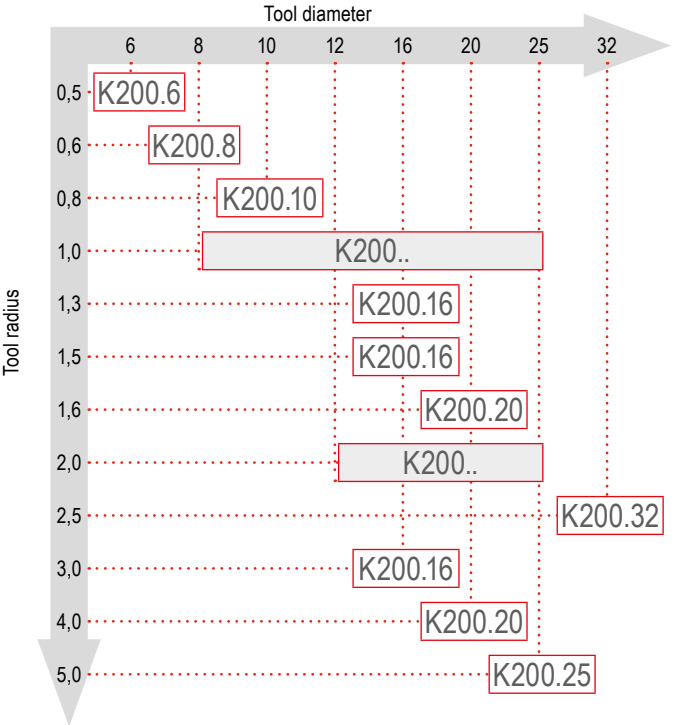
K200. Ball Nosed 117–121



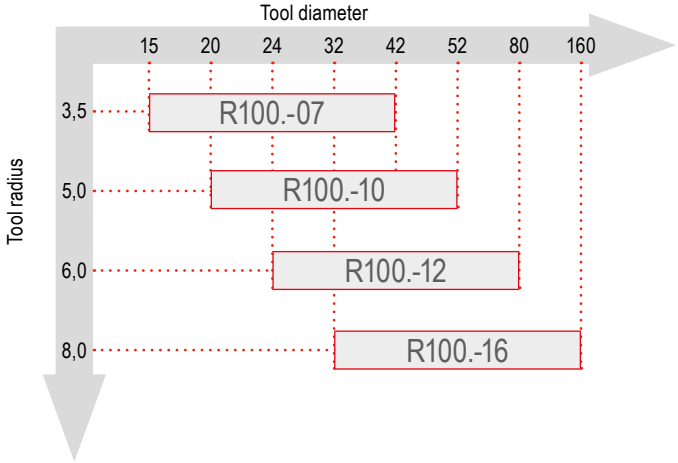
MaxiMill 251 RS 101–109



K200. Torus 122–125



R100. 110–114



Application range

Tool diameter

Overview – form milling

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill HFC	**X.LX** 06.. / 09.. / 12.. / 19..	4	0,8–3,3	Ø 16–42	Ø 16–35	Ø 32–160	●	●	●		●			92–98
MaxiMill DHFC	**LNKX** 09..	4	0,75	Ø 16–42	Ø 16–20		●	●	●		○			99+100
MaxiMill 251 RS	**R..X** 05.. / 08.. / 10.. / 12.. / 16.. / 20..	8	2,5–10	Ø 10–42	Ø 10–32	Ø 40–125	●	●	●	●	●		●	101–109
R100.	**RD.X** 07.. / 10.. / 12.. / 16..	8	5	Ø 15–42	Ø 15–20	Ø 42–160	●	●	●	●	●	●	○	110–114
MaxiMill 252	**RNHU** 10.. / 12..	8	3			Ø 40–125	●	●	○		●			115+116
K200. Ball Nosed	**RO.X** .... / **XOHX**	1	0,4–8	Ø 8–32	Ø 6–32		●	●	●	●	○	●	●	117–121
K200. Torus	**XO.X**	1	0,5–8	Ø 8–32	Ø 8–32		●	●	●	●	○	○	●	122–125

Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

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Overview – Chamfer / Angle Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm		Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill 272	**SD..** 0903..	4	4	 Ø 6–25		●	●	○	●	●			38–40
MaxiMill 242	**LD..** 1504..	2			 Ø 50–92	●	●	●	●	○		○	90+91
MaxiMill 490	**SD..** 09T3.. / 1205..	4	6–11	 Ø 20,1–31,5		●	●	●	●	●		○	78–81

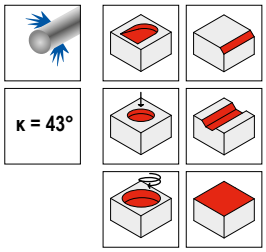
Additional diameters are available upon request.

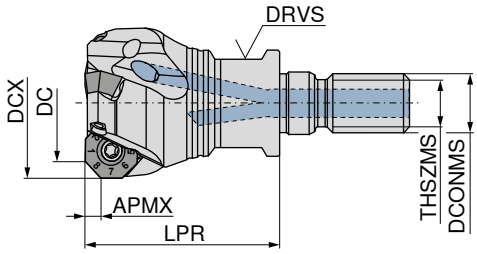
Overview – Saw cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill Slot-SX	**SX** E...	1	115	 Ø 63–100	 Ø 80–315		●	●	●	●	●		○	126–141
TX	**TX..** R/L	3	64		 Ø 80–160	 Ø 100–200	●	●	●	●	○		○	142–144

Additional diameters are available upon request.

MaxiMill – 274-04/-09 Screw in cutter

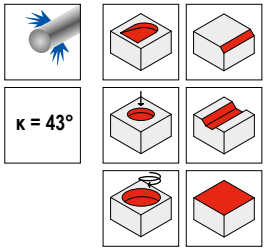


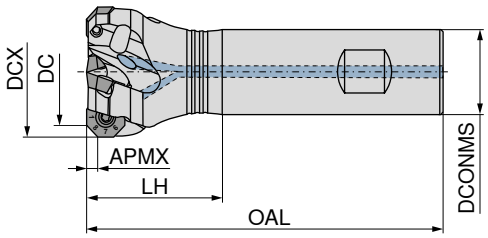




Designation	DC mm	DCX mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 742 ... £ 2B/40	
G274.20.R.03-09	20	25.8	3	3.8	35	M12	12.5	17	1,2	OF.. 0403 / SF.. 0903	324.69	020
G274.25.R.04-09	25	30.8	4	3.8	35	M12	12.5	17	1,2	OF.. 0403 / SF.. 0903	369.72	025
G274.32.R.05-09	32	37.9	5	3.8	35	M16	17.0	24	1,2	OF.. 0403 / SF.. 0903	415.02	032

MaxiMill – 274-04/-09 End milling cutter

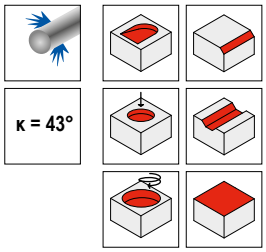


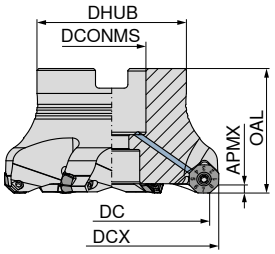


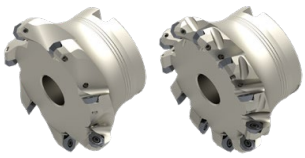


Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	50 743 ... £ 2B/40		50 743 ... £ 2B/40	
C274.20.R.03-09-A/B20-25	20	25.8	3	3.8	77	25	20	1,2	OF.. 0403 / SF.. 0903	324.69	020	324.69	120
C274.25.R.04-09-A/B20-32	25	30.8	4	3.8	84	32	20	1,2	OF.. 0403 / SF.. 0903	369.72	025	369.72	125
C274.32.R.05-09-A/B25-40	32	37.9	5	3.8	98	40	25	1,2	OF.. 0403 / SF.. 0903	415.02	032	415.02	132

MaxiMill – 274-04/-09 Shell mill



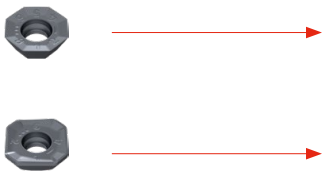




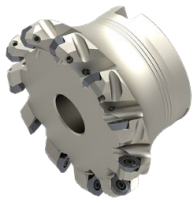
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	torque moment Nm	Insert	50 744 ... £ 2B/40		50 744 ... £ 2B/40	
A274.32.R.05-09	32	37.9	5	3.8	40	38	16	1,6	OF.. 0403 / SF.. 0903			415.02	**032**
A274.40.R.04-09	40	46.0	4	3.8	40	38	16	1,6	OF.. 0403 / SF.. 0903	415.02	**040**		
A274.40.R.06-09	40	46.0	6	3.8	40	38	16	1,6	OF.. 0403 / SF.. 0903			460.05	**140**
A274.50.R.05-09	50	55.9	5	3.8	40	48	22	1,6	OF.. 0403 / SF.. 0903	482.70	**050**		
A274.50.R.07-09	50	55.9	7	3.8	40	48	22	1,6	OF.. 0403 / SF.. 0903			505.46	**150**
A274.63.R.06-09	63	68.9	6	3.8	40	48	22	1,6	OF.. 0403 / SF.. 0903	550.63	**063**		
A274.63.R.09-09	63	68.9	9	3.8	40	48	22	1,6	OF.. 0403 / SF.. 0903			618.44	**163**
A274.80.R.07-09	80	85.9	7	3.8	50	58	27	1,6	OF.. 0403 / SF.. 0903	618.44	**080**		
A274.80.R.11-09	80	85.9	11	3.8	50	58	27	1,6	OF.. 0403 / SF.. 0903			708.78	**180**
A274.100.R.09-09	100	105.9	9	3.8	50	78	32	1,6	OF.. 0403 / SF.. 0903	762.69	**100**		
A274.100.R.13-09	100	105.9	13	3.8	50	78	32	1,6	OF.. 0403 / SF.. 0903			853.13	**200**
A274.125.R.12-09	125	130.9	12	3.8	63	88	40	1,6	OF.. 0403 / SF.. 0903	929.32	**125**		

	TORX® blade		Clamping key – T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		80 397 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		Y7		Y7		2A/28		2A/28		2A/28		Y7	
20 - 32	8.91	**043**			17.97	**125**			5.31	**303**	4.96	**133**	217.91	**191**
32 - 40	8.91	**043**	6.37	**040**	17.97	**125**	15.86	**151**	5.31	**303**	4.96	**133**	217.91	**191**
50 - 125	8.91	**043**			17.97	**125**			5.31	**303**	4.96	**133**	217.91	**191**

Two insert types – ONE Cutter



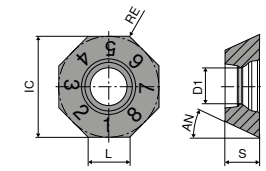




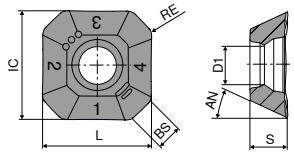


OFHT / OFHW / SFHT / SFKT

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
OFH. 0403..	9.52	3.35	3.94	-	3.18	25
SF.T 0903..	9.80	3.35	9.00	2.25	3.50	25



OF..



SF.T

OFHT

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	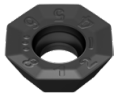	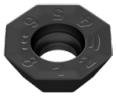		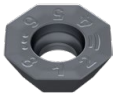
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	OFHT	OFHT	OFHT	OFHT
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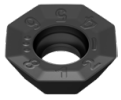
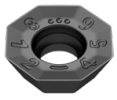
P	●	●	●	●
M			○	○
K	○	○	○	○
N				
S				
H				
O				

OFHT / OFHW

	-F50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245	CTPM245	-F50 CTCM245	CTCM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
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	OFHT	OFHT	OFHT	OFHT	OFHW	OFHT	OFHW
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ISO / RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17	£ 1H/17	£ 1H/17
040302EN 0.2					21.03 452		21.03 90201
040305SN 0.5	19.08 305	19.08 405	19.08 405	21.03 455		21.03 90501	
P	●	○	○	●	●	●	●
M	●	●	●	●	●	●	●
K							
N							
S						○	○
H							
O							

15

OFHT / OFHW

NEW

	-M50 CTCK215	-F10 CTPX715	-F10 CTWN215	-F50 CTC5240	CTC5240	-F50 CTCS245
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			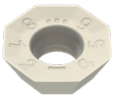			
	M	F	F	F	F	F
	OFHT	OFHT	OFHT	OFHT	OFHW	OFHT
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ISO / RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17	£ 1H/17
040302EN 0.2					21.03 504	
040305FN 0.5		26.30 00502	20.24 505			
040305SN 0.5	19.08 505			21.03 15500		21.03 555
P		○				
M		○				
K	●	●	○			
N		●	●			
S		○		●	●	●
H						
O		○	○			

SFHT / SFKT

	-F50 CTPP225	-M50 CTPP225
	DRAGONSKIN	DRAGONSKIN
		
	F	M
	SFHT	SFKT
	51 012 ...	51 013 ...
ISO / RE mm	£ 1B/61	£ 1B/61
0903AFSR 1	19.08 070	14.06 070
P	●	●
M		
K		
N		
S		
H		
O		

SFHT / SFKT

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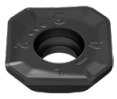
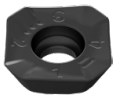
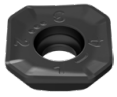
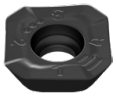
					
		F	M	F	M
		SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
0903AFSR	1	19.08 020	14.06 020	19.08 120	14.06 120
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

SFHT / SFKT

		-F50 CTCM235 DRAGONSKIN	-F50 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-F50 CTPM245 DRAGONSKIN	-F50 CTCM245 DRAGONSKIN
						
		F	F	M	F	F
		SFHT	SFHT	SFKT	SFHT	SFHT
		51 012 ...	51 012 ...	51 013 ...	51 012 ...	51 012 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
0903AFSR	1	19.08 320	19.08 420	14.06 42000	23.74 470	23.74 92001
P		●	○	○	●	●
M		●	●	●	●	●
K						
N						
S						○
H						
O						

15

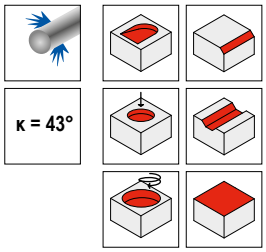
SFKT / SFHT

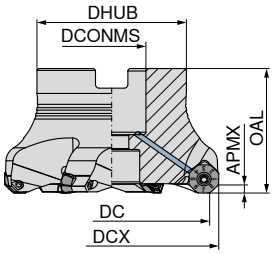
						NEW									
		-R50 CTCK215		-R50 CTPK220		-F10 CTPX715		-F10 CTWN215		-F40 CTC5240					
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN				DRAGONSKIN					
															
		R		R		F		F		F					
		SFKT		SFKT		SFHT		SFHT		SFHT					
		51 065 ...		51 065 ...		51 123 ...		50 514 ...		50 514 ...					
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1H/17					
0903AFFR	1					25.10	01502	22.89	505						
0903AFSR	1	14.06	520	14.06	620					23.74	504				
P						○									
M						○									
K		●		●		●		○							
N						●		●							
S						○				●					
H															
O						○		○							

Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 149
Starting Parameter	→ 150	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – 274-05/-12 Shell mill





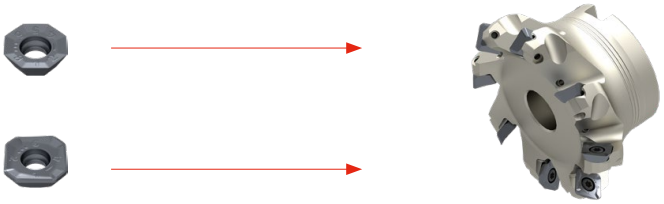


Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	torque moment Nm	Insert	50 772 ... £ 2B/40		50 772 ... £ 2B/40	
A274.40.R.03-12	40	48.0	3	6	40	38	16	3,2	OFHT 0504 / SFKT 1204	312.43	**24000**		
A274.40.R.04-12	40	48.0	4	6	40	38	16	3,2	OFHT 0504 / SFKT 1204			409.93	**04000**
A274.50.R.04-12	50	58.0	4	6	40	43	22	3,2	OFHT 0504 / SFKT 1204	416.45	**25000**		
A274.50.R.05-12	50	58.0	5	6	40	43	22	3,2	OFHT 0504 / SFKT 1204			520.61	**050**
A274.63.R.05-12	63	71.1	5	6	40	48	22	3,2	OFHT 0504 / SFKT 1204	533.32	**26300**		
A274.63.R.06-12	63	71.1	6	6	40	48	22	3,2	OFHT 0504 / SFKT 1204			624.75	**063**
A274.80.R.06-12	80	88.0	6	6	50	58	27	3,2	OFHT 0504 / SFKT 1204	650.65	**28000**		
A274.80.R.08-12	80	88.0	8	6	50	58	27	3,2	OFHT 0504 / SFKT 1204			833.03	**080**
A274.100.R.08-12	100	108.0	8	6	50	78	32	3,2	OFHT 0504 / SFKT 1204	859.08	**30000**		
A274.100.R.10-12	100	108.0	10	6	50	78	32	3,2	OFHT 0504 / SFKT 1204			1,028.14	**100**
A274.125.R.09-12	125	133.0	9	6	63	88	40	3,2	OFHT 0504 / SFKT 1204	1,076.81	**32500**		
A274.125.R.12-12	125	133.0	12	6	63	88	40	3,2	OFHT 0504 / SFKT 1204			1,255.80	**125**
A274.160.R.11-12	160	168.0	11	6	63	98	40	3,2	OFHT 0504 / SFKT 1204	1,309.08	**36000**[1)]		
A274.160.R.14-12	160	168.0	14	6	63	98	40	3,2	OFHT 0504 / SFKT 1204			1,666.33	**16000**[1)]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

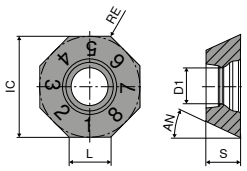
Spare parts DC	TORX® blade 80 950 ... £ Y7		Key D 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7	
40 - 160	8.91	**054**	21.01	**128**	5.31	**303**	5.59	**340**	244.07	**193**

Two insert types – ONE Cutter

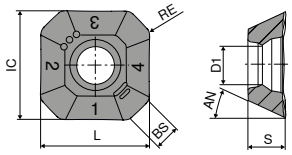


OFHT / SFHT / SFKT

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
OFHT 0504..	12.7	4.8	4.5	-	4.76	25
SF.T 1204..	12.7	4.8	12.7	1.42	4.76	25



OF..



SF.T

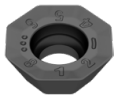
OFHT

	-F50 CTCP230 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-F50 CTPP235 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN
				
	F	M	F	M
	OFHT	OFHT	OFHT	OFHT
	51 002 ...	51 003 ...	51 002 ...	51 003 ...
	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
ISO / RE mm				
050410SN / 1	20.99 **010**	20.99 **01000**	20.99 **110**	20.99 **11000**
P	●	●	●	●
M			○	○
K	○	○	○	○
N				
S				
H				
O				

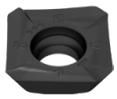
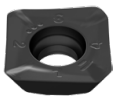
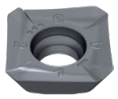
OFHT

	-F50 CTCM235 DRAGONSKIN	-F50 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-F50 CTPM245 DRAGONSKIN
				
	F	F	M	F
	OFHT	OFHT	OFHT	OFHT
	51 002 ...	51 002 ...	51 003 ...	51 002 ...
	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17
ISO / RE mm				
050410SN / 1	20.99 **310**	20.99 **410**	20.99 **41000**	23.13 **460**
P	●	○	○	●
M	●	●	●	●
K				
N				
S				
H				
O				

OFHT

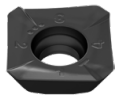
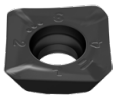
			NEW		
		-F50 CTCM245	-F10 CTPX715	-F10 CTWN215	-F50 CTC5240
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN
					
		F	F	F	F
		OFHT	OFHT	OFHT	OFHT
		51 002 ...	51 122 ...	51 122 ...	51 002 ...
ISO	RE mm	£ 1H/17	£ 1B/61	£ 1B/61	£ 1H/17
050410FN	1		30.05 01002	25.18 36000	
050410SN	1	23.13 91001			23.13 16000
P		●	○		
M		●	○		
K			●	○	
N			●	●	
S		○	○		●
H					
O			○	○	

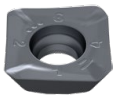
SFHT / SFKT

		-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		F	M	F	M
		SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
1204AFSR	1	20.99 02500	15.47 025	20.99 12500	15.47 125
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

15

SFHT / SFKT

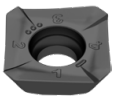





		-F50 CTCM235		-M50 CTCM235		-F50 CTPM240		-M50 CTPM240	
		F		M		F		M	
		SFHT		SFKT		SFHT		SFKT	
		51 012 ...		51 013 ...		51 012 ...		51 013 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61	
1204AFSR	1	20.99	325	15.47	325	20.99	42500	15.47	425
P		●		●		○		○	
M		●		●		●		●	
K									
N									
S									
H									
O									

SFHT

NEW

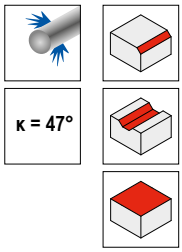


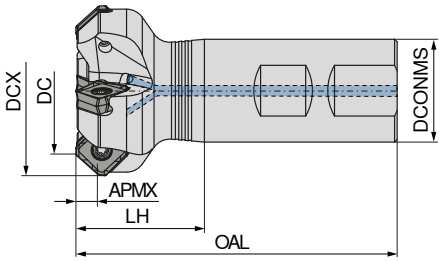

		-F50 CTPM245		-F50 CTCM245		-F10 CTPX715		-F10 CTWN215		-F40 CTC5240	
		F		F		F		F		F	
		SFHT		SFHT		SFHT		SFHT		SFHT	
		51 012 ...		51 012 ...		51 123 ...		51 123 ...		50 514 ...	
ISO	RE mm	£ 1H/17		£ 1H/17		£ 1B/61		£ 1B/61		£ 1H/17	
1204AFER	1									26.13	50900
1204AFFR	1					30.05	02502	25.18	37000		
1204AFSR	1	25.62	47500	25.62	92501						
P		●		●		○					
M		●		●		○					
K						●		○			
N						●		●			
S				○		○				●	
H											
O						○		○			

Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 151
Starting Parameter	→ 152	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – 271-12 End milling cutter









50 786 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
C271.32.R.03-12-B-40	32	45	3	6.8	100	40	32	18400	3,2	SOHU 1204.. / XOHU 1204..	394.89	**03203**
C271.40.R.04-12-B32-40	40	53	4	6.8	100	40	32	16800	3,2	SOHU 1204.. / XOHU 1204..	493.61	**04004**

TORX® blade

80 950 ...


Key D

80 950 ...


Molykote

70 950 ...


Clamping screw

70 950 ...

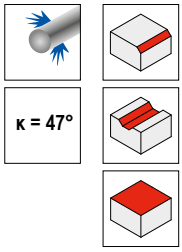

Torque screwdriver

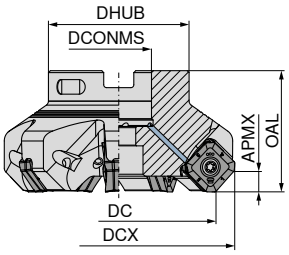
80 950 ...

Spare parts	£		£		£		£		£	
DC	Y7		Y7		2A/28		2A/28		Y7	
32 - 40	8.91	**054**	16.05	**120**	5.31	**303**	3.79	**859**	244.07	**193**

MaxiMill – 271-12 Face mill

▲ 8 cutting edges per insert



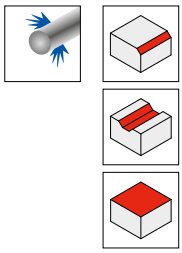


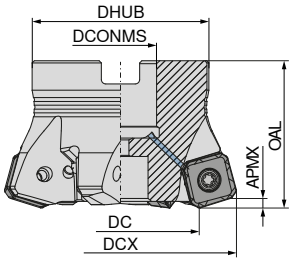


Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 787 ... £ 2B/40		50 787 ... £ 2B/40	
A271.40.R.04-12	40	53	4	6.8	40	38	16	17900	3,2	SOHU 1204.. / XOHU 1204..			493.61	**04004**
A271.50.R.05-12	50	63	5	6.8	40	43	22	15200	3,2	SOHU 1204.. / XOHU 1204..			505.95	**05005**
A271.63.R.07-12	63	76	7	6.8	40	48	22	13100	3,2	SOHU 1204.. / XOHU 1204..			641.70	**06307**
A271.80.R.06-12	80	93	6	6.8	50	58	27	11300	3,2	SOHU 1204.. / XOHU 1204..	641.70	**08006**		
A271.80.R.08-12	80	93	8	6.8	50	58	27	11300	3,2	SOHU 1204.. / XOHU 1204..			740.41	**08008**
A271.100.R.07-12	100	113	7	6.8	63	78	32	9900	3,2	SOHU 1204.. / XOHU 1204..	814.39	**10007**		
A271.100.R.10-12	100	113	10	6.8	63	78	32	9900	3,2	SOHU 1204.. / XOHU 1204..			925.56	**10010**
A271.125.R.08-12	125	138	8	6.8	63	88	40	8700	3,2	SOHU 1204.. / XOHU 1204..	987.19	**12508**		
A271.125.R.12-12	125	138	12	6.8	63	88	40	8700	3,2	SOHU 1204.. / XOHU 1204..			1,135.28	**12512**
A271.160.R.09-12	160	173	9	6.8	63	98	40	7600	3,2	SOHU 1204.. / XOHU 1204..	1,147.66	**16009**[1]		
A271.160.R.14-12	160	173	14	6.8	63	98	40	7600	3,2	SOHU 1204.. / XOHU 1204..			1,333.30	**16014**[1]
A271.200.R.11-12	200	213	11	6.8	63	132	60	6700	3,2	SOHU 1204.. / XOHU 1204..	1,438.65	**20011**[2]		
A271.200.R.17-12	200	213	17	6.8	63	132	60	6700	3,2	SOHU 1204.. / XOHU 1204..			1,626.37	**20017**[2]
A271.250.R.13-12	250	263	13	6.8	63	132	60	6000	3,2	SOHU 1204.. / XOHU 1204..	1,731.71	**25013**[2]		
A271.250.R.21-12	250	263	21	6.8	63	132	60	6000	3,2	SOHU 1204.. / XOHU 1204..			2,034.45	**25021**[2]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant

MaxiMill – 271-12 HFC Face mill







Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 788 ... £ 2B/40	
A271.50.R.04-12-HFC	30	50	4	2.6	40	43	22	14600	3,2	SOHU 1204..	505.95	**05004**
A271.63.R.06-12-HFC	43	63	6	2.6	40	48	22	12500	3,2	SOHU 1204..	641.70	**06306**
A271.80.R.07-12-HFC	60	80	7	2.6	50	58	27	10800	3,2	SOHU 1204..	740.41	**08007**

TORX® blade


Clamping key – T


Key D


Power Screw


Molykote

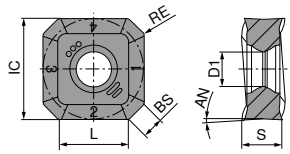

Clamping screw


Torque screwdriver

Spare parts DC	80 950 ... £ Y7		80 397 ... £ Y7		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		80 950 ... £ Y7	
40 (5078704004)	8.91	**054**	6.37	**040**	16.05	**120**	15.86	**151**	5.31	**303**	3.79	**859**	244.07	**193**
50 - 250	8.91	**054**			16.05	**120**			5.31	**303**	3.79	**859**	244.07	**193**
50 (5078805004)	8.91	**054**	8.11	**050**	16.05	**120**	20.76	**154**	5.31	**303**	3.79	**859**	244.07	**193**

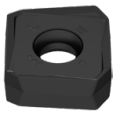
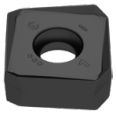
SOHU

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
SOHU 1204..	13.36	4.4	8.8	1.7	5.00	7.4

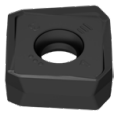
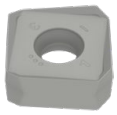


SOHU

SOHU

		-M50 CTCP230	-M50 CTPP235	-M50 CTCM235	-M50 CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SOHU	SOHU	SOHU	SOHU	SOHU	SOHU
		51 138 ...	51 138 ...	51 138 ...	51 138 ...	51 140 ...	51 140 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
1204ABSR	0.8	31.23 **02000**	31.23 **12000**	31.23 **32000**	31.23 **42000**	38.39 **47000**	38.39 **92001**
P		●	●	●	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

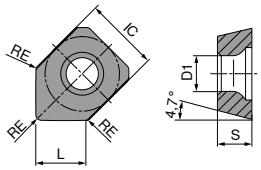
SOHU

		-R50 CTCK215	-R50 CTPK220	-F40 CTC5240	-F50 CTC5240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SOHU	SOHU	SOHU	SOHU
		51 139 ...	51 139 ...	51 148 ...	51 140 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
1204ABSR	0.8	31.23 **52000**	31.23 **62000**	38.39 **12001**	38.39 **17000**
P					
M					
K		●	●		
N					
S				●	●
H					
O					

15

XOHU

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XOHU 1204..	13.36	4.4	8.8	1.83	5.00



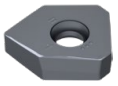
XOHU

XOHU

▲ Masterfinish indexable insert (sweeper insert)

-M50
CTPP235

DRAGONSKIN


XOHU

51 141 ...

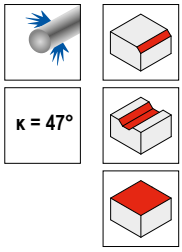
ISO	RE	£	
	mm	1B/61	
1204ABSR	0.8	38.65	**12000**
P			●
M			○
K			○
N			
S			
H			
O			

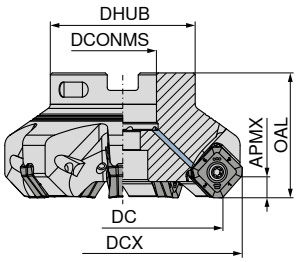
Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 153
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

MaxiMill – 271-17 Face mill

▲ 8 cutting edges per insert







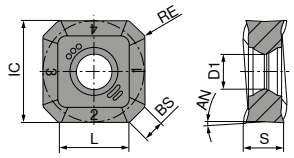
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	50 767 ... £ 2B/40	
A271.50.R.04-17	50	66.1	4	8.4	40	22	43	5	SAKU 1706	481.62	**050**
A271.63.R.06-17	63	79.1	6	8.4	40	22	48	5	SAKU 1706	676.81	**063**
A271.80.R.07-17	80	96.1	7	8.4	50	27	58	5	SAKU 1706	774.42	**080**
A271.100.R.08-17	100	116.1	8	8.4	50	32	78	5	SAKU 1706	891.64	**100**
A271.125.R.10-17	125	141.1	10	8.4	63	40	88	5	SAKU 1706	1,028.14	**125**
A271.160.R.12-17	160	176.1	12	8.4	63	40	104	5	SAKU 1706	1,210.51	**16000**[1]
A271.200.R.13-17	200	216.1	13	8.4	63	60	134	5	SAKU 1706	1,496.78	**20000**[2]
A271.250.R.15-17	250	266.1	15	8.4	63	60	134	5	SAKU 1706	1,809.20	**25000**[2]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant

	TORX® blade	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts	£	£	£	£	£
DC	Y7	Y7	2A/28	2A/28	Y7
50 - 250	8.91 **037**	17.48 **114**	5.31 **303**	4.96 **302**	244.07 **193**

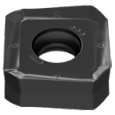
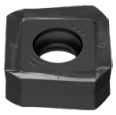
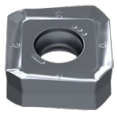
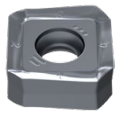
SAKU

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
SAKU 1706..	17	5.8	11.85	3.7	6.35	3

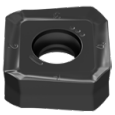
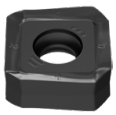
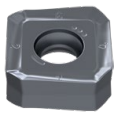
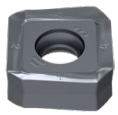


SAKU

SAKU

		-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SAKU	SAKU	SAKU	SAKU
		51 004 ...	51 005 ...	51 004 ...	51 005 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
1706ABSR	0.8	35.27 270	35.27 270	35.27 070	35.27 070
P		●	●	●	●
M					
K					
N					
S					
H					
O					

SAKU

		-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SAKU	SAKU	SAKU	SAKU
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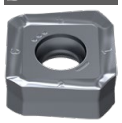
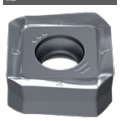
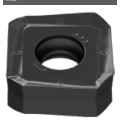
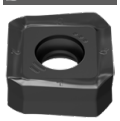
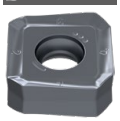
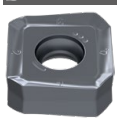
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
1706ABSR	0.8	35.27 020	35.27 020	35.27 120	35.27 120
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

SAKU

		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
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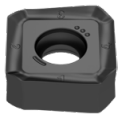
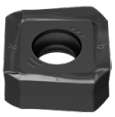
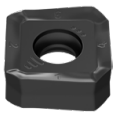
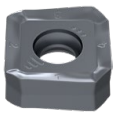
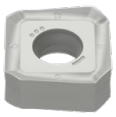
		51 004 ...	51 005 ...	51 004 ...	51 005 ...	51 004 ...	51 005 ...	51 004 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17
1706ABSR	0.8	35.27 220	35.27 220	35.27 320	35.27 320	35.27 420	35.27 420	43.40 470
P		●	●	●	●	○	○	●
M		●	●	●	●	●	●	●
K								
N								
S								
H								
O								

SAKU

		-F50 CTCM245	-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-R50 CTPK220	-F50 CTC5240	-F50 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SAKU	SAKU	SAKU	SAKU	SAKU	SAKU	SAKU
		51 004 ...	51 005 ...	51 058 ...	51 005 ...	51 058 ...	50 306 ...	51 004 ...
ISO	RE mm	£ 1H/17	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
1706ABSR	0.8	43.40 92001	35.27 520	35.27 520	35.27 620	35.27 620	43.40 520	43.40 570
P		●						
M		●						
K			●	●	●	●		
N								
S		○					●	●
H								
O								

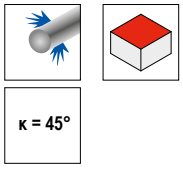
Milling guide

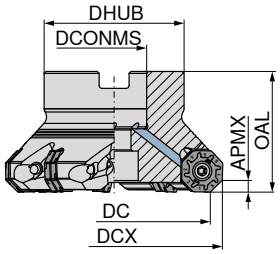
Cutting data standard values	→ 145–148	Starting Parameter	→ 153
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

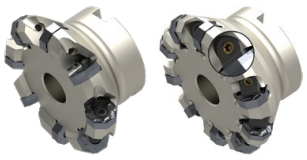
15

MaxiMill – 273-06 Shell mill

▲ 16 cutting edges per insert







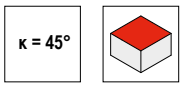
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	50 741 ... £ 2B/40		50 741 ... £ 2B/40	
A273.40.R.03-06	40	50.2	3	3.5	40	16	38	5	OAKU / XAHT 0605	461.87	**040**		
A273.40.R.04-06	40	50.2	4	3.5	40	16	38	5	OAKU / XAHT 0605	484.39	**140** 5)		
A273.50.R.05-06	50	60.2	5	3.5	40	22	43	5	OAKU / XAHT 0605	543.14	**050**		
A273.63.R.07-06	63	73.2	7	3.5	40	22	48	5	OAKU / XAHT 0605	651.98	**063**		
A273.80.R.08-06	80	90.2	8	3.5	50	27	58	5	OAKU / XAHT 0605	760.63	**080**		
A273.80.R.10-06	80	90.2	10	3.5	50	27	58	4	OAKU / XAHT 0605			1,159.02	**180** 1)
A273.100.R.10-06	100	110.2	10	3.5	50	32	78	5	OAKU / XAHT 0605	896.50	**100**		
A273.100.R.14-06	100	110.2	14	3.5	50	32	78	4	OAKU / XAHT 0605			1,481.03	**200** 1)
A273.125.R.12-06	125	135.2	12	3.5	63	40	88	5	OAKU / XAHT 0605	1,005.12	**125**		
A273.125.R.17-06	125	135.2	17	3.5	63	40	88	4	OAKU / XAHT 0605			1,718.40	**225** 1)
A273.160.R.14-06	160	170.2	14	3.5	63	40	104	5	OAKU / XAHT 0605	1,191.49	**160** 4)		
A273.160.R.20-06	160	170.2	20	3.5	63	40	104	4	OAKU / XAHT 0605			2,033.25	**260** 2)
A273.200.R.25-06	200	210.2	25	3.5	63	60	153	4	OAKU / XAHT 0605			2,541.85	**300** 3)
A273.250.R.31-06	250	260.2	31	3.5	63	60	153	4	OAKU / XAHT 0605			3,108.61	**25031** 3)

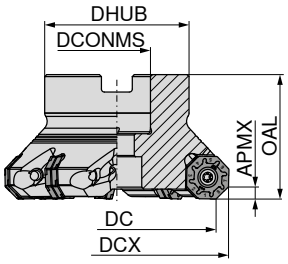
1) Version with Wedge, without internal coolant supply
2) Version with Wedge, without internal coolant supply / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
3) Version with Wedge, without internal coolant supply / With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm
4) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
5) Without Through Coolant

Spare parts DC	TORX® blade 80 950 ... £ Y7		Clamping key – T 80 397 ... £ Y7		Clamping wedge screw 70 950 ... £ 2A/28		Clamping wedge Face mill 70 950 ... £ 2A/28		Key D 80 950 ... £ Y7		Power Screw 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7	
40	8.91	**037**	6.37	**040**					17.48	**114**	15.86	**151**	4.96	**302**	244.07	**193**
50	8.91	**037**	8.11	**050**					17.48	**114**	20.76	**154**	4.96	**302**	244.07	**193**
63 - 80	8.91	**037**							17.48	**114**			4.96	**302**	244.07	**193**
80 - 100	8.91	**036**			7.14	**844**	28.52	**845**	16.32	**113**					244.07	**193**
100 - 125	8.91	**037**							17.48	**114**			4.96	**302**	244.07	**193**
125	8.91	**036**			7.14	**844**	28.52	**845**	16.32	**113**					244.07	**193**
160	8.91	**037**							17.48	**114**			4.96	**302**	244.07	**193**
160 - 250	8.91	**036**			7.14	**844**	28.52	**845**	16.32	**113**					244.07	**193**

MaxiMill – 273-06 Shell mill

▲ 16 cutting edges per indexable insert
▲ Axially adjustable







Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	torque moment Nm	Insert	50 777 ... £ 2B/40	
A273.80.R.10A10-06	80	90.2	10	3.5	50	27	58	4	OAKU / XAHT 0605	1,523.42	**08010**[1)]
A273.100.R.14A14-06	100	110.2	14	3.5	50	32	78	4	OAKU / XAHT 0605	2,074.42	**10014**[1)]
A273.125.R.17A17-06	125	135.2	17	3.5	63	40	88	4	OAKU / XAHT 0605	2,438.93	**12517**[1)]
A273.160.R.20A20-06	160	170.2	20	3.5	63	40	104	4	OAKU / XAHT 0605	2,879.74	**16020**[2)]
A273.200.R.25A25-06	200	210.2	25	3.5	63	60	153	4	OAKU / XAHT 0605	3,601.48	**20025**[3)]
A273.250.R.31A31-06	250	260.2	31	3.5	63	60	153	4	OAKU / XAHT 0605	4,422.52	**25031**[3)]

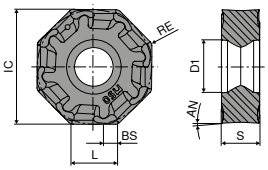
1) Version with Wedge
2) Version with Wedge / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
3) Version with Wedge / With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm

	TORX® blade		 Clamping wedge screw		 Clamping wedge Face mill		Key D		 Molykote		 Wedge		 Torque screwdriver	
	80 950 ...		70 950 ...		70 950 ...		80 950 ...		70 950 ...		70 950 ...		80 950 ...	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		2A/28		2A/28		Y7		2A/28		2A/28		Y7	
80 - 250	8.91	**036**	7.14	**844**	28.52	**845**	16.32	**113**	5.31	**303**	44.56	**199**	244.07	**193**

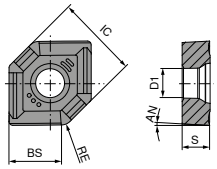
15

OAKU / XAHT

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
XAHT 0605..	17.08	6.0	-	11.95	5.56	3
OAKU 0605..	17.10	5.8	6	2.00	5.66	3

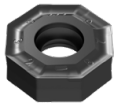
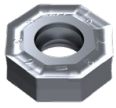


OAKU

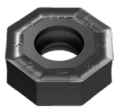
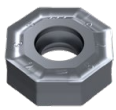


XAHT

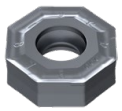
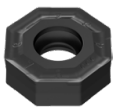
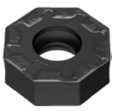
OAKU

		-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		 OAKU	 OAKU	 OAKU	 OAKU
		51 000 ...	**51 001 ...**	**51 000 ...**	**51 001 ...**
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
060508SR	0.8	29.75 **258**	29.75 **258**	29.75 **058**	29.75 **058**
P		●	●	●	●
M					
K					
N					
S					
H					
O					

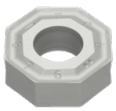
OAKU

		-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		 OAKU	 OAKU	 OAKU	 OAKU
		51 000 ...	**51 001 ...**	**51 000 ...**	**51 001 ...**
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
060508SR	0.8	29.75 **008**	29.75 **008**	29.75 **108**	29.75 **108**
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

OAKU

		-F50 CTPM225		-M50 CTPM225		-F50 CTCM235		-M50 CTCM235		-F50 CTPM240		-M50 CTPM240		-F40 CTPM245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		OAKU		OAKU		OAKU		OAKU		OAKU		OAKU		OAKU	
		51 000 ...		51 001 ...		51 000 ...		51 001 ...		51 000 ...		51 001 ...		51 104 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1H/17	
060508ER	0.8													37.21	458
060508SR	0.8	29.75	208	29.75	208	29.75	308	29.75	308	29.75	408	29.75	408		
P		●		●		●		●		○		○		●	
M		●		●		●		●		●		●		●	
K															
N															
S															
H															
O															

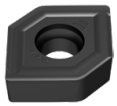
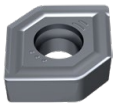
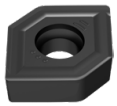
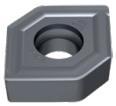
OAKU

		-F40 CTCM245		-M50 CTCK215		-R50 CTCK215		-M50 CTPK220		-R50 CTPK220		-F40 CTC5240		-F40 CTCS245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		OAKU		OAKU		OAKU		OAKU		OAKU		OAKU		OAKU	
		51 104 ...		51 001 ...		51 027 ...		51 001 ...		51 027 ...		50 446 ...		51 104 ...	
ISO	RE mm	£ 1H/17		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1H/17		£ 1H/17	
060508ER	0.8	37.21	90801									37.21	550	37.21	50801
060508SR	0.8			29.75	508	29.75	508	29.75	608	29.75	608				
P		●													
M		●													
K				●		●		●		●					
N															
S		○										●		●	
H															
O															

15

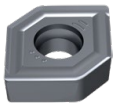
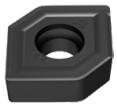
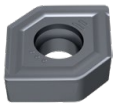
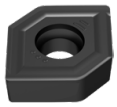
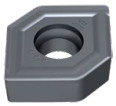
XAHT

▲ Masterfinish indexable insert (sweeper insert)

		-M50 CTCP220	-M50 CTPP225	-M50 CTCP230	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XAHT	XAHT	XAHT	XAHT
		51 014 ...	51 014 ...	51 014 ...	51 014 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
060525SR	2.5	36.82 275	36.82 075	36.82 025	36.82 125
P		●	●	●	●
M					○
K				○	○
N					
S					
H					
O					

XAHT

▲ Masterfinish indexable insert (sweeper insert)

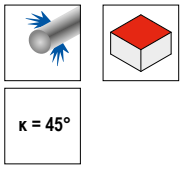
		-M50 CTPM225	-M50 CTCM235	-M50 CTPM240	-M50 CTCK215	-M50 CTPK220
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XAHT	XAHT	XAHT	XAHT	XAHT
		51 014 ...	51 014 ...	51 014 ...	51 014 ...	51 014 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
060525SR	2.5	36.82 225	36.82 325	36.82 425	36.82 525	36.82 625
P		●	●	○		
M		●	●	●		
K					●	●
N						
S						
H						
O						

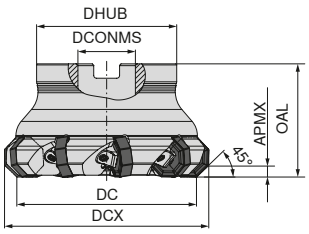
Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 154
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

MaxiMill – 273-08 Shell mill

▲ 16 cutting edges per insert







NEW NEW

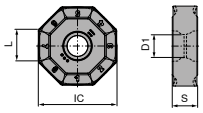
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	torque moment Nm	Insert	50 779 ... £ 2B/40		50 779 ... £ 2B/40	
A273.63.R.05-08	63	76.7	5	5	50	22	48	5	ONKU 0806	587.00	**06300**		
A273.63.R.06-08	63	76.7	6	5	50	22	48	5	ONKU 0806			857.37	**16300**[1]
A273.80.R.06-08	80	93.7	6	5	50	27	58	5	ONKU 0806	713.45	**08000**		
A273.80.R.08-08	80	93.7	8	5	50	27	58	4	ONKU 0806			1,083.53	**18000**[1]
A273.100.R.07-08	100	113.7	7	5	63	32	78	5	ONKU 0806	742.23	**10000**		
A273.100.R.09-08	100	113.7	9	5	63	32	78	4	ONKU 0806			1,128.77	**20000**[1]
A273.125.R.08-08	125	138.7	8	5	63	40	88	5	ONKU 0806	863.54	**12500**		
A273.125.R.11-08	125	138.7	11	5	63	40	88	4	ONKU 0806			1,403.25	**22500**[1]
A273.160.R.10-08	160	173.7	10	5	63	40	98	5	ONKU 0806	1,336.43	**16000**[3]		
A273.160.R.14-08	160	173.7	14	5	63	40	98	4	ONKU 0806			1,706.51	**26000**[2]

1) Version with Wedge
2) Version with Wedge, without internal coolant supply / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
3) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

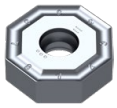
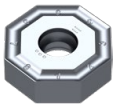
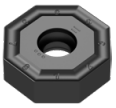
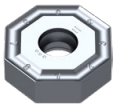
Spare parts for Article no.	TORX® blade 80 950 ... £ Y7		Clamping wedge screw 70 950 ... £ 2A/28		Clamping wedge Face mill 70 950 ... £ 2A/28		Key D 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7	
50 779 06300	8.91	**055**					22.06	**129**	5.31	**303**	5.13	**821**	244.07	**193**
50 779 16300	8.91	**036**	7.14	**844**	28.52	**845**	16.32	**113**	5.31	**303**			244.07	**193**
50 779 08000	8.91	**055**					22.06	**129**	5.31	**303**	5.13	**821**	244.07	**193**
50 779 18000	8.91	**036**	7.14	**844**	28.52	**845**	16.32	**113**	5.31	**303**			244.07	**193**
50 779 10000	8.91	**055**					22.06	**129**	5.31	**303**	5.13	**821**	244.07	**193**
50 779 20000	8.91	**036**	7.14	**844**	28.52	**845**	16.32	**113**	5.31	**303**			244.07	**193**
50 779 12500	8.91	**055**					22.06	**129**	5.31	**303**	5.13	**821**	244.07	**193**
50 779 22500	8.91	**036**	7.14	**844**	28.52	**845**	16.32	**113**	5.31	**303**			244.07	**193**
50 779 16000	8.91	**055**					22.06	**129**	5.31	**303**	5.13	**821**	244.07	**193**
50 779 26000	8.91	**036**	7.14	**844**	28.52	**845**	16.32	**113**	5.31	**303**			244.07	**193**

ONKU

Designation	IC mm	D1 mm	L mm	S mm
ONKU 0806..	22	5.8	8.45	6.45



ONKU

		NEW	NEW	NEW	NEW	NEW
		-M50 CTCP230	-M50 CTPP235	-M50 CTPM240	-M50 CTCK215	-M50 CTPK220
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
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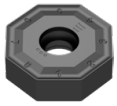
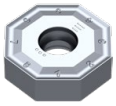
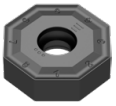
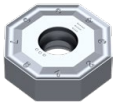
		51 163 ...	51 163 ...	51 163 ...	51 163 ...	51 163 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
080608SN	0.8	32.28 00800	32.28 10800	32.28 20800	32.28 50800	32.28 60800
P		●	●	○		
M			○	●		
K		○	○		●	●
N						
S						
H						
O						

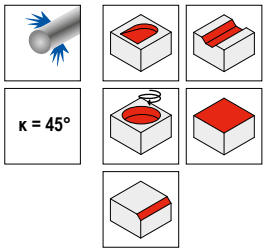
ONKU

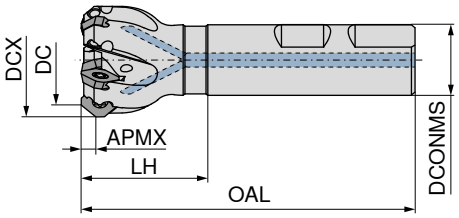
		NEW	NEW	NEW	NEW
		-R50 CTCP230	-R50 CTPP235	-R50 CTCK215	-R50 CTPK220
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		ONKU	ONKU	ONKU	ONKU
		51 164 ...	51 164 ...	51 164 ...	51 164 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
080608SN	0.8	32.28 00800	32.28 10800	32.28 50800	32.28 60800
P		●	●		
M			○		
K		○	○	●	●
N					
S					
H					
O					

Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 155
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

MaxiMill – 270-09 End milling cutter



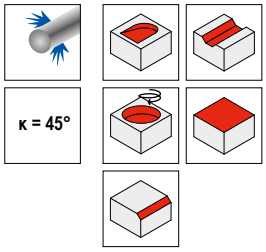


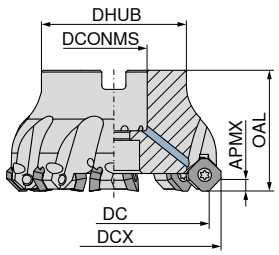




Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	50 666 ... £ 2B/40	
C270.06.R.01-09	6	14.4	1	4	80	32	16	1,2	SD.. 0903..	164.44	006
C270.12.R.01-09	12	20.4	1	4	80	32	16	1,2	SD.. 0903..	181.66	012
C270.16.R.02-09	16	24.4	2	4	90	40	20	1,8	SD.. 0903..	206.83	016
C270.20.R.03-09	20	28.4	3	4	90	40	20	1,8	SD.. 0903..	263.15	020
C270.25.R.04-09	25	33.4	4	4	100	44	25	1,8	SD.. 0903..	372.88	025
C270.32.R.05-09	32	40.4	5	4	95	36	25	1,8	SD.. 0903..	438.62	032

MaxiMill – 270-09 Shell mill







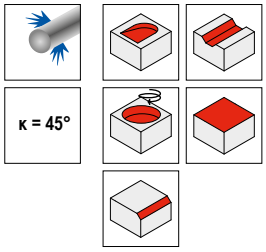
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	torque moment Nm	Insert	50 705 ... £ 2B/40		50 706 ... £ 2B/40	
A270.32.R.05-09	32	40.4	5	4	40	34	16	1,8	SD../XD.. 0903..			419.72	532
A270.40.R.04-09	40	48.4	4	4	40	38	16	1,8	SD../XD.. 0903..	430.75	540		
A270.40.R.06-09	40	48.4	6	4	40	38	16	1,8	SD../XD.. 0903..			485.73	540
A270.50.R.06-09	50	58.4	6	4	40	43	22	1,8	SD../XD.. 0903..	499.78	550		
A270.50.R.08-09	50	58.4	8	4	40	43	22	1,8	SD../XD.. 0903..			598.46	550
A270.63.R.08-09	63	71.4	8	4	40	48	22	1,8	SD../XD.. 0903..	606.21	563		
A270.63.R.10-09	63	71.4	10	4	40	48	22	1,8	SD../XD.. 0903..			755.05	563
A270.80.R.10-09	80	88.4	10	4	50	58	27	1,8	SD../XD.. 0903..	765.95	580		
A270.80.R.12-09	80	88.4	12	4	50	58	27	1,8	SD../XD.. 0903..			908.37	580
A270.100.R.12-09	100	108.4	12	4	50	78	32	1,8	SD../XD.. 0903..	924.23	600		
A270.100.R.14-09	100	108.4	14	4	50	78	32	1,8	SD../XD.. 0903..			1,073.18	600
A270.125.R.12-09	125	133.4	12	4	63	88	40	1,8	SD../XD.. 0903..	1,080.92	625		

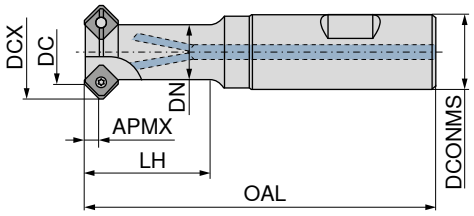
▲ 50 705 ... Normal pitch for a broad spectrum of use on aluminum alloys, non-ferrous metals, and soft steel materials
▲ 50 706 ... Fine pitch for highest feed rates, predominantly used on steel and cast materials

15

MaxiMill – 272-09 Chamfer milling cutter

▲ Usable on front and rear cutting edges









50 669 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	DN mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	£ 2B/40	
C272.06.R.01-09	6	14.4	1	4	10	91	24.0	16	1,2	SD.. 0903..	195.58	**10600**
C272.08.R.01-09	8	16.4	1	4	10	91	25.5	16	1,2	SD.. 0903..	217.98	**008**
C272.12.R.01-09	12	20.4	1	4	12	91	26.0	16	1,2	SD.. 0903..	224.03	**012**
C272.16.R.02-09	16	24.4	2	4	15	97	30.0	20	1,8	SD.. 0903..	275.74	**016**
C272.18.R.02-09	18	26.4	2	4	16	97	30.0	20	1,8	SD.. 0903..	275.74	**018**
C272.25.R.03-09	25	33.4	3	4	21	109	35.0	25	1,8	SD.. 0903..	322.60	**025**

TORX® blade

Key D


Molykote

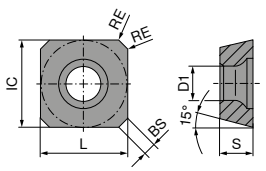

Clamping screw


Torque screwdriver

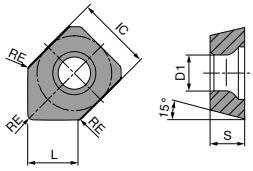
	80 950 ...		**80 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£	
DC	Y7		Y7		2A/28		2A/28		Y7	
6 - 12	8.91	**033**	13.73	**110**	5.31	**303**	3.79	**365**	217.91	**191**
16 - 25	8.91	**033**	13.73	**110**	5.31	**303**	3.13	**115**	217.91	**191**

SDHW / SDNT / SDHT / XDHW

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDHW 0903..	9.52	3.4	5.50	1.68	3.18
SD.. 0903..	9.52	3.4	9.52	1.68	3.18

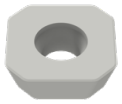
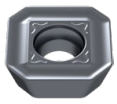
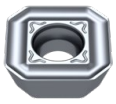
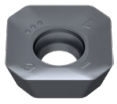


SD..

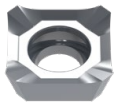
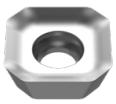


XDHW

SDHW / SDNT / SDHT

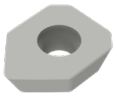
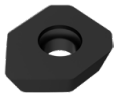
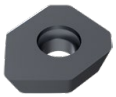
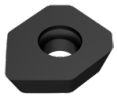
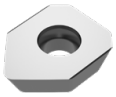
	TCM10	-29 CTCP230	-29 CTPP235	-33 CTPM240	-33P CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	CERMET						
	SDHW	SDNT	SDNT	SDHT	SDHT	SDHT	SDHT
	50 428 ...	51 011 ...	51 011 ...	51 028 ...	51 086 ...	51 109 ...	51 109 ...
ISO / RE mm	£ 1B/79	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
0903AESN / 1	19.34 **898**	16.71 **020**	16.71 **120**	19.08 **420**	20.08 **420**	23.74 **470**	23.74 **92001**
P	●	●	●	○	○	●	●
M			○	●	●	●	●
K	○	○	○				
N							
S							○
H							
O							

SDNT / SDHT

		NEW				
	-31 CTCK215	-F10 CTPX715	-27P H216T	-M31 CTC5240	-F50 CTCS245
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
					
	SDNT	SDHT	SDHT	SDHT	SDHT
	51 029 ...	51 160 ...	50 426 ...	50 421 ...	51 109 ...
ISO / RE mm	£ 1B/61	£ 1A/90	£ 1A/90	£ 1H/17	£ 1H/17
0903AEFN / 1		25.10 **02002**	19.08 **548**		
0903AESN / 1	15.99 **520**			23.74 **509**	23.74 **57100**
P		○			
M		○			
K	●	●	○		
N		●	●		
S		○		●	●
H					
O		○	○		

XDHW

▲ Masterfinish indexable insert (sweeper insert)

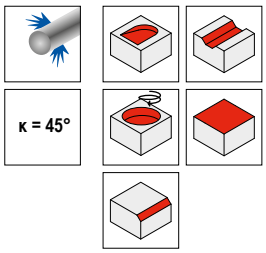
		TCM10	CTCP230	CTPP235	CTCK215	H216T
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
						
		CERMET XDHW	XDHW	XDHW	XDHW	XDHW
		50 449 ...	**51 015 ...**	**51 015 ...**	**51 015 ...**	**50 449 ...**
ISO	RE mm	£ 1B/79	£ 1B/61	£ 1B/61	£ 1B/18	£ 1B/61
0903AEEN	1				22.71 **520**	
0903AEFN	1					20.08 **548**
0903AESN	1	20.97 **898**	23.49 **020**	23.49 **120**		
P		●	●	●		
M				○		
K		○	○	○	●	○
N						●
S						
H						
O						○

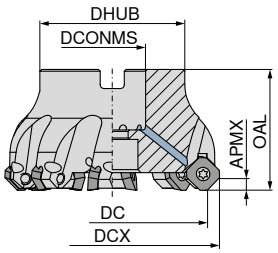
Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 156
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

MaxiMill – 270-12 Shell mill

▲ 50 705 ... Normal pitch for a broad spectrum of use on aluminum alloys, non-ferrous metals, up to soft steel materials
▲ 50 706 ... Predominantly fine pitch for highest feed rates, use on steel and cast materials







Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS H6 mm	OAL mm	DHUB mm	torque moment Nm	Insert	50 705 ... £ 2B/40		50 706 ... £ 2B/40	
A270.40.R.03-12	40	54	3	6	16	40	38	5	SD../XD.. 1204..	491.90	**040**		
A270.40.R.04-12	40	54	4	6	16	40	38	5	SD../XD.. 1204..			491.90	**040**
A270.50.R.04-12	50	64	4	6	22	40	43	5	SD../XD.. 1204..	556.07	**050**		
A270.50.R.05-12	50	64	5	6	22	40	43	5	SD../XD.. 1204..			556.07	**050**
A270.63.R.04-12	63	77	4	6	22	40	48	5	SD../XD.. 1204..	636.00	**063**		
A270.63.R.06-12	63	77	6	6	22	40	48	5	SD../XD.. 1204..			728.42	**063**
A270.80.R.05-12	80	94	5	6	27	50	58	5	SD../XD.. 1204..	737.86	**080**		
A270.80.R.08-12	80	94	8	6	27	50	58	5	SD../XD.. 1204..			908.37	**080**
A270.100.R.06-12	100	114	6	6	32	50	78	5	SD../XD.. 1204..	869.25	**100**		
A270.100.R.10-12	100	114	10	6	32	50	78	5	SD../XD.. 1204..			1,063.60	**100**
A270.125.R.07-12	125	139	7	6	40	63	88	5	SD../XD.. 1204..	1,062.03	**125**		
A270.125.R.12-12	125	139	12	6	40	63	88	5	SD../XD.. 1204..			1,436.23	**125**
A270.160.R.08-12	160	174	8	6	40	63	94	5	SD../XD.. 1204..	1,356.29	**160** [1]		

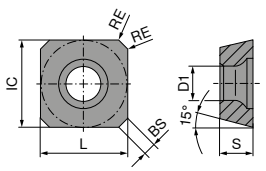
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

	TORX® blade		Clamping key – T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		Y7		Y7		2A/28		2A/28		2A/28		Y7	
40	8.91	**037**	6.37	**040**	17.48	**114**	15.86	**151**	5.31	**303**	3.04	**01200**	244.07	**193**
50 - 160	8.91	**037**			17.48	**114**			5.31	**303**	3.04	**01200**	244.07	**193**

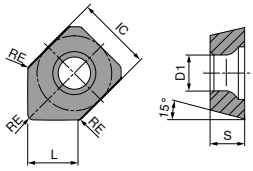
15

SDHT / SDHW / SDMT / XDHW

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDHW 1204..	12.7	5.5	7.5	1.74	4.76
SD.. 1204..	12.7	5.5	12.7	1.74	4.76



SD..

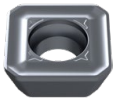


XDHW

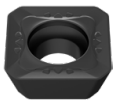
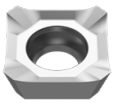
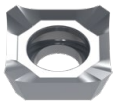
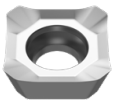
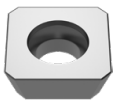
SDHT / SDHW / SDMT

		TCM10	-R TCM10	-29R CTCP230	-R CTCP230	CTCP230
				DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		CERMET	CERMET			
		SDHT	SDHW	SDMT	SDHT	SDHW
		50 426 ...	50 428 ...	51 010 ...	51 006 ...	51 008 ...
ISO	RE mm	£ 1B/79	£ 1B/79	£ 1B/61	£ 1B/61	£ 1B/61
1204AESN	0.2	20.81 **900**				
1204AESN	1.0		21.67 **899**	17.75 **020**	20.24 **020**	20.81 **020**
P		●	●	●	●	●
M						
K		○	○	○	○	○
N						
S						
H						
O						

SDMT / SDHT / SDHW

		-29R CTPP235	-R CTPP235	-R CTPP235	-33 CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SDMT	SDHT	SDHW	SDHT	SDHT	SDHT
		51 010 ...	51 006 ...	51 008 ...	51 028 ...	51 109 ...	51 109 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
1204AESN	1	17.75 **120**	20.24 **120**	20.81 **120**	20.81 **425**	27.35 **475**	27.35 **92501**
P		●	●	●	○	●	●
M		○	○	○	●	●	●
K		○	○	○			
N							
S							○
H							
O							

SDMT / SDHW / SDHT

		-31 CTCK215	-R CTCK215	-27 H216T	NEW -F10 CTPX715	-27P H216T	H216T
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN		
							
		SDMT	SDHW	SDHT	SDHT	SDHT	SDHW
		51 059 ...	51 008 ...	50 426 ...	51 160 ...	50 426 ...	50 428 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1A/90	£ 1A/90	£ 1A/90	£ 1B/61
1204AEEN	1.0	17.29 **520**	20.81 **520**				
1204AEFN	0.2			20.81 **504**	27.40 **02502**		
1204AEFN	1.0					20.81 **554**	
1204AESN	0.2						17.29 **600**
P					○		
M					○		
K		●	●	○	●	○	○
N				●	●	●	●
S					○		
H							
O				○	○	○	○

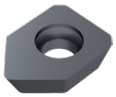
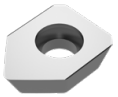
SDHT

		-M31 CTC5240	-F50 CTCS245
		DRAGONSKIN	DRAGONSKIN
			
		SDHT	SDHT
		50 421 ...	51 109 ...
ISO	RE mm	£ 1H/17	£ 1H/17
1204AESN	1	27.35 **512**	27.35 **57600**
P			
M			
K			
N			
S		●	●
H			
O			

15

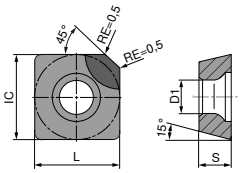
XDHW

▲ Masterfinish indexable insert (sweeper insert)

		TCM10	CTCP230 DRAGONSKIN	CTPP235 DRAGONSKIN	CTCK215 DRAGONSKIN	H216T
						
		CERMET XDHW	XDHW	XDHW	XDHW	XDHW
		50 449 ...	51 015 ...	51 015 ...	51 015 ...	50 449 ...
ISO	RE mm	£ 1B/79	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
1204AEEN	1				27.41 525	
1204AEFN	1					25.93 600
1204AESN	1	27.41 900	28.75 025	28.75 125		
P		●	●	●		
M				○		
K		○	○	○	●	○
N						●
S						
H						
O						○

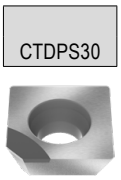
SDHW

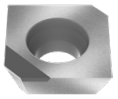
Designation	IC	D1	L	S
	mm	mm	mm	mm
SDHW 1204..	12.7	5.5	12.7	4.76



SDHW

SDHW


CTDPS30


CTBS10U

DIAMOND
SDHW

51 900 ...

CBN
SDHW

51 900 ...

ISO	£ V9		£ V9	
1204AEFN-2	135.67	**100** [1]		
1204AEFN-3	133.85	**102** [2]		
1204AETN-2			104.39	**300** [1]
P				
M				
K				●
N		●		
S				
H				○
O				

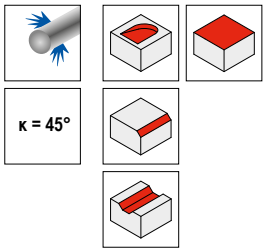
1) $a_{p\,max.}$ = 2.0 mm
2) $a_{p\,max.}$ = 3,5 mm

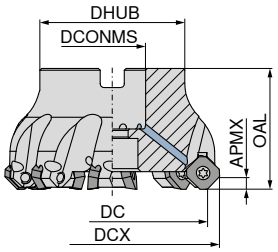
Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 156
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

15

MaxiMill – 270-19 Shell mill







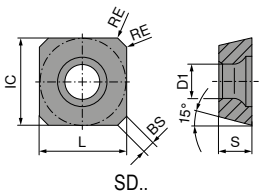
										Left-hand		Right-hand	
										50 698 ...		**50 698 ...**	
Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	OAL mm	DHUB mm	torque moment Nm	Insert	£ 2B/40		£ 2B/40	
A270.125.R.07-19	125	146.4	7	10	40	63	88	5	SD.. 1907..			952.45	**12507**
A270.160.R.09-19	160	181.4	9	10	40	63	104	5	SD.. 1907..			1,206.40	**16009**[1)]
A270.200.R.11-19	200	221.1	11	10	60	63	134	5	SD.. 1907..			1,460.45	**20011**[2)]
A270.250.L.14-19	250	271.4	14	10	60	63	134	5	SD.. 1907..	2,729.56	**75014**[2)]		
A270.250.R.14-19	250	271.4	14	10	60	63	134	5	SD.. 1907..			2,729.56	**25014**[2)]
A270.315.L.17-19	315	336.4	17	10	60	63	226	5	SD.. 1907..	3,233.32	**81517**[4)]		
A270.315.R.17-19	315	336.4	17	10	60	63	226	5	SD.. 1907..			3,233.32	**31517**[3)]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant
3) With 4 threaded holes M16 on the front face, pitch circle diameter = 101.6 mm and with 4 threaded holes M20 on the front face, pitch circle diameter = 177.8 mm / Without Through Coolant
4) With 4 threaded holes M16 on the front face, pitch circle diameter = 101.6 mm and with 4 threaded holes M20 on the front face, pitch circle diameter = 177.8 mm

	TORX® blade		 Key D		 Molykote		 Clamping screw		 Solid Carbide support S		 Threaded sleeve		 Torque screwdriver	
	80 950 ...		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		Y7		2A/28		2A/28		2A/28		2A/28		Y7	
125 - 315	8.91	**037**	17.48	**114**	5.31	**303**	4.96	**302**	15.49	**01500**	17.52	**01400**	244.07	**193**

SDKT

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
SDKT 1907..	19.15	6	19.15	1.5	7.15	15



SD..

SDKT

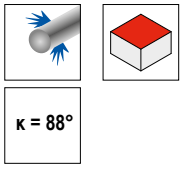
		-M50 CTCP220	-R50 CTPP225	-R50 CTCP230	-M50 CTPP235	-R50 CTPP235	-R50 CTPM225	-R50 CTCK215
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SDKT	SDKT	SDKT	SDKT	SDKT	SDKT	SDKT
		51 131 ...	51 132 ...	51 132 ...	51 131 ...	51 132 ...	51 132 ...	51 132 ...
ISO	RE	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
	mm							
1907AESN	1.6	37.58 **22001**	37.58 **07000**	37.58 **02100**	37.58 **12000**	37.58 **12300**	37.58 **22200**	37.58 **52000**
P		●	●	●	●	●	●	
M					○	○	●	
K				○	○	○		●
N								
S								
H								
O								

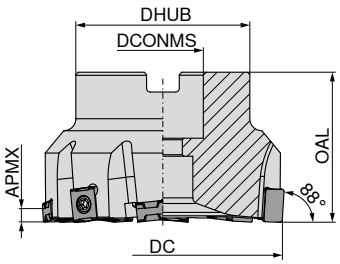
Milling guide

Cutting data standard values	→ 145–148	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – HEC 11 Shell mill

▲ not adjustable







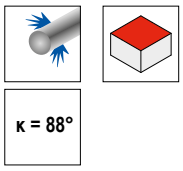
50 725 ...

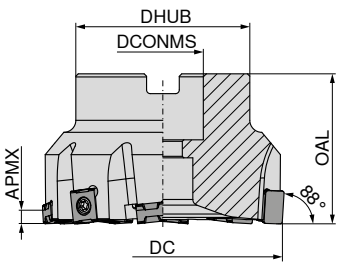
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
AHEC.50.R.06-11	50	6	6	40	48	22	12700	3,2	LNHX 1106	657.32	**050**
AHEC.63.R.08-11	63	8	6	40	48	22	10100	3,2	LNHX 1106	789.08	**063**
AHEC.80.R.10-11	80	10	6	50	58	27	8000	3,2	LNHX 1106	964.67	**080**
AHEC.100.R.12-11	100	12	6	50	78	32	6400	3,2	LNHX 1106	1,125.72	**100**
AHEC.125.R.12-11	125	12	6	63	88	40	5100	3,2	LNHX 1106	1,286.06	**125**
AHEC.125.R.16-11	125	16	6	63	88	40	5100	3,2	LNHX 1106	1,295.77	**12516**
AHEC.160.R.20-11	160	20	6	63	100	40	4000	3,2	LNHX 1106	1,887.92	**160** 1)

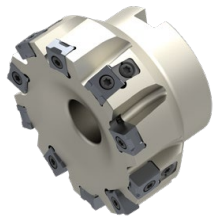
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

MaxiMill – HEC 11 Shell mill

▲ Axially adjustable with same tooth pitch







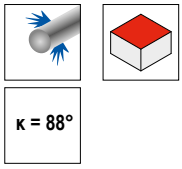
50 733 ...

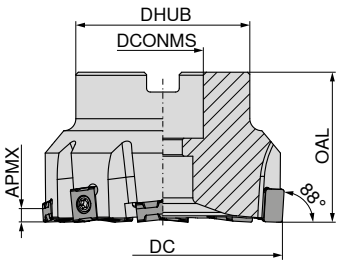
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
AHEC.50.R.06A03-11	50	6	6	40	48	22	12700	3,2	LNHX 1106	996.05	**050**
AHEC.63.R.08A04-11	63	8	6	40	48	22	10100	3,2	LNHX 1106	1,240.05	**063**
AHEC.80.R.10A05-11	80	10	6	50	58	27	8000	3,2	LNHX 1106	1,529.47	**080**
AHEC.100.R.12A06-11	100	12	6	50	78	32	6400	3,2	LNHX 1106	1,804.37	**100**
AHEC.125.R.16A08-11	125	16	6	63	88	40	5100	3,2	LNHX 1106	2,441.36	**125**
AHEC.160.R.20A10-11	160	20	6	63	100	40	4000	3,2	LNHX 1106	3,016.58	**160** 1)

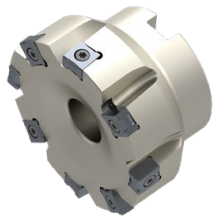
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

MaxiMill – HEC 11 Shell mill

▲ with irregular pitch, non adjustable







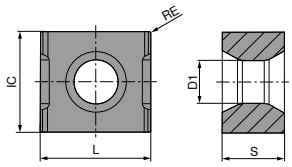
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 733 ... £ 2B/40	
AHEC.50.R.04B-11	50	4	6	40	48	22	12700	3,2	LNHX 1106	512.74	**550**
AHEC.63.R.06B-11	63	6	6	40	48	22	10100	3,2	LNHX 1106	637.22	**563**
AHEC.80.R.08B-11	80	8	6	50	58	27	8000	3,2	LNHX 1106	816.69	**580**
AHEC.100.R.10B-11	100	10	6	50	78	32	6400	3,2	LNHX 1106	1,049.68	**600**
AHEC.125.R.12B-11	125	12	6	63	88	40	5100	3,2	LNHX 1106	1,283.65	**625**
AHEC.160.R.14B-11	160	14	6	63	100	40	4000	3,2	LNHX 1106	1,593.65	**660** [1]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

Spare parts DC	TORX® blade 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Coolant Disc 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Wedge 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7	
50 - 63	8.91	**036**	5.31	**303**	30.48	**852**	3.79	**113**			244.07	**193**
80	8.91	**036**	5.31	**303**	31.16	**853**	3.79	**113**	44.56	**199**	244.07	**193**
100	8.91	**036**	5.31	**303**	34.30	**854**	3.79	**113**			244.07	**193**
125	8.91	**036**	5.31	**303**	45.21	**855**	3.79	**113**			244.07	**193**
160	8.91	**036**	5.31	**303**			3.79	**113**			244.07	**193**

LNHX

Designation	IC mm	D1 mm	L mm	S mm
LNHX 1106..	10	4.27	11	6.35



LNHX

LNHX

ISO	RE mm	CTEP210 DRAGONSKIN CERMET LNHX 51 046 ... £ 1B/79		CTCK215 DRAGONSKIN LNHX 51 046 ... £ 1B/61		-R50 CTCK215 DRAGONSKIN LNHX 51 024 ... £ 1B/61		-Q CTCK215 DRAGONSKIN LNHX 51 045 ... £ 1B/61	
1106PNER	0.5			31.38	520	31.38	520		
1106ZZER	0.5							31.38	520 1)
1106PNER	0.8	36.39	820						
110616EN	1.6			31.38	51600				
P		●							
M									
K		●		●		●		●	
N									
S									
H									
O									

1) -Q = trailing edge insert

LNHX

ISO	RE mm	CTPK220 DRAGONSKIN LNHX 51 046 ... £ 1B/61		-R50 CTPK220 DRAGONSKIN LNHX 51 024 ... £ 1B/61		CTN3105 CERAMIC LNHX 50 500 ... £ 1G/55		CTL3215 CBN LNHX 51 046 ... £ 1G/21		-Q CTL3215 CBN LNHX 51 045 ... £ 1G/21	
110608EN	0.8			31.38	608						
1106PNER	0.5	31.38	620	31.38	620						
1106PNSR	0.5					29.58	904				
1106PNSR								172.81	87200		
1106ZZER										172.81	87000 1)
P											
M											
K		●		●		●		●		●	
N											
S											
H								○		○	
O											

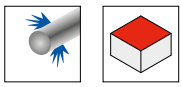
1) -Q = trailing edge insert

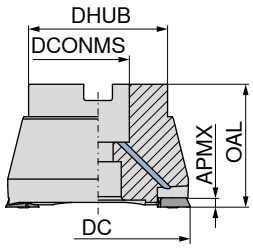
Milling guide

Cutting data standard values	→ 145–148	Assembly instructions	→ 157
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

Finishing cutter F 5000 A

▲ With µm-adjustable inserts
▲ Adjust with screw (56 950 017) and set with Torx 20 key (80 950 114)







									56 511 ...	
Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	£ WA	
F5000A.42.2.43.IK	42	2	0.2	43	16	35	3,2	TEHX 16T3..	637.41	**421**
F5000A.52.2.43.IK	52	2	0.2	43	22	48	3,2	TEHX 16T3..	767.60	**521**
F5000A.66.2.53.IK	66	2	0.2	53	27	60	3,2	TEHX 16T3..	897.74	**661**
F5000A.80.2.53.IK	80	2	0.2	53	27	60	3,2	TEHX 16T3..	1,027.74	**801**
F5000A.100.2.53	100	2	0.2	53	32	70	3,2	TEHX 16T3..	1,157.84	**910** 1)

1) Without Through Coolant

	TORX® blade		 Key-T		Key D		 Power Screw		 Axial runout adjustment screw		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		**80 950 ...**		**80 950 ...**		**56 950 ...**		**56 950 ...**		**70 950 ...**		**56 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£		£		£	
DC	Y7		Y7		Y7		WA		WA		2A/28		WA		Y7	
42	8.91	**036**	9.32	**088**	17.48	**114**	57.50	**121**	7.38	**017**	5.31	**303**	7.69	**028**	244.07	**193**
52	8.91	**036**	9.32	**088**	16.32	**113**			7.38	**017**	5.31	**303**	7.69	**028**	244.07	**193**
66	8.91	**036**	9.32	**088**	16.32	**113**			7.38	**017**	5.31	**303**	7.69	**028**	244.07	**193**
80	8.91	**036**	9.32	**088**	16.32	**113**			7.38	**017**	5.31	**303**	7.69	**028**	244.07	**193**
100	8.91	**036**	9.32	**088**	16.32	**113**	57.50	**121**	7.38	**017**	5.31	**303**	7.69	**028**	244.07	**193**

Description of article

▲ Tightening torque of the indexable insert clamping screw 56 950 028 is 3.2 Nm.
▲ This tool produces surfaces with excellent surface quality Rz ≤ 2.5 µm with high axial run-out precision.
▲ The two precision adjustment screws make adjustment to µm accuracy possible.
▲ Additional grinding is therefore avoided, so machining time and costs are reduced.
▲ The tool is also well-suited for unstable workpieces and low power machines.

The screws for the adjustment of the axial run-out are mounted on every milling cutter and have to be tightened to a preset value. Otherwise there is the danger that the screws loosen during the machining operation. This can result in damage of the workpiece or tool and also cause danger for the machine operator. Should the screws for fine adjustment not be needed we recommend to remove them from the tool.

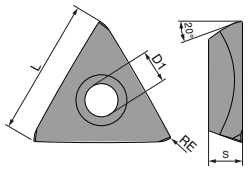
Material	v_c m/min	f_z mm	a_p mm
Steel	150–250*)	0,5–2	0,05–0,2
Cast iron	150–250*)	0,5–2	0,05–0,2
Hardened materials ≤ 56 HRC	35–200*)	0,2–1	0,05–0,1

*) Depending on the machining and structural state of the processed workpiece.

15

TEHX

Designation	L mm	S mm	D1 mm
TEHX 16T3..	14.32	4.00	3.9



TEHX

WTN1205



TEHX

56 327 ...

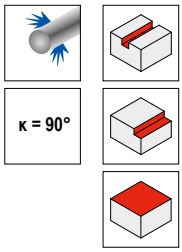
ISO	RE mm	£ WB	
16T3ZF	0.2	38.33	**151**

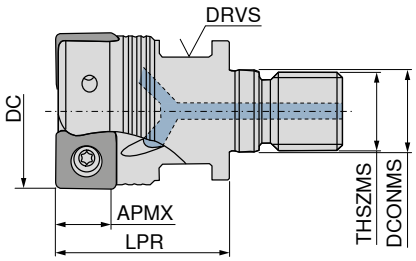
P	●
M	●
K	●
N	
S	
H	●
O	

Milling guide

Cutting data standard values	→ 145–148	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – 491-09 Screw in cutter

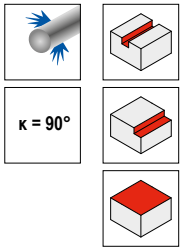


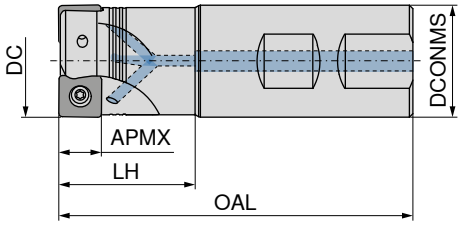




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 773 ... £ 2B/40	
G491.25.R.03-09	25	3	6	35	M12	12.5	17	2	SNHU 09T3	425.42	125
G491.32.R.03-09	32	3	6	35	M16	17.0	24	2	SNHU 09T3	431.83	132
G491.32.R.04-09	32	4	6	35	M16	17.0	24	2	SNHU 09T3	482.46	232

MaxiMill – 491-09 End milling cutter









Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 774 ... £ 2B/40		50 774 ... £ 2B/40	
C491.25.R.03-09-B-32	25	3	6	89	32	25	23500	2	SNHU 09T3			431.83	425
C491.25.R.03-09-A-50-225	25	3	6	225	50	25	23500	2	SNHU 09T3	431.83	325		
C491.32.R.03-09-B-40	32	3	6	101	40	32	19600	2	SNHU 09T3			444.43	632
C491.32.R.04-09-B-40	32	4	6	101	40	32	19600	2	SNHU 09T3			482.46	432
C491.32.R.03-09-A-63-250	32	3	6	250	63	32	19600	2	SNHU 09T3	444.43	532		
C491.32.R.04-09-A-63-250	32	4	6	250	63	32	19600	2	SNHU 09T3	482.46	332		

	TORX® blade	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	80 950 ...	70 950 ...	70 950 ...	80 950 ...
Spare parts	£ Y7	£ Y7	£ 2A/28	£ 2A/28	£ Y7
DC					
25 - 32	8.91 053	15.63 119	5.31 303	3.74 710	244.07 193

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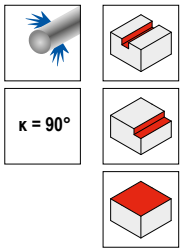
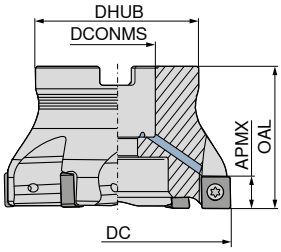
MaxiMill – 491-09 Shell mill





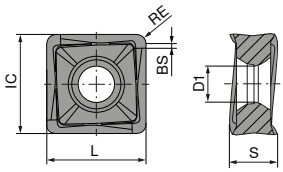


Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	**50 776 ...** £ 2B/40		**50 775 ...** £ 2B/40	
A491.40.R.03-09	40	3	6	40	38	16	16800	2	SNHU 09T3			469.74	**240**
A491.40.R.05-09	40	5	6	40	38	16	16800	2	SNHU 09T3	546.04	**240**		
A491.50.R.04-09	50	4	6	40	43	22	14600	2	SNHU 09T3			520.61	**250**
A491.50.R.06-09	50	6	6	40	43	22	14600	2	SNHU 09T3	596.78	**250**		
A491.63.R.05-09	63	5	6	40	48	22	12700	2	SNHU 09T3			622.19	**263**
A491.63.R.08-09	63	8	6	40	48	22	12700	2	SNHU 09T3	736.40	**263**		
A491.80.R.06-09	80	6	6	50	58	27	11100	2	SNHU 09T3			660.37	**280**
A491.80.R.10-09	80	10	6	50	58	27	11100	2	SNHU 09T3	812.69	**280**		
A491.100.R.07-09	100	7	6	50	78	32	9800	2	SNHU 09T3			837.99	**300**
A491.100.R.12-09	100	12	6	50	78	32	9800	2	SNHU 09T3	1,028.48	**300**		
A491.125.R.08-09	125	8	6	63	88	40	8700	2	SNHU 09T3			1,015.78	**325**
A491.125.R.15-09	125	15	6	63	88	40	8700	2	SNHU 09T3	1,244.90	**325**		

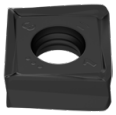
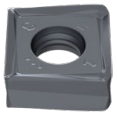
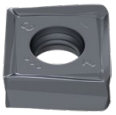
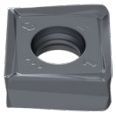
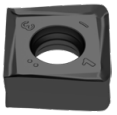
	TORX® blade		 Clamping key – T		Key D		 Power Screw		 Molykote		 Clamping screw		Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		Y7		Y7		2A/28		2A/28		2A/28		Y7	
40	8.91	**053**	6.37	**040**	15.63	**119**	15.86	**151**	5.31	**303**	3.74	**710**	244.07	**193**
50 - 125	8.91	**053**			15.63	**119**			5.31	**303**	3.74	**710**	244.07	**193**

SNHU

Designation	IC	L	S	D1
	mm	mm	mm	mm
SNHU 09T3..	9.15	9.15	3.70	3.85



SNHU

		-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245	-F40 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
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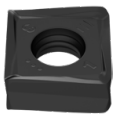
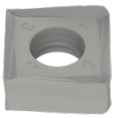
		51 120 ...	51 120 ...	51 119 ...	51 120 ...	51 126 ...	51 126 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
09T308ER	0.8					33.25 45800	33.25 90801
09T308SR	0.8	26.58 008	26.58 108	26.58 408	26.58 408		
09T312SR	1.2	26.58 01200	26.58 11200	26.58 41200	26.58 41200		
09T316SR	1.6	26.58 01600	26.58 11600	26.58 41600	26.58 41600		
P		●	●	○	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SNHU

NEW

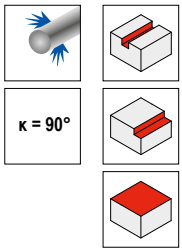
		-R50 CTCK215	-R50 CTPK220	-F10 CTPX715	-F10 CTWN215	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
							
		SNHU	SNHU	SNHU	SNHU	SNHU	SNHU
		51 121 ...	51 121 ...	51 118 ...	51 118 ...	51 126 ...	51 126 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
09T308ER	0.8					33.25 15800	33.25 55800
09T308FR	0.8			35.11 00802	26.58 358		
09T308SR	0.8	26.58 508	26.58 60800				
09T312FR	1.2				26.58 36200		
09T312SR	1.2	26.58 51200					
09T316FR	1.6				26.58 36600		
09T316SR	1.6	26.58 51600					
P				○			
M				○			
K		●	●	●	○		
N				●	●		
S				○		●	●
H							
O				○	○		

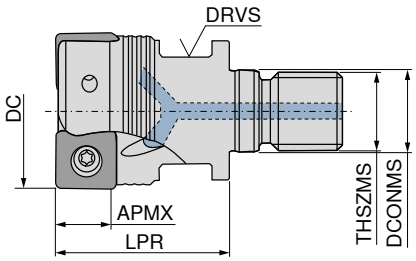
Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 159
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

15

MaxiMill – 491-12 Screw in cutter

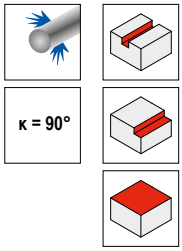


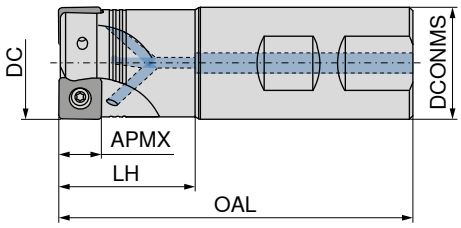




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 773 ... £ 2B/40	
G491.32.R.02-12	32	2	8	35	M16	17	24	3,2	SNHU 1204	406.40	**032**

MaxiMill – 491-12 End milling cutter







Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 774 ... £ 2B/40		50 774 ... £ 2B/40	
C491.32.R.02-12-B-40	32	2	8	102	40	32	13600	3,2	SNHU 1204			406.40	**032**
C491.32.R.02-12-A-63-250	32	2	8	250	63	32	10200	3,2	SNHU 1204	406.40	**232**		

TORX® blade


Key D

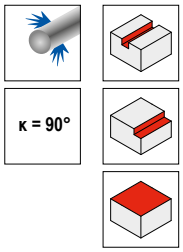

Molykote

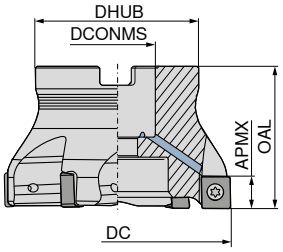

Clamping screw


Torque screwdriver

Spare parts DC	80 950 ... £ Y7		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		80 950 ... £ Y7	
32	8.91	**054**	21.01	**128**	5.31	**303**	3.79	**859**	244.07	**193**

MaxiMill – 491-12 Shell mill







Designation	DC	ZNF	APMX	OAL	DHUB	DCONMS $_{H6}$	RPMX	torque moment	Insert	50 776 ...		50 775 ...	
	mm		mm	mm	mm	mm	1/min.	Nm		£ 2B/40		£ 2B/40	
A491.40.R.03-12	40	3	8	40	38	16	11500	3,2	SNHU 1204			469.74	**040**
A491.40.R.04-12	40	4	8	40	38	16	11500	3,2	SNHU 1204	507.88	**040**		
A491.50.R.04-12	50	4	8	40	43	22	9800	3,2	SNHU 1204			520.61	**050**
A491.50.R.05-12	50	5	8	40	43	22	9800	3,2	SNHU 1204	558.74	**050**		
A491.63.R.05-12	63	5	8	40	48	22	8500	3,2	SNHU 1204			622.19	**063**
A491.63.R.06-12	63	6	8	40	48	22	8500	3,2	SNHU 1204	660.37	**063**		
A491.80.R.06-12	80	6	8	50	58	27	7400	3,2	SNHU 1204			660.37	**080**
A491.80.R.08-12	80	8	8	50	58	27	7400	3,2	SNHU 1204	761.85	**080**		
A491.100.R.07-12	100	7	8	50	78	32	6500	3,2	SNHU 1204			837.99	**100**
A491.100.R.10-12	100	10	8	50	78	32	6500	3,2	SNHU 1204	952.45	**100**		
A491.125.R.08-12	125	8	8	63	88	40	5700	3,2	SNHU 1204			1,015.78	**125**
A491.125.R.12-12	125	12	8	63	88	40	5700	3,2	SNHU 1204	1,168.24	**125**		
A491.160.R.09-12	160	9	8	63	98	40	5000	3,2	SNHU 1204			1,180.95	**160** [1]
A491.160.R.14-12	160	14	8	63	98	40	5000	3,2	SNHU 1204	1,372.05	**160** [1]		

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

TORX® blade


Clamping key – T


Key D


Power Screw


Molykote

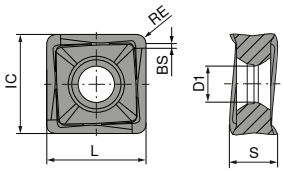

Clamping screw


Torque screwdriver

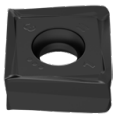
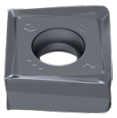
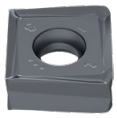
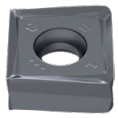
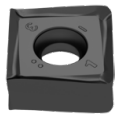
Spare parts	80 950 ...		80 397 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
DC	£ Y7		£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ 2A/28		£ Y7	
40	8.91	**054**	6.37	**040**	21.01	**128**	15.86	**151**	5.31	**303**	3.79	**859**	244.07	**193**
50 - 160	8.91	**054**			21.01	**128**			5.31	**303**	3.79	**859**	244.07	**193**

SNHU

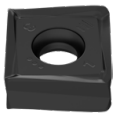
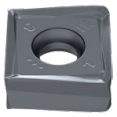
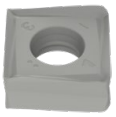
Designation	IC	L	S	D1
	mm	mm	mm	mm
SNHU 1204..	12.2	12.2	5.00	4.4



SNHU

		-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245	-F40 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SNHU	SNHU	SNHU	SNHU	SNHU	SNHU
		51 100 ...	51 100 ...	51 102 ...	51 100 ...	51 128 ...	51 128 ...
ISO	RE	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
	mm						
120408ER	0.8					39.92 45800	39.92 90801
120408SR	0.8	32.47 008	32.47 108	32.47 408	32.47 408		
120412SR	1.2		32.47 112	32.47 412			
120416SR	1.6		32.47 116	32.47 416			
120420SR	2.0		32.47 120	32.47 420			
P		●	●	○	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SNHU

					NEW								
		-R50 CTCK215		-R50 CTPK220		-F10 CTPX715		-F10 CTWN215		-F40 CTC5240		-F40 CTCS245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN				DRAGONSKIN		DRAGONSKIN	
													
		SNHU		SNHU		SNHU		SNHU		SNHU		SNHU	
		51 103 ...		51 103 ...		51 101 ...		51 101 ...		51 128 ...		51 128 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1H/17		£ 1H/17	
120408ER	0.8									39.92	15800	39.92	55800
120408FR	0.8					42.88	00802	32.47	358				
120408SR	0.8	32.47	508	32.47	608								
120412FR	1.2							32.47	362				
120412SR	1.2	32.47	512										
120416FR	1.6							32.47	366				
120416SR	1.6	32.47	516										
120420FR	2.0							32.47	370				
120420SR	2.0	32.47	520										
P						○							
M						○							
K		●		●		●		○					
N						●		●					
S						○					●		●
H													
O						○		○					

Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 159
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

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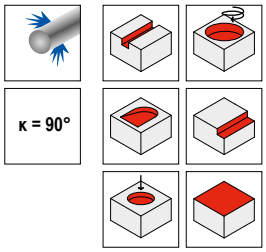
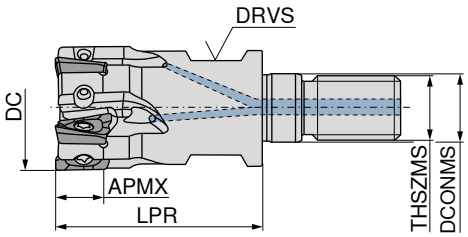
MaxiMill – 211-07 Screw in cutter

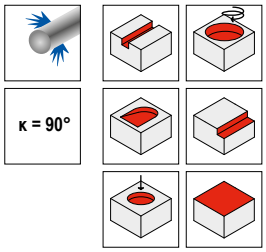


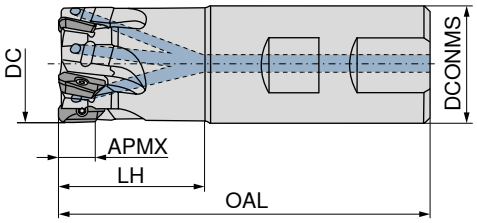




Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 751 ... £ 2B/40	
G211.16.R.04-07	16	4	6	27	8.5	M8	10	50400	1	XD.T 0703	324.54	016
G211.20.R.05-07	20	5	6	33	10.5	M10	15	44280	1	XD.T 0703	362.08	020
G211.25.R.06-07	25	6	6	35	12.5	M12	17	39480	1	XD.T 0703	422.39	025
G211.32.R.08-07	32	8	6	35	17.0	M16	24	36240	1	XD.T 0703	459.92	032

MaxiMill – 211-07 End milling cutter



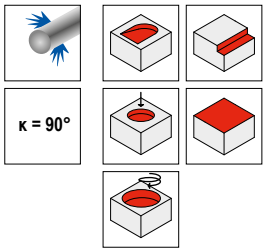


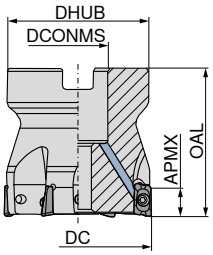


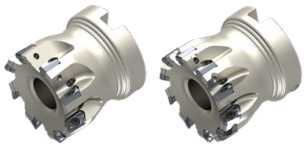


Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	RPMX 1/min.	torque moment Nm	Insert	50 752 ... £ 2B/40		50 752 ... £ 2B/40	
C211.10.R.01-07-A-20	10	1	6	61.0	20	10	72000	1	XD.T 0703	256.73	010		
C211.12.R.02-07-A-20	12	2	6	66.5	20	12	66600	1	XD.T 0703	294.28	012		
C211.16.R.04-07-A/B-25	16	4	6	74.5	25	16	50400	1	XD.T 0703	324.54	016	324.54	216
C211.16.R.03-07-A-32-165	16	3	6	165.0	32	16	17760	1	XD.T 0703	301.79	116		
C211.20.R.05-07-A/B-25	20	5	6	77.0	25	20	44280	1	XD.T 0703	362.08	020	362.08	220
C211.20.R.04-07-A-40-200	20	4	6	200.0	40	20	12600	1	XD.T 0703	339.45	120		
C211.25.R.06-07-A/B20-32	25	6	6	84.0	32	20	39840	1	XD.T 0703	422.39	025	422.39	225
C211.25.R.05-07-A20-50-225	25	5	6	225.0	50	20	11280	1	XD.T 0703	377.23	125		
C211.32.R.08-07-A/B25-40	32	8	6	98.0	40	25	36240	1	XD.T 0703	459.92	032	459.92	232

MaxiMill – 211-07 Shell mill





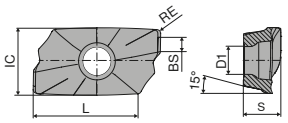


Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 753 ... £ 2B/40		50 754 ... £ 2B/40	
A211.32.R.06-07	32	6	6	40	16	38	36240	1	XD.T 0703	384.96	**032**		
A211.32.R.08-07	32	8	6	40	16	38	36240	1	XD.T 0703			430.03	**032**
A211.40.R.08-07	40	8	6	40	16	38	33240	1	XD.T 0703	475.31	**040**		
A211.40.R.10-07	40	10	6	40	16	38	33240	1	XD.T 0703			520.61	**040**
A211.50.R.10-07	50	10	6	40	22	43	30480	1	XD.T 0703	565.79	**050**		
A211.50.R.12-07	50	12	6	40	22	43	30480	1	XD.T 0703			610.95	**050**

Spare parts DC	TORX® blade 80 950 ... £ Y7		Clamping key – T 80 397 ... £ Y7		Key D 80 950 ... £ Y7		Power Screw 70 950 ... £ 2A/28		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7	
10 - 32	8.91	**051**			17.97	**124**			5.31	**303**	3.85	**137**	217.91	**191**
32	8.91	**051**	6.37	**040**	17.97	**124**	15.86	**151**	5.31	**303**	3.85	**137**	217.91	**191**
40 - 50	8.91	**051**			17.97	**124**			5.31	**303**	3.85	**137**	217.91	**191**

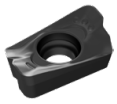
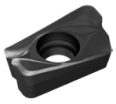
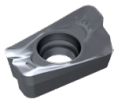
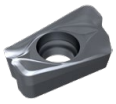
XDKT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDKT 0703..	4.9	2.5	7.8	1.2	3.18



XDKT

XDKT

		-F50 CTCP230 DRAGONSKIN	-M50 CTCP230 DRAGONSKIN	-F50 CTPP235 DRAGONSKIN	-M50 CTPP235 DRAGONSKIN
					
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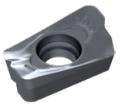
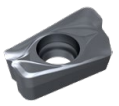
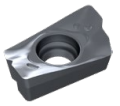
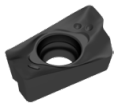
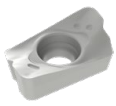
		51 033 ...	51 036 ...	51 033 ...	51 036 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
070304SR	0.4	14.00 004	14.00 004	14.00 104	14.00 104
070308SR	0.8	14.00 008	14.00 008	14.00 108	14.00 108
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

XDKT

		-F50 CTPM240 DRAGONSKIN	-M50 CTPM240 DRAGONSKIN	-F40 CTPM245 DRAGONSKIN	-F40 CTCM245 DRAGONSKIN	-F20 CTWN215	-F40 CTC5240 DRAGONSKIN	-F40 CTCS245 DRAGONSKIN
								
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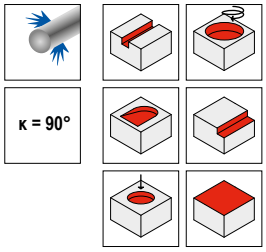
		51 033 ...	51 036 ...	51 112 ...	51 112 ...	50 507 ...	50 498 ...	51 112 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17	£ 1A/90	£ 1H/17	£ 1H/17
070304ER	0.4			16.72 454	16.72 90401		16.72 544	
070304FR	0.4					16.12 504		
070304SR	0.4	14.00 404	14.00 404					
070308ER	0.8			16.72 458	16.72 90801		16.72 548	16.72 558
070308FR	0.8					16.12 508		
070308SR	0.8	14.00 408	14.00 408					
P		○	○	●	●			
M		●	●	●	●			
K						○		
N						●		
S					○		●	●
H								
O						○		

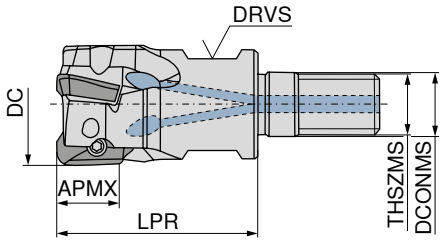
Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 160
Starting Parameter	→ 160	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – 211-11 Screw in cutter

▲ Insert radius >1,6 mm: Modify cutter body



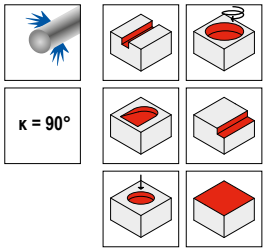


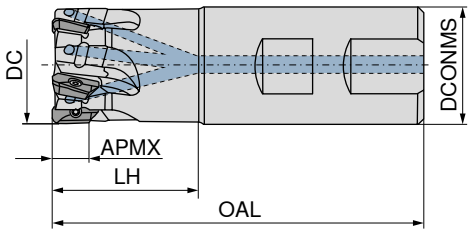


Designation	DC	ZNF	APMX	LPR	DCONMS	THSZMS	DRVS	RPMX	torque moment	Insert	50 736 ... £ 2B/40	
	mm		mm	mm	mm		mm	1/min.	Nm			
G211.16.R.02-11	16	2	10	27	8.5	M8	10	42000	1,6	XD.T 11T3	279.14	016
G211.20.R.03-11	20	3	10	33	10.5	M10	15	36900	1,6	XD.T 11T3	316.91	020
G211.25.R.03-11	25	3	10	35	12.5	M12	17	33200	1,6	XD.T 11T3	331.92	12500
G211.25.R.04-11	25	4	10	35	12.5	M12	17	33200	1,6	XD.T 11T3	354.69	025
G211.32.R.04-11	32	4	10	35	17.0	M16	24	30200	1,6	XD.T 11T3	369.72	13200
G211.32.R.05-11	32	5	10	35	17.0	M16	24	30200	1,6	XD.T 11T3	392.48	032
G211.40.R.06-11	40	6	10	35	17.0	M16	27	27700	1,6	XD.T 11T3	430.03	040

MaxiMill – 211-11 End milling cutter

▲ Insert radius >1,6 mm: Modify cutter body





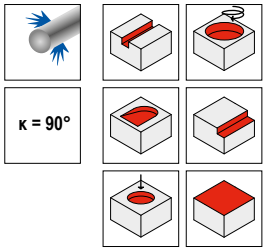


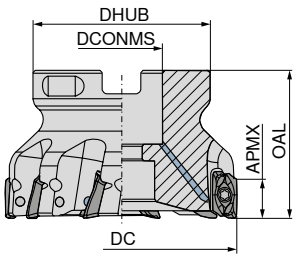


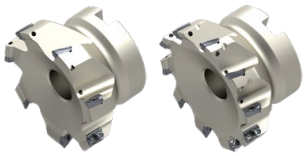
Designation	DC	ZNF	APMX	OAL	LH	DCONMS h6	RPMX	torque moment	Insert	50 737 ... £ 2B/40		50 737 ... £ 2B/40	
	mm		mm	mm	mm	mm	1/min.	Nm					
C211.12.R.01-11-B-20	12	1	10	75	20	16	55000	1,6	XD.T 11T3			248.98	012
C211.16.R.02-11-A/B-25	16	2	10	75	25	16	42000	1,6	XD.T 11T3	279.14	116	279.14	016
C211.16.R.02-11-A15-32-165	16	2	10	165	32	15	14800	1,6	XD.T 11T3	279.14	316		
C211.16.R.02-11-A-32-165	16	2	10	165	32	16	14800	1,6	XD.T 11T3	279.14	216		
C211.20.R.03-11-A-25	20	3	10	77	25	20	36900	1,6	XD.T 11T3	316.91	120		
C211.20.R.03-11-B-25	20	3	10	77	25	20	36900	1,6	XD.T 11T3			316.91	020
C211.20.R.02-11-B-25	20	2	10	77	25	20	36900	1,6	XD.T 11T3			294.28	02002
C211.20.R.02-11-A-25	20	2	10	77	25	20	36900	1,6	XD.T 11T3	294.28	12002		
C211.20.R.03-11-A-32-165	20	3	10	165	32	20	15800	1,6	XD.T 11T3	316.91	320		
C211.20.R.02-11-A-40-200	20	2	10	200	40	20	10500	1,6	XD.T 11T3	294.28	420		
C211.20.R.02-11-A19-40-200	20	2	10	200	40	19	10500	1,6	XD.T 11T3	294.28	620		
C211.25.R.03-11-A/B-32	25	3	10	90	32	25	33200	1,6	XD.T 11T3	332.05	625	332.05	725
C211.25.R.04-11-A/B-32	25	4	10	90	32	25	33200	1,6	XD.T 11T3	354.69	125	354.69	025
C211.25.R.04-11-A-40-165	25	4	10	165	40	25	19900	1,6	XD.T 11T3	354.69	325		
C211.25.R.03-11-A-50-225	25	3	10	225	50	25	9400	1,6	XD.T 11T3	332.05	425		
C211.25.R.03-11-A24-50-225	25	3	10	225	50	24	9400	1,6	XD.T 11T3	332.05	825		
C211.25.R.02-11-A-50-225	25	2	10	225	50	25	9400	1,6	XD.T 11T3	309.53	02502		
C211.32.R.04-11-A-40	32	4	10	102	40	32	30200	1,6	XD.T 11T3	369.72	13204		
C211.32.R.05-11-A/B-40	32	5	10	102	40	32	30200	1,6	XD.T 11T3	392.48	132	392.48	032
C211.32.R.04-11-B-25	32	4	10	102	40	32	30200	1,6	XD.T 11T3			369.72	83200
C211.32.R.05-11-B25-40	32	5	10	102	40	25	30200	1,6	XD.T 11T3			392.48	73200
C211.32.R.04-11-A25-40	32	4	10	102	40	25	30200	1,6	XD.T 11T3	369.72	53204		
C211.32.R.05-11-A-50-165	32	5	10	165	50	32	20900	1,6	XD.T 11T3	392.48	332		
C211.32.R.04-11-A-64-250	32	4	10	250	64	32	8500	1,6	XD.T 11T3	369.72	432		
C211.40.R.06-11-B32-50	40	6	10	110	50	32	27700	1,6	XD.T 11T3			430.03	04000
C211.40.R.06-11-B-50	40	6	10	122	50	40	27700	1,6	XD.T 11T3			430.03	14000

MaxiMill – 211-11 Shell mill

▲ Insert radius >1,6 mm: Modify cutter body





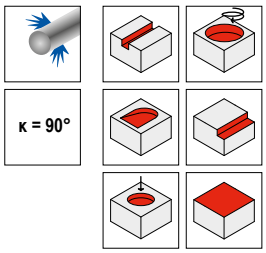


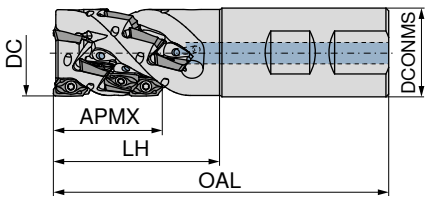
											50 738 ...		50 739 ...	
Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert		£ 2B/40		£ 2B/40	
A211.40.R.04-11	40	4	10	40	16	38	27700	1,6	XD.T 11T3		384.96	**040**		
A211.40.R.06-11	40	6	10	40	16	38	27700	1,6	XD.T 11T3				430.03	**040**
A211.50.R.05-11	50	5	10	40	22	43	25400	1,6	XD.T 11T3		452.66	**050**		
A211.50.R.08-11	50	8	10	40	22	43	25400	1,6	XD.T 11T3				520.73	**050**
A211.63.R.06-11	63	6	10	40	22	48	23300	1,6	XD.T 11T3		520.73	**063**		
A211.63.R.10-11	63	10	10	40	22	48	23300	1,6	XD.T 11T3				611.19	**063**
A211.80.R.07-11	80	7	10	50	27	58	21300	1,6	XD.T 11T3		588.67	**080**		
A211.80.R.10-11	80	10	10	50	27	58	21300	1,6	XD.T 11T3				656.47	**180**
A211.80.R.12-11	80	12	10	50	27	58	21300	1,6	XD.T 11T3				701.77	**08012**
A211.100.R.08-11	100	8	10	50	32	78	19600	1,6	XD.T 11T3		656.47	**10000**		
A211.100.R.14-11	100	14	10	50	32	78	19600	1,6	XD.T 11T3				792.35	**10014**
A211.125.R.10-11	125	10	10	63	40	88	17900	1,6	XD.T 11T3		716.78	**12500**		

	TORX® blade		 Clamping key – T		 Key D		 Power Screw		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		80 397 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
Spare parts **DC**	£ Y7		£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ 2A/28		£ Y7	
12	8.91	**043**			17.97	**125**			5.31	**303**	5.00	**92000**	217.91	**191**
16 - 32	8.91	**043**			17.97	**125**			5.31	**303**	4.96	**128**	217.91	**191**
40	8.91	**043**	6.37	**040**	17.97	**125**	15.86	**151**	5.31	**303**	4.96	**131**	217.91	**191**
50	8.91	**043**	8.11	**050**	17.97	**125**	20.76	**154**	5.31	**303**	4.96	**131**	217.91	**191**
63 - 125	8.91	**043**			17.97	**125**			5.31	**303**	4.96	**131**	217.91	**191**

MaxiMill – 211-11KN shell end mill shank

▲ ZEFP = Number of inserts
▲ ZNP = Number of teeth







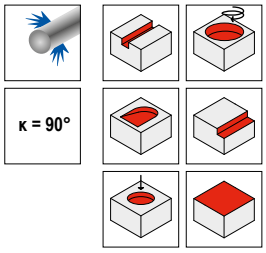


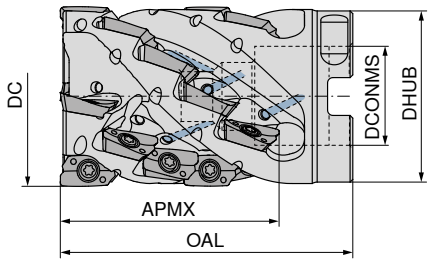
50 784 ...

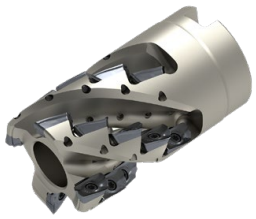
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	ZEFP	ZNP	torque moment Nm	Insert	£ 2B/40	
C211.25.R.02KN3-11-B-40	25	2	28	97	40	25	6	3	1,6	XD.T 11T3	769.35	**02523**
C211.25.R.02KN4-11-B-50	25	2	37	107	50	25	8	4	1,6	XD.T 11T3	814.50	**02524**
C211.25.R.02KN5-11-B-60	25	2	46	117	60	25	10	5	1,6	XD.T 11T3	868.76	**02525**
C211.32.R.02KN4-11-B-50	32	2	37	111	50	32	8	4	1,6	XD.T 11T3	843.81	**03224**
C211.32.R.03KN5-11-B-60	32	3	46	121	60	32	15	5	1,6	XD.T 11T3	1,018.06	**03235**
C211.40.R.03KN4-11-B32-50	40	3	37	111	50	32	12	4	1,6	XD.T 11T3	968.31	**04034**
C211.40.R.04KN5-11-B32-60	40	4	46	121	60	32	20	5	1,6	XD.T 11T3	1,167.39	**04045**

MaxiMill – 211-11KN shell end face mill

▲ ZEFP = Number of inserts
▲ ZNP = Number of teeth







50 794 ...

Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	£ 2B/40	
A211.40.R.03KN4-11	40	3	37	12	4	65	22	38	1,6	XD.T 11T3	968.31	**04034**
A211.40.R.04KN4-11	40	4	37	16	4	65	22	38	1,6	XD.T 11T3	1,058.64	**04044**
A211.40.R.04KN5-11	40	4	46	20	5	74	22	38	1,6	XD.T 11T3	1,167.39	**04045**
A211.50.R.04KN5-11	50	4	46	20	5	75	27	48	1,6	XD.T 11T3	1,276.37	**05045**
A211.50.R.05KN5-11	50	5	46	25	5	75	27	48	1,6	XD.T 11T3	1,390.22	**05055**
A211.50.R.05KN6-11	50	5	55	30	6	85	27	48	1,6	XD.T 11T3	1,523.42	**05056**


Cylindrical screw

TORX® blade

Key D


Molykote


Clamping screw


Socket head screw

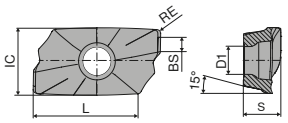
Torque screwdriver

	Cylindrical screw		TORX® blade		Key D		Molykote		Clamping screw		Socket head screw		Torque screwdriver	
	70 950 ...		**80 950 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£		£	
Designation	2A/28		Y7		Y7		2A/28		2A/28		2A/28		Y7	
A211.40.R.03KN4-11			8.91	043	17.97	125	5.31	303	8.59	20400	13.91	20900	217.91	191
A211.40.R.04KN4-11			8.91	043	17.97	125	5.31	303	8.59	20400	13.91	20900	217.91	191
A211.40.R.04KN5-11			8.91	043	17.97	125	5.31	303	8.59	20400	13.91	21000	217.91	191
A211.50.R.04KN5-11	13.91	002	8.91	043	17.97	125	5.31	303	8.59	20400	10.22	181	217.91	191
A211.50.R.05KN5-11	13.91	002	8.91	043	17.97	125	5.31	303	8.59	20400	10.22	181	217.91	191
A211.50.R.05KN6-11	13.91	002	8.91	043	17.97	125	5.31	303	8.59	20400	10.22	181	217.91	191
C211.25.R.02KN3-11-B-40			8.91	043	17.97	125	5.31	303	8.59	20700			217.91	191
C211.25.R.02KN4-11-B-50			8.91	043	17.97	125	5.31	303	8.59	20700			217.91	191
C211.25.R.02KN5-11-B-60			8.91	043	17.97	125	5.31	303	8.59	20700			217.91	191
C211.32.R.02KN4-11-B-50			8.91	043	17.97	125	5.31	303	8.59	20700			217.91	191
C211.32.R.03KN5-11-B-60			8.91	043	17.97	125	5.31	303	8.59	20700			217.91	191
C211.40.R.03KN4-11-B32-50			8.91	043	17.97	125	5.31	303	8.59	20400			217.91	191
C211.40.R.04KN5-11-B32-60			8.91	043	17.97	125	5.31	303	8.59	20400			217.91	191

15

XDKT / XDHT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XD.T 11T302..	6.8	2.8	10.6	2	3.80
XD.T 11T304..	6.8	2.8	10.6	1.8	3.80
XD.T 11T308..	6.8	2.8	10.6	1.4	3.80
XD.T 11T312..	6.8	2.8	10.6	1.4	3.80
XD.T 11T316..	6.8	2.8	10.6	1.4	3.80
XD.T 11T320..	6.8	2.8	10.6	1.4	3.80
XD.T 11T325..	6.8	2.8	10.6	1.4	3.80
XD.T 11T332..	6.8	2.8	10.6	0.8	3.80
XD.T 11T340..	6.8	2.8	10.6	-	3.80
XDHT 11T350..	6.8	2.8	10.6	-	3.80
XDKT 11T332..	6.8	2.8	10.6	1.4	3.80



XDKT

XDKT

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		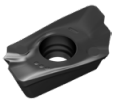	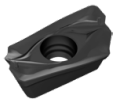	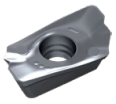	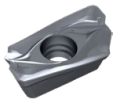
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ISO	RE	£	£	£	£
	mm	1B/61	1B/61	1B/61	1B/61
11T308SR	0.8	17.03 258	17.03 258	17.03 058	17.03 058
P		●	●	●	●
M					
K					
N					
S					
H					
O					

XDKT

		-F50 CTCP230	-M50 CTCP230	-R50 CTCP230	-F50 CTPP235	-M50 CTPP235	-R50 CTPP235
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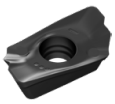
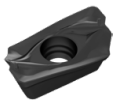
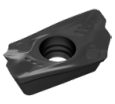
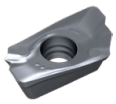
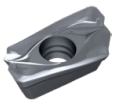
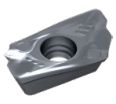
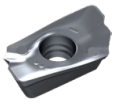
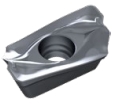
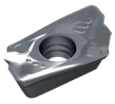
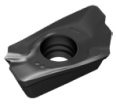
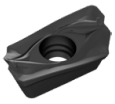
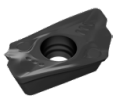
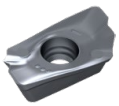
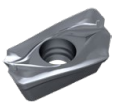
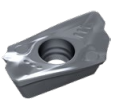
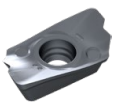
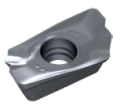
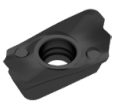
							
		F	M	R	F	M	R
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
		51 034 ...	51 037 ...	51 039 ...	51 034 ...	51 037 ...	51 039 ...
ISO	RE	£	£	£	£	£	£
	mm	1B/61	1B/61	1B/61	1B/61	1B/61	1B/61
11T304SR	0.4	17.03 004	17.03 004	17.03 004	17.03 104	17.03 104	17.03 104
11T308SR	0.8	17.03 008	17.03 008	17.03 008	17.03 108	17.03 108	17.03 108
11T312SR	1.2		17.03 012			17.03 112	
11T320SR	2.0	17.03 020 1)	17.03 020 1)	17.03 020 1)	17.03 120 1)	17.03 120 1)	17.03 120 1)
11T325SR	2.5	17.03 025 1)	17.03 025 1)	17.03 025 1)	17.03 125 1)	17.03 125 1)	17.03 125 1)
P		●	●	●	●	●	●
M					○	○	○
K		○	○	○	○	○	○
N							
S							
H							
O							

1) Insert radius >1.6 mm: Modify cutter body

XDKT

		-F50 CTPM225 DRAGONSKIN		-M50 CTPM225 DRAGONSKIN		-R50 CTPM225 DRAGONSKIN		-F50 CTCM235 DRAGONSKIN		-M50 CTCM235 DRAGONSKIN		-R50 CTCM235 DRAGONSKIN	
													
		F XDKT		M XDKT		R XDKT		F XDKT		M XDKT		R XDKT	
		51 034 ...		51 037 ...		51 039 ...		51 034 ...		51 037 ...		51 039 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61	
11T308SR	0.8	17.03	208	17.03	208	17.03	208	17.03	308	17.03	308	17.03	308
P			●		●		●		●		●		●
M			●		●		●		●		●		●
K													
N													
S													
H													
O													

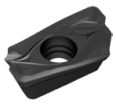
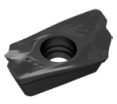
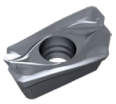
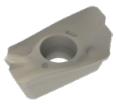
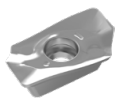
XDKT

		-F50 CTPM240 DRAGONSKIN		-M50 CTPM240 DRAGONSKIN		-R50 CTPM240 DRAGONSKIN		-F40 CTPM245 DRAGONSKIN		-F50 CTPM245 DRAGONSKIN		-F40 CTCM245 DRAGONSKIN		-F50 CTCM245 DRAGONSKIN	
															
		F XDKT		M XDKT		R XDKT		F XDKT		F XDKT		F XDKT		F XDKT	
		51 034 ...		51 037 ...		51 039 ...		51 113 ...		51 034 ...		51 113 ...		51 034 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1H/17		£ 1H/17		£ 1H/17		£ 1H/17	
11T304ER	0.4							21.90	454			21.90	90401		
11T304SR	0.4			17.03	404										
11T308ER	0.8							21.90	458			21.90	90801		
11T308SR	0.8	17.03	408	17.03	408	17.03	408			21.90	458			21.90	90801
11T312ER	1.2							21.90	462			21.90	91201		
11T312SR	1.2	17.03	412	17.03	412	17.03	412								
11T316ER	1.6							21.90	466			21.90	91601		
11T320ER	2.0							21.90	470 1)			21.90	92001 1)		
11T320SR	2.0	17.03	420 1)	17.03	420 1)	17.03	420 1)								
11T325ER	2.5							21.90	475 1)			21.90	92501 1)		
11T332ER	3.2							21.90	482 1)			21.90	93201 1)		
11T332SR	3.2	17.03	432 1)	17.03	432 1)	17.03	432 1)								
11T340ER	4.0							21.90	490 1)			21.90	94001 1)		
P		○		○		○		●		●		●		●	
M		●		●		●		●		●		●		●	
K															
N															
S												○		○	
H															
O															

1) Insert radius >1.6 mm: Modify cutter body

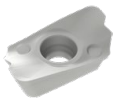
15

XDKT / XDHT

		-M50 CTCK215 DRAGONSKIN		-R50 CTCK215 DRAGONSKIN		-M50 CTPK220 DRAGONSKIN		-F20 CTWN215		NEW -F10 CTPX715 DRAGONSKIN		-27P H216T	
													
		M		R		M		F		F		F	
		XDKT		XDKT		XDKT		XDKT		XDHT		XDHT	
		51 037 ...		51 039 ...		51 037 ...		50 478 ...		51 155 ...		50 477 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1A/90		£ 1A/90		£ 1A/90	
11T302FR	0.2							21.39	502	26.80	00202	32.25	502
11T304FR	0.4							21.39	504	26.80	00402	32.25	504
11T304SR	0.4	17.03	504										
11T308FR	0.8							21.39	508	26.80	00802	32.25	508
11T308SR	0.8	17.03	508	17.03	508	17.03	608						
11T312FR	1.2									26.80	01202	32.25	512
11T316FR	1.6									26.80	01602	32.25	516
11T320FR	2.0							21.39	520 1)	26.80	02002 1)	32.25	520 1)
11T325FR	2.5							21.39	525 1)	26.80	02502 1)	32.25	525 1)
11T332FR	3.2									26.80	03202 1)	32.25	532 1)
11T340FR	4.0									26.80	04002 1)	32.25	540 1)
11T350FR	5.0									26.80	05002 1)	32.25	550 1)
P										○			
M										○			
K		●		●		●		○		●		○	
N								●		●		●	
S										○			
H													
O								○		○		○	

1) Insert radius >1.6 mm: Modify cutter body

XDKT

		-F40 CTC5240 DRAGONSKIN		-F40 CTCS245 DRAGONSKIN		-R60 CTP6215	
							
		F		F		R	
		XDKT		XDKT		XDKT	
		50 463 ...		51 113 ...		50 464 ...	
ISO	RE mm	£ 1H/17		£ 1H/17		£ 1B/61	
11T304ER	0.4	21.90	504				
11T308ER	0.8	21.90	500	21.90	558		
11T308SR	0.8					22.01	300
11T312ER	1.2	21.90	512	21.90	562		
11T316ER	1.6	21.90	516	21.90	566		
11T320ER	2.0	21.90	520 1)	21.90	570		
11T325ER	2.5	21.90	525 1)	21.90	57500 1)		
11T332ER	3.2	21.90	532 1)	21.90	582		
11T340ER	4.0	21.90	540 1)	21.90	59000 1)		
P							
M							
K						●	
N							
S		●		●			
H						●	
O							

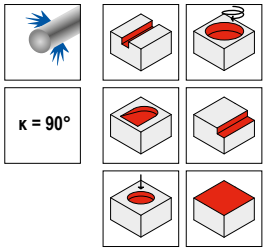
1) Insert radius >1.6 mm: Modify cutter body

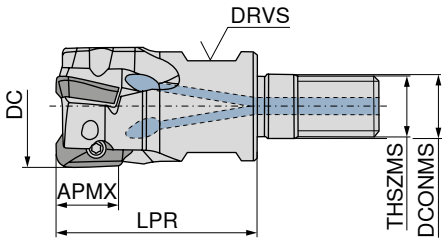
Milling guide

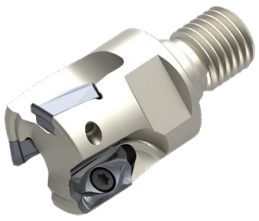
Cutting data standard values	→ 145–148	Machining strategy	→ 161
Starting Parameter	→ 161	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – 211-15 Screw in cutter

▲ Insert radius >2,5 mm: Modify cutter body



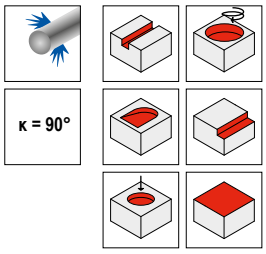


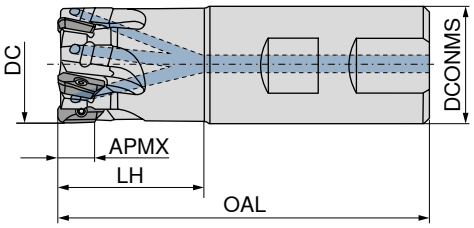


Designation	DC	ZNF	APMX	LPR	DCONMS	THSZMS	DRVS	RPMX	torque moment	Insert	50 746 ... £ 2B/40	
	mm		mm	mm	mm		mm	1/min.	Nm			
G211.25.R.02-15	25	2	14	35	12.5	M12	17	26560	3,2	XD.T 1505	320.54	**025**
G211.32.R.03-15	32	3	14	35	17.0	M16	24	30200	3,2	XD.T 1505	356.89	**032**
G211.40.R.04-15	40	4	14	40	17.0	M16	27	27700	3,2	XD.T 1505	393.56	**040**

MaxiMill – 211-15 End milling cutter

▲ Insert radius >2,5 mm: Modify cutter body



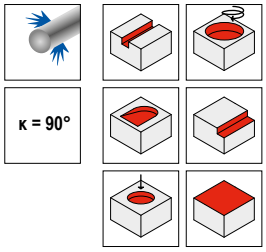


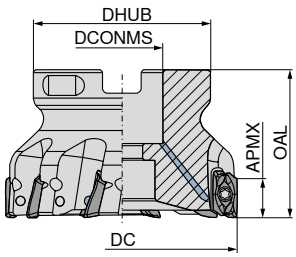


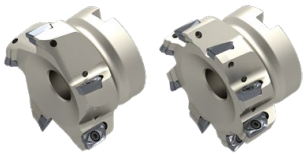
Designation	DC	ZNF	APMX	OAL	LH	DCONMS	RPMX	torque moment	Insert	50 747 ... £ 2B/40		50 747 ... £ 2B/40	
	mm		mm	mm	mm	mm	1/min.	Nm					
C211.25.R.02-15-B20-32	25	2	14	83	32	20	26560	3,2	XD.T 1505			320.54	**125**
C211.25.R.02-15-B/A-32	25	2	14	90	32	25	26560	3,2	XD.T 1505	320.54	**225**	320.54	**025**
C211.25.R.02-15-A-50-225	25	2	14	225	50	25	7520	3,2	XD.T 1505	298.74	**325**		
C211.32.R.03-15-B25-40	32	3	14	96	40	25	22160	3,2	XD.T 1505			356.89	**132**
C211.32.R.03-15-A-40	32	3	14	103	40	32	24160	3,2	XD.T 1505	356.89	**232**		
C211.32.R.03-15-B-40	32	3	14	103	40	32	24160	3,2	XD.T 1505			356.89	**032**
C211.32.R.03-15-A-63-250	32	3	14	250	63	32	6800	3,2	XD.T 1505	335.20	**332**		
C211.40.R.04-15-A-50	40	4	14	110	50	32	22160	3,2	XD.T 1505	393.56	**240**		
C211.40.R.04-15-B32-50	40	4	14	110	50	32	22160	3,2	XD.T 1505			393.56	**040**
C211.40.R.03-15-A-50-275	40	3	14	275	50	32	6120	3,2	XD.T 1505	371.41	**340**		

MaxiMill – 211-15 Shell mill

▲ Insert radius >2,5 mm: Modify cutter body







Designation	DC	ZNF	APMX	OAL	DCONMS H6	DHUB	RPMX	torque moment	Insert	50 748 ... £ 2B/40		50 749 ... £ 2B/40	
	mm		mm	mm	mm	mm	1/min.	Nm					
A211.40.R.03-15	40	3	14	40	16	38	22160	3,2	XD.T 1505	349.74	**040**		
A211.40.R.04-15	40	4	14	40	16	38	22160	3,2	XD.T 1505			393.56	**040**
A211.50.R.03-15	50	3	14	40	22	43	20320	3,2	XD.T 1505	415.26	**050**		
A211.50.R.05-15	50	5	14	40	22	43	20320	3,2	XD.T 1505			458.97	**050**
A211.63.R.04-15	63	4	14	45	22	48	18640	3,2	XD.T 1505	502.55	**063**		
A211.63.R.06-15	63	6	14	45	22	48	18640	3,2	XD.T 1505			546.75	**063**
A211.80.R.05-15	80	5	14	50	27	58	17040	3,2	XD.T 1505	568.19	**080**		
A211.80.R.08-15	80	8	14	50	27	58	17040	3,2	XD.T 1505			611.78	**080**
A211.100.R.06-15	100	6	14	50	32	78	15680	3,2	XD.T 1505	633.96	**100**		
A211.100.R.10-15	100	10	14	50	32	78	15680	3,2	XD.T 1505			677.55	**100**
A211.125.R.07-15	125	7	14	63	40	88	14320	3,2	XD.T 1505	670.15	**125**		
A211.125.R.11-15	125	11	14	63	40	88	14320	3,2	XD.T 1505			713.89	**125**
A211.160.R.08-15	160	8	14	63	40	93	13200	3,2	XD.T 1505	938.88	**160** 1)		
A211.160.R.12-15	160	12	14	63	40	93	13200	3,2	XD.T 1505			982.60	**160** 1)

1) Without Through Coolant

TORX® blade


Clamping key – T


Key D


Power Screw


Molykote

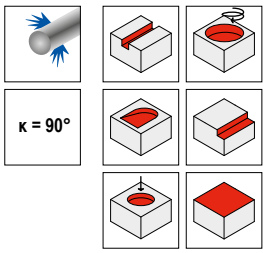

Clamping screw

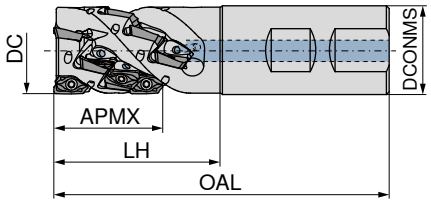

Torque screwdriver

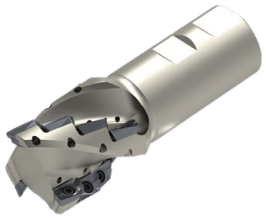
Spare parts DC	80 950 ... £ Y7		80 397 ... £ Y7		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		80 950 ... £ Y7	
25 - 32	8.91	**054**			21.01	**128**			5.31	**303**	3.85	**839**	244.07	**193**
40	8.91	**054**	6.37	**040**	21.01	**128**	15.86	**151**	5.31	**303**	3.85	**839**	244.07	**193**
50	8.91	**054**	8.11	**050**	21.01	**128**	20.76	**154**	5.31	**303**	3.85	**839**	244.07	**193**
63 - 160	8.91	**054**			21.01	**128**			5.31	**303**	3.85	**839**	244.07	**193**

MaxiMill – 211-15KN shell end mill shank

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows





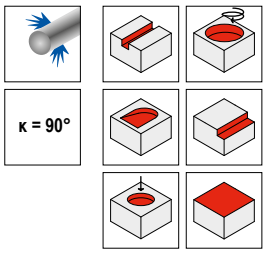


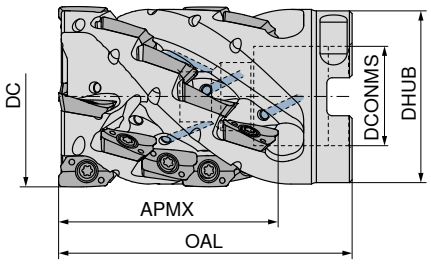


Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	ZEFP	ZNP	torque moment Nm	Insert	50 783 ... £ 2B/40	
C211.40.R.03KN3-15-B32-60	40	3	39.6	121	60	32	9	3	3,2	XD.T 1505	900.49	**04033**
C211.50.R.03KN4-15-B40-68	50	3	52.6	138	67	40	12	4	3,2	XD.T 1505	1,095.22	**05034**

MaxiMill – 211-15KN shell end face mill

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows





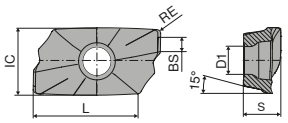


Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	torque moment Nm	Insert	50 781 ... £ 2B/40	
A211.50.R.03KN4-15	50	3	52.6	12	4	87	27	48	3,2	XD.T 1505	1,095.22	**05034**
A211.50.R.03KN5-15	50	3	65.8	15	5	100	27	48	3,2	XD.T 1505	1,163.04	**05035**
A211.50.R.04KN5-15	50	4	65.8	20	5	100	27	48	3,2	XD.T 1505	1,295.77	**05045**
A211.63.R.03KN4-15	63	3	52.6	12	4	76	27	58	3,2	XD.T 1505	1,194.02	**06334**
A211.63.R.03KN5-15	63	3	65.8	15	5	90	27	58	3,2	XD.T 1505	1,261.83	**06335**
A211.63.R.04KN6-15	63	4	78.5	24	6	102	27	58	3,2	XD.T 1505	1,465.29	**06346**
A211.63.R.05KN5-15	63	5	65.8	25	5	90	27	58	3,2	XD.T 1505	1,516.15	**06355**
A211.80.R.04KN5-15	80	4	65.8	20	5	90	32	78	3,2	XD.T 1505	1,472.55	**08045**
A211.80.R.05KN6-15	80	5	78.5	30	6	102	32	78	3,2	XD.T 1505	1,700.22	**08056**

	 Cylindrical screw		TORX® blade		 Key D		 Molykote		 Clamping screw		 Socket head screw		 Torque screwdriver	
	70 950 ...		80 950 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
Spare parts Designation	£ 2A/28		£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ 2A/28		£ Y7	
A211.50.R.03KN4-15	13.91	**002**	8.91	**054**	21.01	**128**	5.31	**303**	10.86	**20800**	10.22	**181**	244.07	**193**
A211.50.R.03KN5-15	13.91	**002**	8.91	**054**	21.01	**128**	5.31	**303**	10.86	**20800**	10.22	**181**	244.07	**193**
A211.50.R.04KN5-15	13.91	**002**	8.91	**054**	21.01	**128**	5.31	**303**	10.86	**20800**	10.22	**181**	244.07	**193**
A211.63.R.03KN4-15	13.91	**002**	8.91	**054**	21.01	**128**	5.31	**303**	10.86	**20500**	10.22	**181**	244.07	**193**
A211.63.R.03KN5-15	13.91	**002**	8.91	**054**	21.01	**128**	5.31	**303**	10.86	**20500**	10.22	**181**	244.07	**193**
A211.63.R.04KN6-15	13.91	**002**	8.91	**054**	21.01	**128**	5.31	**303**	10.86	**20500**	10.22	**181**	244.07	**193**
A211.63.R.05KN5-15	13.91	**002**	8.91	**054**	21.01	**128**	5.31	**303**	10.86	**20500**	10.22	**181**	244.07	**193**
A211.80.R.04KN5-15	31.16	**004**	8.91	**054**	21.01	**128**	5.31	**303**	10.86	**20500**	13.91	**234**	244.07	**193**
A211.80.R.05KN6-15	31.16	**004**	8.91	**054**	21.01	**128**	5.31	**303**	10.86	**20500**	13.91	**234**	244.07	**193**
C211.40.R.03KN3-15-B32-60			8.91	**054**	21.01	**128**	5.31	**303**	10.86	**20800**			244.07	**193**
C211.50.R.03KN4-15-B40-68			8.91	**054**	21.01	**128**	5.31	**303**	10.86	**20800**			244.07	**193**

XDKT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDKT 150508..	9.3	4.4	14.8	1.6	5.56
XDKT 150512..	9.3	4.4	14.8	1.6	5.56
XDKT 150516..	9.3	4.4	14.8	1.6	5.56
XDKT 150520..	9.3	4.4	14.8	1.6	5.56
XDKT 150525..	9.3	4.4	14.8	1.6	5.56
XDKT 150530..	9.3	4.4	14.8	1.6	5.56
XDKT 150532..	9.3	4.4	14.8	1.9	5.56
XDKT 150540..	9.3	4.4	14.8	1.2	5.56
XDKT 150560..	9.3	4.4	14.8	-	5.56



XDKT

XDKT

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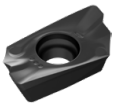
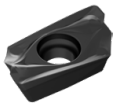
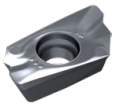
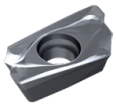
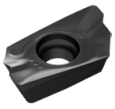
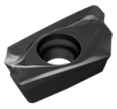
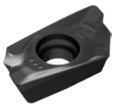
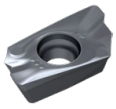
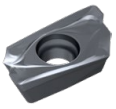
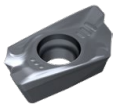
					
		F	M	F	M
		XDKT	XDKT	XDKT	XDKT
		51 035 ...	51 038 ...	51 035 ...	51 038 ...
ISO	RE	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
	mm				
150508SR	0.8	22.71 258	22.71 258	22.71 058	22.71 058
P		●	●	●	●
M					
K					
N					
S					
H					
O					

XDKT

		-F50 CTCP230	-M50 CTCP230	-R50 CTCP230	-F50 CTPP235	-M50 CTPP235	-R50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
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		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
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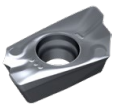
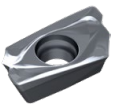
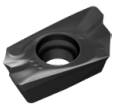
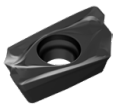
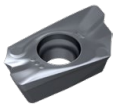
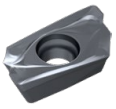
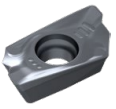
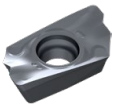
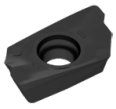
ISO	RE	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
	mm						
150508SR	0.8	22.71 008	22.71 008	22.71 008	22.71 108	22.71 108	22.71 108
150512SR	1.2		22.71 012			22.71 112	
150516SR	1.6		22.71 016			22.71 116	
150520SR	2.0			22.71 020		22.71 120	22.71 120
150530SR	3.0		22.71 030 1)			22.71 130 1)	
150540SR	4.0		22.71 040 1)			22.71 140 1)	
P		●	●	●	●	●	●
M					○	○	○
K		○	○	○	○	○	○
N							
S							
H							
O							

1) Insert radius >2.5 mm: Modify cutter body

XDKT

		-F50 CTPM225 DRAGONSKIN		-M50 CTPM225 DRAGONSKIN		-F50 CTCM235 DRAGONSKIN		-M50 CTCM235 DRAGONSKIN	
									
		F		M		F		M	
		XDKT		XDKT		XDKT		XDKT	
		51 035 ...		51 038 ...		51 035 ...		51 038 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61	
150508SR	0.8	22.71	208	22.71	208	22.71	308	22.71	308
P			●		●		●		●
M			●		●		●		●
K									
N									
S									
H									
O									

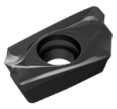
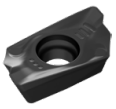
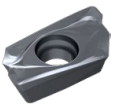
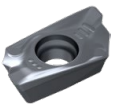
XDKT

		-F50 CTPM240 DRAGONSKIN		-M50 CTPM240 DRAGONSKIN		-R50 CTPM240 DRAGONSKIN		-F40 CTPM245 DRAGONSKIN		-F40 CTCM245 DRAGONSKIN	
											
		F		M		R		F		F	
		XDKT		XDKT		XDKT		XDKT		XDKT	
		51 035 ...		51 038 ...		51 040 ...		51 114 ...		51 114 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1H/17		£ 1H/17	
150508ER	0.8							27.35	458	27.35	90801
150508SR	0.8	22.71	408	22.71	408	22.71	408				
150512ER	1.2									27.35	91201
150512SR	1.2			22.71	412						
150516ER	1.6									27.35	91601
150516SR	1.6			22.71	416						
150520ER	2.0									27.35	92001
150525ER	2.5									27.35	92501
150530SR	3.0			22.71	430 [1)]						
150532ER	3.2							27.35	482 [1)]	27.35	93201[1)]
150540ER	4.0							27.35	490 [1)]	27.35	94001[1)]
150540SR	4.0			22.71	440 [1)]						
150560ER	6.0									27.35	96001[1)]
P			○		○		○		●		●
M			●		●		●		●		●
K											
N											
S											○
H											
O											

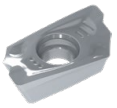
1) Insert radius >2.5 mm: Modify cutter body

15

XDKT

	-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-R50 CTPK220	-F20 CTWN215
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
					
	M	R	M	R	F
	XDKT	XDKT	XDKT	XDKT	XDKT
	51 038 ...	51 040 ...	51 038 ...	51 040 ...	50 479 ...
ISO / RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1A/90
150508FR 0.8					26.84 508
150508SR 0.8	22.71 508	22.71 508	22.71 608	22.71 608	
P					
M					
K	●	●	●	●	○
N					●
S					
H					
O					○

XDKT

	-F40 CTC5240	-F40 CTCS245	-R60 CTP6215
	DRAGONSKIN	DRAGONSKIN	
			
	F	F	R
	XDKT	XDKT	XDKT
	50 473 ...	51 114 ...	50 469 ...
ISO / RE mm	£ 1H/17	£ 1H/17	£ 1B/61
150508ER 0.8	27.35 508	27.35 558	
150508SR 0.8			22.71 300
150532ER 3.2	27.35 532 [1]	28.16 58201[1]	
150540ER 4.0	27.35 540 [1]	27.35 59000[1]	
P			
M			
K			●
N			
S	●	●	
H			●
O			

1) Insert radius >2.5 mm: Modify cutter body

Milling guide

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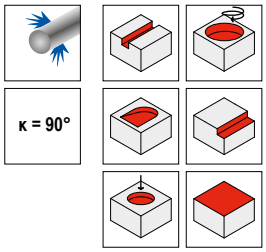
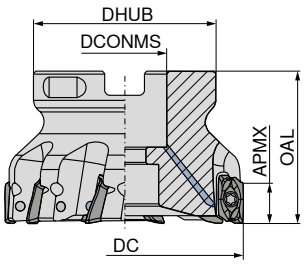
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – 211-20 Shell mill



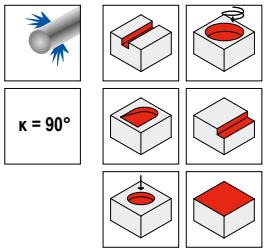


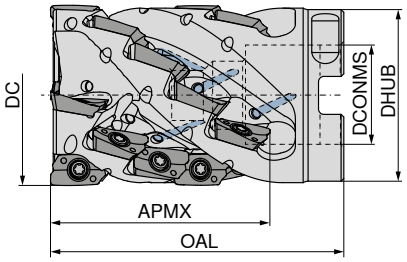


Designation	DC	ZNF	APMX	OAL	DCONMS $_{H6}$	DHUB	RPMX	torque moment	Insert	50 778 ... £ 2B/40	
	mm		mm	mm	mm	mm	1/min.	Nm			
A211.63.R.05-20	63	5	19	45	22	48	14400	5	XD.. 2007..	525.70	**06305**
A211.80.R.06-20	80	6	19	50	27	58	12400	5	XD.. 2007..	562.25	**08006**
A211.100.R.07-20	100	7	19	50	32	78	10900	5	XD.. 2007..	603.32	**10007**

MaxiMill – 211-20K shell end face mill

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows







Designation	DC	ZNF	APMX	ZEFP	ZNP	OAL	DCONMS $_{H6}$	DHUB	torque moment	Insert	50 780 ... £ 2B/40	
	mm		mm			mm	mm	mm	Nm			
A211.63.R.04K4-20	63	4	68	16	4	92	27	58	5	XD.. 2007..	1,164.25	**06304**
A211.80.R.05K4-20	80	5	68	20	4	92	32	76	5	XD.. 2007..	1,305.44	**08005**


Cylindrical screw

TORX® blade

Key D


Molykote


Clamping screw

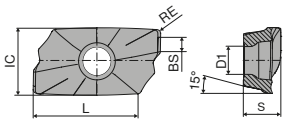

Socket head screw


Torque screwdriver

Spare parts	70 950 ... £ 2A/28		80 950 ... £ Y7		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28		80 950 ... £ Y7	
DC														
63			8.91	**037**	12.80	**106**	5.31	**303**	3.04	**01200**	6.60	**180**	244.07	**193**
80			8.91	**037**	12.80	**106**	5.31	**303**	3.04	**01200**	10.22	**181**	244.07	**193**
63	19.31	**003**	8.91	**037**	12.80	**106**	5.31	**303**	3.04	**01200**	10.22	**181**	244.07	**193**
80	31.16	**004**	8.91	**037**	12.80	**106**	5.31	**303**	3.04	**01200**	13.91	**234**	244.07	**193**
100			8.91	**037**	12.80	**106**	5.31	**303**	3.04	**01200**			244.07	**193**

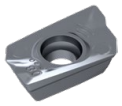
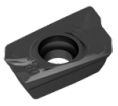
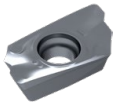
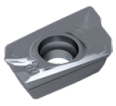
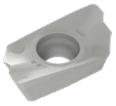
XDKT

Designation	IC	D1	L	S
	mm	mm	mm	mm
XDKT 200708..	12.5	5.5	18.8	6.93
XDKT 200716..	12.5	5.5	18.8	6.89
XDKT 200732..	12.5	5.5	18.8	6.82
XDKT 200740..	12.5	5.5	18.8	6.80
XDKT 200760..	12.5	5.5	18.8	6.80



XDKT

XDKT

		-M50 CTPP235	-M50 CTCP230	-F40 CTPM245	-F40 CTCM245	-M50 CTPK220	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	M	F	F	M	F	F
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
		51 145 ...	51 145 ...	51 127 ...	51 127 ...	51 145 ...	51 127 ...	51 127 ...
ISO	RE	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17	£ 1B/61	£ 1H/17	£ 1H/17
	mm							
200708ER	0.8	26.07 **10800**	26.07 **00800**	32.31 **45800**	32.31 **90801**	26.07 **60800**	32.31 **15800**	32.31 **55800**
200716ER	1.6	26.07 **11600**	26.07 **01600**	32.31 **46600**	32.31 **91601**	26.07 **61600**	32.31 **16600**	32.31 **56600**
200732ER	3.2			32.31 **48200**	32.31 **93201**		32.31 **18200**	32.31 **58200**
200740ER	4.0				32.31 **94001**		32.31 **19000**	
200760ER	6.0				32.31 **96001**		32.31 **19200**	
P		●	●	●	●			
M		○		●	●			
K		○	○			●		
N								
S					○		●	●
H								
O								

Milling guide

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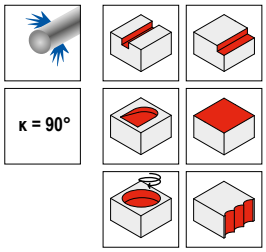
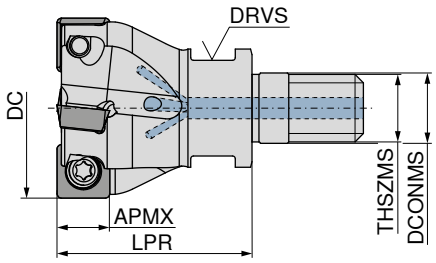
MaxiMill – 490-09 Screw in cutter

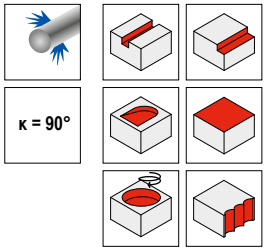


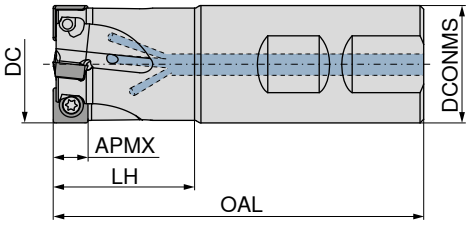




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 726 ... £ 2B/40	
G490.25.R.03-09	25	3	8	35	M12	12.5	17	3,2	SD.. 09T3..	368.39	025
G490.32.R.04-09	32	4	8	35	M16	17.0	24	3,2	SD.. 09T3..	399.51	032

MaxiMill – 490-09 End milling cutter

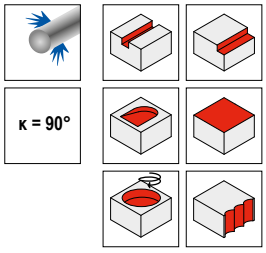


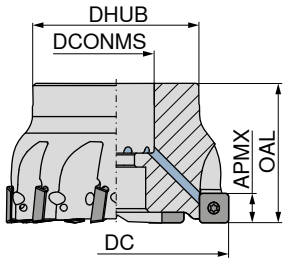


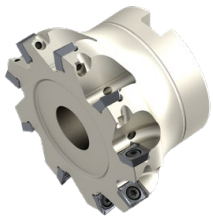


Designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	torque moment Nm	Insert	50 727 ... £ 2B/40		50 727 ... £ 2B/40	
C490.25.R.03-09-B-32	25	3	8	25	88	32	3,2	SD.. 09T3..			368.39	025
C490.25.R.02-09-A-20	25	2	8	20	165	40	3,2	SD.. 09T3..	339.69	225		
C490.25.R.02-09-A-40-165	25	2	8	25	165	40	3,2	SD.. 09T3..	352.40	125		
C490.32.R.04-09-B-25	32	4	8	25	100	40	3,2	SD.. 09T3..			384.96	132
C490.32.R.04-09-B-40	32	4	8	32	100	40	3,2	SD.. 09T3..			399.51	032

MaxiMill – 490-09 Shell mill



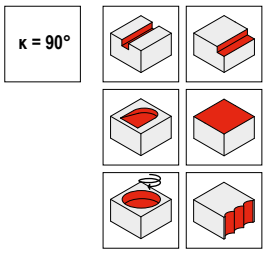


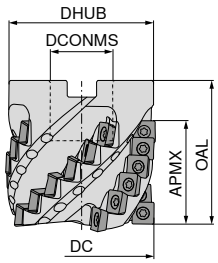


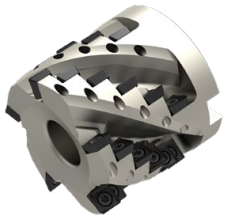
Designation	DC mm	ZNF	APMX mm	DHUB mm	DCONMS H6 mm	OAL mm	torque moment Nm	Insert	50 728 ... £ 2B/40	
A490.40.R.05-09	40	5	8	38	16	40	3,2	SD.. 09T3..	446.60	040
A490.42.R.06-09	42	6	8	38	16	40	3,2	SD.. 09T3..	477.74	042
A490.50.R.06-09	50	6	8	43	22	40	3,2	SD.. 09T3..	493.47	050
A490.52.R.07-09	52	7	8	43	22	40	3,2	SD.. 09T3..	524.73	052
A490.63.R.07-09	63	7	8	48	22	40	3,2	SD.. 09T3..	540.48	063
A490.66.R.08-09	66	8	8	48	22	40	3,2	SD.. 09T3..	571.71	066
A490.80.R.09-09	80	9	8	58	27	50	3,2	SD.. 09T3..	759.76	080
A490.100.R.10-09	100	10	8	78	32	50	3,2	SD.. 09T3..	830.24	100

MaxiMill – 490-09K shell end face mill

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows





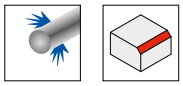


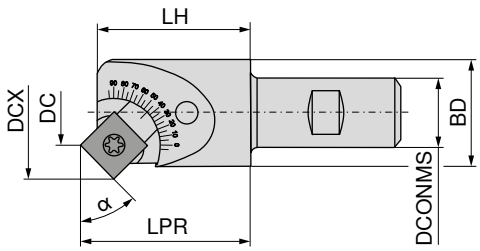
50 761 ...

Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	£ 2B/40	
A490.40.R.03K6-09	40	3	41	18	6	55	16	38	3,2	SD.. 09T3..	1,237.62	**040**
A490.50.R.04K6-09	50	4	41	24	6	55	22	48	3,2	SD.. 09T3..	1,498.00	**050**
A490.63.R.05K6-09	63	5	41	30	6	60	27	61	3,2	SD.. 09T3..	1,692.96	**063**

Spare parts DC	TORX® blade **80 950 ...** £ Y7		Clamping key – T **80 397 ...** £ Y7		Key D **80 950 ...** £ Y7		Power Screw **70 950 ...** £ 2A/28		Molykote **70 950 ...** £ 2A/28		Clamping screw **70 950 ...** £ 2A/28		Torque screwdriver **80 950 ...** £ Y7	
25 - 32	8.91	**036**			16.32	**113**			5.31	**303**	3.79	**110**	205.52	**192**
40 - 42	8.91	**036**	6.37	**040**	16.32	**113**	15.86	**151**	5.31	**303**	3.79	**110**	205.52	**192**
50 - 100	8.91	**036**			16.32	**113**			5.31	**303**	3.79	**110**	205.52	**192**

MaxiMill – 490-09 Adjustable single angle milling cutter







NEW



50 690 ...

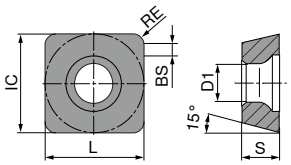
Designation	DC mm	DCX mm	LH mm	BD mm	LPR mm	ZNF	DCONMS mm	torque moment Nm	Insert	£ 2B/40	
C490.20.R.01	1,6 - 11,1	20,1 - 23,6	32	18.65	32,9 - 34,6	1	16	3,2	SD.. 09T3..	181.98	**01600**

Spare parts for Article no.	Cylindrical screw **70 950 ...** £ 2A/28		Adjustment wedge **70 950 ...** £ 2B/40		TORX® blade **80 950 ...** £ Y7		Key D **80 950 ...** £ Y7		Molykote **70 950 ...** £ 2A/28		Clamping screw **70 950 ...** £ 2A/28		Torque screwdriver **80 950 ...** £ Y7	
50 690 01600	5.17	**87500**	21.76	**87200**	8.91	**036**	16.32	**113**	5.31	**303**	3.79	**110**	205.52	**192**

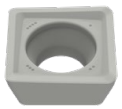
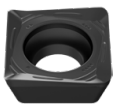
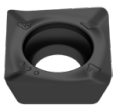
Angle-dependent dimensions can be found on → **Page 164**

SDHT / SDNT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
SD.T 09T3..	9.52	4.4	9.52	2.5	3.97

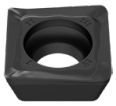
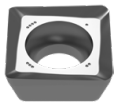


SDHT / SDNT

		TCM10	-29 CTCP230	CTPP235	-29 CTPP235	-33 CTPM240	-F50 CTPM245	-F50 CTCM245
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		CERMET						
		SDHT	SDNT	SDNT	SDNT	SDNT	SDNT	SDNT
		50 424 ...	51 011 ...	51 082 ...	51 011 ...	51 030 ...	51 111 ...	51 111 ...
ISO	RE	£	£	£	£	£	£	£
	mm	1B/79	1B/61	1B/61	1B/61	1B/61	1H/17	1H/17
09T308ER	0.8			14.06 108			15.75 458	15.75 90801
09T308SR	0.8	19.08 900	14.06 008		14.06 108	14.06 408		
P		●	●	●	●	○	●	●
M				○	○	●	●	●
K		○	○	○	○			
N								
S								○
H								
O								

SDNT / SDHT

NEW

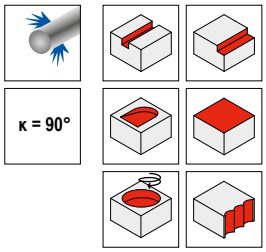
		-31 CTCK215	-F10 CTPX715	-27P H216T	-27 CTC5240	-M31 CTC5240	-F10 CTCS245
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SDNT	SDHT	SDHT	SDHT	SDNT	SDHT
		51 029 ...	51 125 ...	50 424 ...	50 496 ...	50 425 ...	51 125 ...
ISO	RE	£	£	£	£	£	£
	mm	1B/61	1A/90	1A/90	1H/17	1H/17	1H/17
09T308ER	0.8				26.32 508	15.75 508	26.32 55800
09T308FR	0.8		25.10 00802	19.08 550			
09T308SR	0.8	14.06 508					
P			○				
M			○				
K		●	●	○			
N			●	●			
S			○		●	●	●
H							
O			○	○			

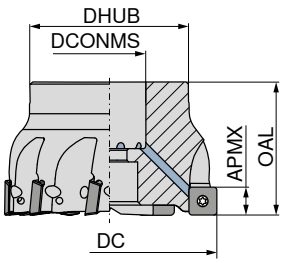
15

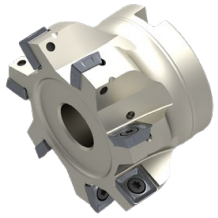
Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 164
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

MaxiMill – 490-12 Shell mill



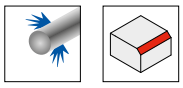


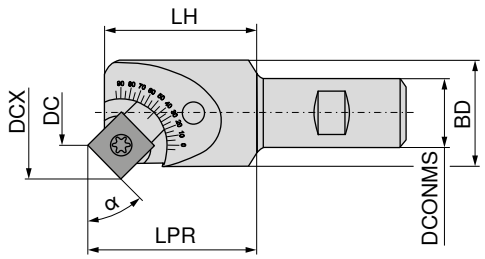


Designation	DC	ZNF	APMX	DHUB	DCONMS	OAL	torque moment	Insert	50 703 ... £ 2B/40	
	mm		mm	mm	mm	mm	Nm			
A490.40.R.04-12	40	4	11	38	16	40	5	SD.. 1205..	425.18	**54000**
A490.50.R.05-12	50	5	11	43	22	40	5	SD.. 1205..	472.15	**550**
A490.63.R.06-12	63	6	11	48	22	40	5	SD.. 1205..	519.39	**563**
A490.80.R.07-12	80	7	11	58	27	50	5	SD.. 1205..	717.26	**580**
A490.100.R.08-12	100	8	11	75	32	50	5	SD.. 1205..	787.85	**600**
A490.125.R.10-12	125	10	11	88	40	63	5	SD.. 1205..	844.43	**625**

	TORX® blade	 Clamping key – T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	80 397 ...	80 950 ...	70 950 ...	70 950 ...	70 950 ...	80 950 ...
Spare parts	£	£	£	£	£	£	£
DC	Y7	Y7	Y7	2A/28	2A/28	2A/28	Y7
40	8.91 **037**	6.37 **040**	17.48 **114**	15.86 **151**	5.31 **303**	3.04 **01200**	244.07 **193**
50	8.91 **037**	6.37 **040**	17.48 **114**	20.76 **154**	5.31 **303**	3.04 **01200**	244.07 **193**
63 - 125	8.91 **037**	6.37 **040**	17.48 **114**		5.31 **303**	3.04 **01200**	244.07 **193**

MaxiMill – 490-12 Adjustable single angle milling cutter







NEW



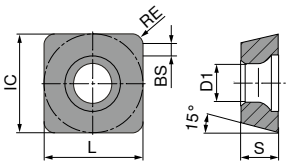
Designation	DC	DCX	LH	BD	LPR	ZNF	DCONMS	torque moment	Insert	50 690 ... £ 2B/40	
	mm	mm	mm	mm	mm		mm	Nm			
C490.26.R.01	1,1 - 14,1	26,6 - 31,5	37	25	38,2 - 40,6	1	20	5	SD.. 1205..	213.57	**02000**

	 Cylindrical screw	 Adjustment wedge	TORX® blade	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	70 950 ...	70 950 ...	80 950 ...	80 950 ...	70 950 ...	70 950 ...	80 950 ...
Spare parts	£	£	£	£	£	£	£
for Article no.	2A/28	2B/40	Y7	Y7	2A/28	2A/28	Y7
50 690 02000	4.08 **87400**	21.76 **87300**	8.91 **037**	17.48 **114**	5.31 **303**	3.04 **01200**	244.07 **193**

Angle-dependent dimensions can be found on → **Page 165**

SDHW / SDMT / SDHT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
SDH. 120508..	12.7	5.5	12.7	2.2	5.00
SDHT 120512..	12.7	5.5	12.7	1.8	5.00
SDHT 120520..	12.7	5.5	12.7	1.0	5.00
SDHT 120525..	12.7	5.5	12.7	1.5	5.00
SDMT 120508..	12.7	5.5	12.7	3.0	5.00
SDMT 1205ZZ..	12.7	5.5	12.7	0.9	5.00

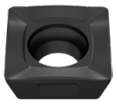
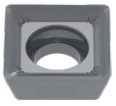
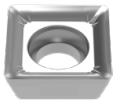
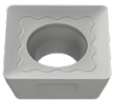


SDHW / SDMT / SDHT

	TCM10	-29 CTCP230	-29 CTPP235	-29 CTPM240	-33 CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	CERMET						
	SDHW	SDMT	SDMT	SDMT	SDHT	SDMT	SDMT
	50 428 ...	51 081 ...	51 081 ...	51 081 ...	51 028 ...	51 110 ...	51 110 ...
ISO / RE mm	£ 1B/79	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
120508ER 0.8						22.32 458	22.32 90801
120508SR 0.8	22.71 901						
120512SR 1.2					22.12 412		
120520SR 2.0					22.12 421		
1205ZZSN 0.8		19.08 020	19.08 120	18.47 420			
P	●	●	●	○	○	●	●
M			○	●	●	●	●
K	○	○	○				
N							
S							○
H							
O							

SDMT / SDHT

NEW

	-31 CTCK215	-F10 CTPX715	-27P H216T	-M31 CTC5240	-F50 CTCS245
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
					
	SDMT	SDHT	SDHT	SDMT	SDMT
	51 059 ...	51 161 ...	50 426 ...	50 580 ...	51 110 ...
ISO / RE mm	£ 1B/61	£ 1A/90	£ 1A/90	£ 1H/17	£ 1H/17
120508ER 0.8				22.32 508	22.32 55800
120508FR 0.8		30.05 00802	22.12 555		
120525FR 2.5			22.12 559		
1205ZZSN 0.8	18.47 521				
P		○			
M		○			
K	●	●	○		
N		●	●		
S		○		●	●
H					
O		○	○		

Milling guide

Cutting data standard values	→ 145–148	Starting Parameter	→ 165
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

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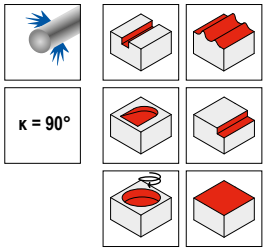
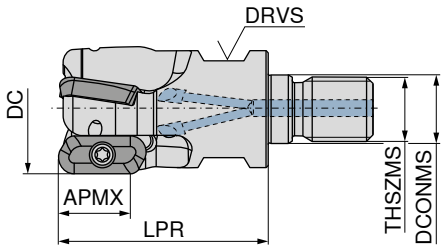
MaxiMill – HSC-11 Screw in cutter

▲ Insert radius >3.2 mm: Modify cutter body



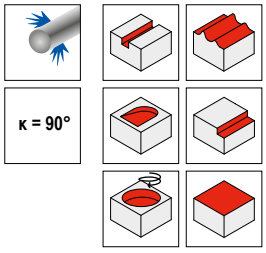


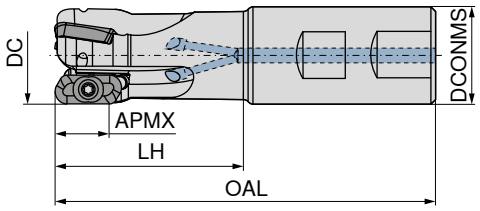


Designation	DC mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	RPMX 1/min.	DRVS mm	torque moment Nm	Insert	55 107 ... £ 2B/40	
GHSC.16.R.02-11	16	2	10	8.5	27	M8	56000	10	1,8	XDHT 11T3..	324.43	**016**
GHSC.20.R.02-11	20	2	10	10.5	33	M10	50100	15	1,8	XDHT 11T3..	349.23	**020**
GHSC.25.R.03-11	25	3	10	12.5	35	M12	45000	17	1,8	XDHT 11T3..	393.46	**025**
GHSC.32.R.03-11	32	3	10	17.0	35	M16	39800	24	1,8	XDHT 11T3..	408.96	**032**
GHSC.40.R.03-11	40	3	10	17.0	35	M16	35500	24	1,8	XDHT 11T3..	429.29	**040**

MaxiMill – HSC-11 End milling cutter

▲ Insert radius >3.2 mm: Modify cutter body



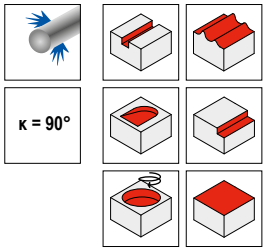


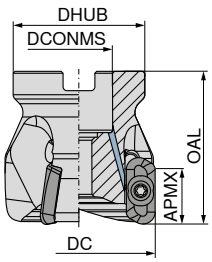


Designation	DC mm	ZNF	APMX mm	DCONMS h6 mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	50 675 ... £ 2B/40		50 675 ... £ 2B/40	
CHSC.16.R.02-11-B/A-25	16	2	10	16	75	25	56200	1,8	XDHT 11T3..	324.43	**016**	324.43	**416**
CHSC.16.R.02-11-A-32	16	2	10	16	165	32	18800	1,8	XDHT 11T3..	324.43	**116**		
CHSC.20.R.02-11-A-32	20	2	10	20	84	32	50100	1,8	XDHT 11T3..	349.23	**020**		
CHSC.20.R.03-11-B-32	20	3	10	20	84	32	50100	1,8	XDHT 11T3..			396.23	**420**
CHSC.20.R.02-11-A-40	20	2	10	20	165	40	26700	1,8	XDHT 11T3..	349.23	**120**		
CHSC.25.R.03-11-A-40	25	3	10	25	98	40	45000	1,8	XDHT 11T3..	393.46	**225**		
CHSC.25.R.04-11-B-40	25	4	10	25	98	40	45000	1,8	XDHT 11T3..			432.44	**425**
CHSC.25.R.02-11-A-50	25	2	10	25	165	50	31700	1,8	XDHT 11T3..	375.88	**125**		
CHSC.25.R.03-11-A-50	25	3	10	25	165	50	31700	1,8	XDHT 11T3..	393.46	**325**		

MaxiMill – HSC-11 Shell mill

▲ Insert radius >3.2 mm: Modify cutter body





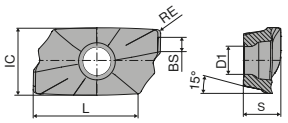


Designation	DC mm	ZNF	APMX mm	DCONMS H6 mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	50 718 ... £ 2B/40	
AHSC.40.R.04-11	40	4	10	16	38	50	35500	1,8	XDHT 11T3..	546.63	**040**
AHSC.50.R.04-11	50	4	10	22	43	50	31800	1,8	XDHT 11T3..	661.20	**050**
AHSC.63.R.05-11	63	5	10	22	43	50	28300	1,8	XDHT 11T3..	736.29	**063**
AHSC.80.R.05-11	80	5	10	27	58	50	25100	1,8	XDHT 11T3..	765.95	**080**
AHSC.100.R.05-11	100	5	10	32	78	50	22400	1,8	XDHT 11T3..	820.92	**100**

	TORX® blade		Clamping key – T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		80 397 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		Y7		Y7		2A/28		2A/28		2A/28		Y7	
16 - 25	8.91	**043**			17.97	**125**			5.31	**303**	4.96	**128**	205.52	**192**
32	8.91	**043**			17.97	**125**			5.31	**303**	4.96	**131**	205.52	**192**
40	8.91	**043**	6.37	**040**	17.97	**125**	15.86	**151**	5.31	**303**	4.96	**131**	205.52	**192**
50 - 63	8.91	**043**	8.11	**050**	17.97	**125**	20.76	**154**	5.31	**303**	4.96	**131**	205.52	**192**
80 - 100	8.91	**043**			17.97	**125**			5.31	**303**	4.96	**131**	205.52	**192**

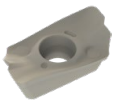
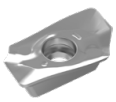
XDKT / XDHT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XD.T 11T302FR	6.8	2.8	10.6	2	3.80
XD.T 11T304FR	6.8	2.8	10.6	1.8	3.80
XD.T 11T308FR	6.8	2.8	10.6	1.4	3.80
XD.T 11T320FR	6.8	2.8	10.6	1.4	3.80
XD.T 11T325FR	6.8	2.8	10.6	1.4	3.80
XDHT 11T312FR	6.8	2.8	10.6	1.4	3.80
XDHT 11T316FR	6.8	2.8	10.6	1.4	3.80
XDHT 11T332FR	6.8	2.8	10.6	0.8	3.80
XDHT 11T340FR	6.8	2.8	10.6	-	3.80
XDHT 11T350FR	6.8	2.8	10.6	-	3.80



XDKT

XDKT / XDHT

	-F20 CTWN215		-27P H216T	
				
	F XDKT		F XDHT	
	50 478 ...		50 477 ...	
ISO / RE mm	£ 1A/90		£ 1A/90	
11T302FR 0.2	21.39	502	32.25	502
11T304FR 0.4	21.39	504	32.25	504
11T308FR 0.8	21.39	508	32.25	508
11T312FR 1.2			32.25	512
11T316FR 1.6			32.25	516
11T320FR 2.0	21.39	520 1)	32.25	520 1)
11T325FR 2.5	21.39	525 1)	32.25	525 1)
11T332FR 3.2			32.25	532 1)
11T340FR 4.0			32.25	540 1)
11T350FR 5.0			32.25	550 1)
P				
M				
K	○		○	
N	●		●	
S				
H				
O	○		○	

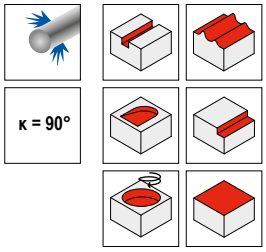
1) Insert radius >1.6 mm: Modify cutter body

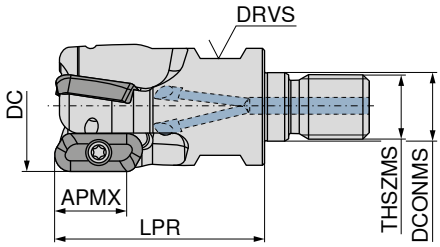
Milling guide

Safety advice	→ 166	Cutting data standard values	→ 167
Machining strategy	→ 168+169	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – HSC-19 Screw-in cutter

▲ Insert radius >4.0 mm: Modify cutter body



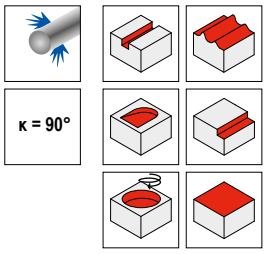


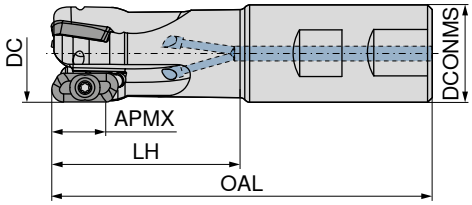


Designation	DC mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	55 108 ... £ 2B/40	
GHSC.25.R.02-19	25	2	18	12.5	45	M12	17	34400	5	XDHT 1904..	382.19	**025**
GHSC.32.R.03-19	32	3	18	17.0	52	M16	24	29100	5	XDHT 1904..	495.05	**032**
GHSC.40.R.03-19	40	3	18	17.0	52	M16	24	24900	5	XDHT 1904..	526.42	**040**

MaxiMill – HSC-19 End milling cutter

▲ Insert radius >4.0 mm: Modify cutter body



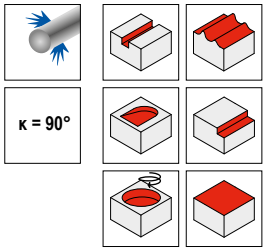


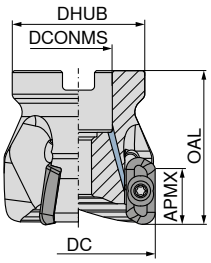


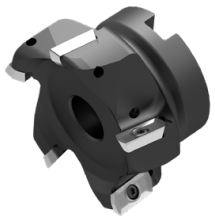
Designation	DC mm	ZNF	APMX mm	DCONMS $_{h5}$ mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	50 679 ... £ 2B/40		50 679 ... £ 2B/40	
CHSC.25.R.02-19-A-50	25	2	18	25	121	50	32400	5	XDHT 1904..	382.19	**225**		
CHSC.25.R.02-19	25	2	18	25	121	65	32400	5	XDHT 1904..			393.46	**025**
CHSC.25.R.02-19-A-63	25	2	18	25	165	63	24700	5	XDHT 1904..	382.19	**325**		
CHSC.32.R.02-19-A-63	32	2	18	32	125	63	28900	5	XDHT 1904..	401.09	**232**		
CHSC.32.R.03-19-A-63	32	3	18	32	125	63	28900	5	XDHT 1904..	495.05	**432**		
CHSC.32.R.03-19	32	3	18	32	125	65	28900	5	XDHT 1904..			504.39	**033**
CHSC.32.R.02-19	32	2	18	32	125	65	28900	5	XDHT 1904..			410.39	**032**
CHSC.32.R.02-19-A-80	32	2	18	32	165	80	24400	5	XDHT 1904..	401.09	**332**		
CHSC.32.R.03-19-A-80	32	3	18	32	165	80	24400	5	XDHT 1904..	495.05	**532**		

MaxiMill – HSC-19 Shell mill

▲ Insert radius >4.0 mm: Modify cutter body





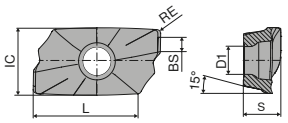


Designation	DC mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	50 716 ... £ 2B/40	
AHSC.40.R.03-19	40	3	18	16	38	50	24900	5	XDHT 1904..	512.25	**040**
AHSC.50.R.04-19	50	4	18	22	43	50	21600	5	XDHT 1904..	643.75	**050**
AHSC.63.R.04-19	63	4	18	22	48	50	18800	5	XDHT 1904..	720.66	**163**
AHSC.63.R.05-19	63	5	18	22	48	50	18800	5	XDHT 1904..	736.29	**063**
AHSC.80.R.04-19	80	4	18	27	58	50	16400	5	XDHT 1904..	748.76	**180**
AHSC.80.R.05-19	80	5	18	27	58	50	16400	5	XDHT 1904..	765.95	**080**
AHSC.100.R.04-19	100	4	18	32	78	50	14500	5	XDHT 1904..	803.74	**200**
AHSC.100.R.05-19	100	5	18	32	78	50	14500	5	XDHT 1904..	820.92	**100**
AHSC.125.R.05-19	125	5	18	40	88	63	12800	5	XDHT 1904..	949.18	**125**
AHSC.125.R.06-19	125	6	18	40	88	63	12800	5	XDHT 1904..	964.91	**225**

	TORX® blade		 Clamping key – T		 Key D		 Power Screw		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		80 397 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
Spare parts	£		£		£		£		£		£		£	
DC	Y7		Y7		Y7		2A/28		2A/28		2A/28		Y7	
25	8.91	**036**			16.32	**113**			5.31	**303**	3.46	**172**	244.07	**193**
32	8.91	**036**			16.32	**113**			5.31	**303**	4.11	**173**	244.07	**193**
40	8.91	**036**	6.37	**040**	16.32	**113**	15.86	**151**	5.31	**303**	4.11	**173**	244.07	**193**
50 - 63	8.91	**036**	8.11	**050**	16.32	**113**	20.76	**154**	5.31	**303**	4.11	**174**	244.07	**193**
80 - 125	8.91	**036**			16.32	**113**			5.31	**303**	4.11	**174**	244.07	**193**

XDHT

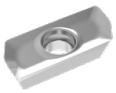
Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDHT 190402..	9.52	4.65	19	2	4.76
XDHT 190404..	9.52	4.65	19	2	4.76
XDHT 190408..	9.52	4.65	19	2	4.76
XDHT 190412..	9.52	4.65	19	2	4.76
XDHT 190416..	9.52	4.65	19	2	4.76
XDHT 190420..	9.52	4.65	19	2	4.76
XDHT 190425..	9.52	4.65	19	1.4	4.76
XDHT 190432..	9.52	4.65	19	1	4.76
XDHT 190440..	9.52	4.65	19	1	4.76
XDHT 190450..	9.52	4.65	19	-	4.76



XDKT

XDHT

NEW

	-F10 CTPX715	-27P H216T
	DRAGONSKIN	
		
	F	F
	XDHT	XDHT
	51 159 ...	50 487 ...

ISO	RE	£ 1A/90		£ 1A/90	
	mm				
190402FR	0.2	41.79	00202	33.13	552
190404FR	0.4	41.79	00402	33.13	554
190408FR	0.8	41.79	00802	33.13	556
190412FR	1.2	41.79	01202	33.13	557
190416FR	1.6	41.79	01602	33.13	558
190420FR	2.0	41.79	02002	33.13	560
190425FR	2.5	41.79	02502	33.13	562
190432FR	3.2	41.79	03202	33.13	564
190440FR	4.0	41.79	04002	33.13	566
190450FR	5.0	41.79	05002[1)]	33.13	568 [1)]

P	○	
M	○	
K	●	○
N	●	●
S	○	
H		
O	○	○

1) Insert radius > 4.0 mm: Modify cutter body

Milling guide

Cutting data standard values	→ 145–148	Safety advice	→ 166
Machining strategy	→ 170–172	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

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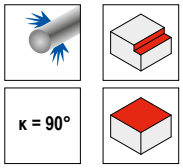
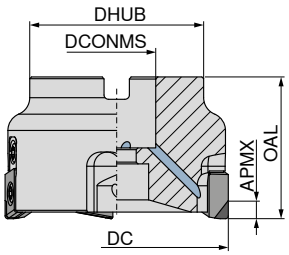
MaxiMill – HPC 12 Shell mill

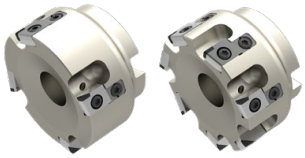
▲ 50 723 ... normal pitch
▲ 50 724 ... fine pitch

Scope of supply:

Tool, adjustment wedges and setting key; incl. wooden box







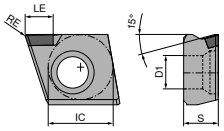
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 723 ... £ 2B/40		50 724 ... £ 2B/40	
AHPC.40.R.04-12	40	4	11	40	34	16	32000	5	ZNHW 1205..	790.66	**040**		
AHPC.50.R.04-12	50	4	11	40	49	22	32000	5	ZNHW 1205..	808.82	**050**		
AHPC.50.R.05-12	50	5	11	40	49	22	32000	5	ZNHW 1205..			905.71	**050**
AHPC.63.R.04-12	63	4	11	40	49	22	29000	5	ZNHW 1205..	833.16	**063**		
AHPC.63.R.07-12	63	7	11	40	49	22	29000	5	ZNHW 1205..			1,122.84	**063**
AHPC.80.R.05-12	80	5	11	50	60	27	26000	5	ZNHW 1205..	1,177.32	**080**		
AHPC.80.R.09-12	80	9	11	50	60	27	26000	5	ZNHW 1205..			1,562.18	**080**
AHPC.100.R.06-12	100	6	11	50	70	32	24000	5	ZNHW 1205..	1,328.45	**100**		
AHPC.100.R.12-12	100	12	11	50	70	32	24000	5	ZNHW 1205..			1,906.10	**100**
AHPC.125.R.08-12	125	8	11	63	72	40	22000	5	ZNHW 1205..	1,575.49	**125**		
AHPC.125.R.14-12	125	14	11	63	72	40	22000	5	ZNHW 1205..			2,154.34	**12514**
AHPC.160.R.10-12	160	10	11	63	118	40	18000	5	ZNHW 1205..	1,961.81	**16010**[1)]		
AHPC.160.R.16-12	160	16	11	63	118	40	18000	5	ZNHW 1205..			5,649.25	**16016**[1)]
AHPC.200.R.12-12	200	12	11	63	153	60	16000	5	ZNHW 1205..	5,851.50	**20000**[1)]		
AHPC.250.R.14-12	250	14	11	63	200	60	14000	5	ZNHW 1205..	6,608.36	**25014**[1)]		
AHPC.315.R.18-12	315	18	11	80	265	60	12000	5	ZNHW 1205..	8,324.32	**31518**[1)]		

1) Without Through Coolant

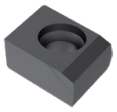
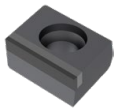
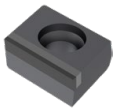
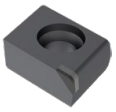
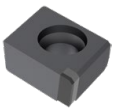
Spare parts	TORX® blade 80 950 ... £ Y7		 Molykote 70 950 ... £ 2A/28		 Clamping screw 70 950 ... £ 2A/28		 Wedge 70 950 ... £ 2A/28		 Torque screwdriver 80 950 ... £ Y7	
DC										
40 - 315	8.91	**036**	5.31	**303**	4.11	**174**	44.56	**199**	244.07	**193**

ZNHW

Designation	LE	D1	IC	S
	mm	mm	mm	mm
ZNHW 120504ER-1503	3	4.85	10	5.40
ZNHW 120504FR-0007	7	4.85	10	5.40
ZNHW 120508ER-1503	3	4.85	10	5.40
ZNHW 120508SR-0003	3	4.85	10	5.40
ZNHW 1205EOER-1002	2	4.85	10	5.40
ZNHW 1205POER-1511	11	4.85	10	5.40
ZNHW 1205POFR-1003	3	4.85	10	5.40
ZNHW 1205POSR-1503	3	4.85	10	5.40
ZNHW 1205POSR-1506	6	4.85	10	5.40
ZNHW 1205POSR-3003	3	4.85	10	5.40
ZNHW 1205ZZSR-5003	3	4.85	10	5.40



ZNHW

	CTL3215	CTD4205	-R CTD4205	CTD4205	-Q CTD4205
					
	CBN ZNHW	**DIAMOND** ZNHW	**DIAMOND** ZNHW	**DIAMOND** ZNHW	**DIAMOND** ZNHW
	50 515 ...	**50 467 ...**	**50 517 ...**	**50 468 ...**	**50 466 ...**
ISO	£ 1G/21	£ 1G/22	£ 1G/22	£ 1G/22	£ 1G/22
RE mm					
120504ER-1503 0.4				140.60 **906**	
120504FR-0007 0.4				171.24 **904**	
120508ER-1503 0.8				140.60 **910**	
120508SR-0003 0.8				139.86 **908**	
1205EOER-1002	162.16 **952**				
1205POER-1511		202.59 **902**			
1205POFR-1003		140.60 **90600**			
1205POSR-1503		127.15 **900**			
1205POSR-1506		164.93 **90800**	164.93 **90800**		
1205POSR-3003		139.86 **904**			
1205ZZSR-5003					178.98 **900** 1)
P					
M					
K	●				
N		●	●	●	●
S					
H	○				
O		○	○	○	○

1) -Q = trailing edge insert

Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 173
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

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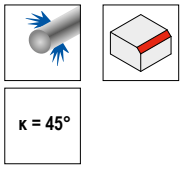
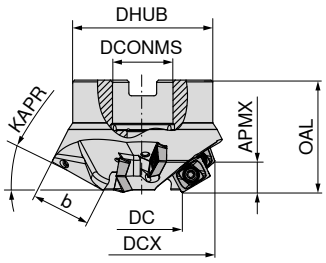
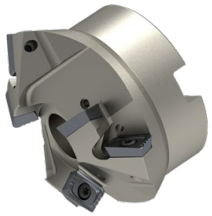
MaxiMill – 242 Chamfer Cutter

▲ Caution: Use only inserts with a corner radius of less than 1.6 mm
▲ ZEFP = number of inserts
▲ ZNP = tooth rows







NEW

50 768 ...

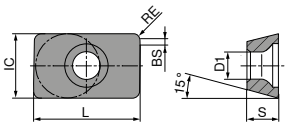
KAPR	DC mm	DCX mm	ZNF	APMX mm	ZEFP	b ±0,3 mm	OAL mm	DCONMS mm	DHUB mm	ZNP	torque moment Nm	Insert	£ 2B/40	
15°	35	89.60	3	7.0	6	27.6	50	27	62.5	2	3,2	LD.. 15...	455.81	**11503**
30°	35	83.60	3	13.6	6	27.6	50	27	62.5	2	3,2	LD.. 15...	455.81	**13003**
45°	35	74.60	3	19.3	6	27.6	50	27	62.5	2	3,2	LD.. 15...	455.81	**14503**
60°	35	62.70	3	23.6	6	27.6	50	22	49.0	2	3,2	LD.. 15...	455.81	**16003**
75°	35	49.48	3	26.7	6	27.6	60	22	49.0	2	3,2	LD.. 15...	455.81	**17503**[1)]

1) Version with Powerscrew

	TORX® blade	 Clamping key – T	 Key D	 Power Screw	 Molykote	 Clamping screw	 Torque screwdriver	 clamping screw
	80 950 ...	**80 397 ...**	**80 950 ...**	**70 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**	**83 950 ...**
Spare parts	£	£	£	£	£	£	£	£
KAPR	Y7	Y7	Y7	2A/28	2A/28	2A/28	Y7	Y8/3B
15 - 60	8.91 **036**		16.32 **113**		5.31 **303**	3.79 **304**	205.52 **192**	9.39 **125**
75	8.91 **036**	8.11 **050**	16.32 **113**	20.76 **154**	5.31 **303**	3.79 **304**	205.52 **192**	

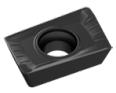
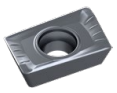
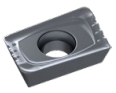
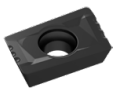
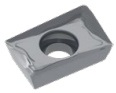
LDFT / LDFW / LDMT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
LD.. 1504PD..	9.52	4.4	15	1.2	4.76
LDFT 150408..	9.52	4.4	15	1.2	4.76
LDFT 1504PD..	9.52	4.4	15	0.8	4.76



L...

LDMT / LDFT / LDFW

			-29 CTCP230 DRAGONSKIN		-29 CTPP235 DRAGONSKIN		-33 CTPM240 DRAGONSKIN		CTCK215 DRAGONSKIN		NEW -F10 CTPX715 DRAGONSKIN		-27P H216T	
														
			LDMT		LDMT		LDFT		LDFW		LDFT		LDFT	
			51 080 ...		51 080 ...		51 042 ...		51 043 ...		51 157 ...		50 409 ...	
ISO	RE		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1A/90		£ 1A/90	
	mm													
150408FR	0.8										29.75	00802	24.05	550
1504PDSR	0.8		11.83	020	11.83	120			19.34	520				
1504PDSR	1.2						22.12	420						
P			●		●		○				○			
M					○		●				○			
K			○		○				●		●		○	
N											●		●	
S											○			
H														
O											○		○	

Milling guide

Cutting data standard values	→ 145–148	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

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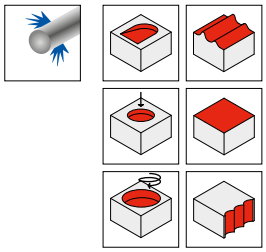
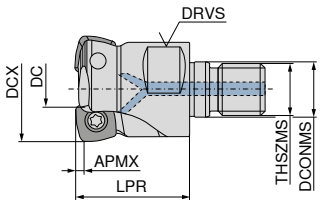
MaxiMill – HFC high-feed screw-in cutter

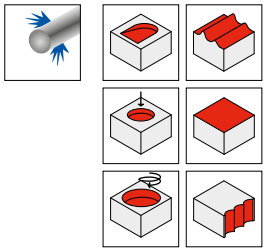


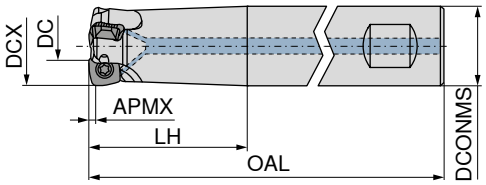




Designation	DC	DCX	ZNF	APMX	LPR	DCONMS	THSZMS	DRVS	RPMX	torque moment	Insert	50 682 ... £ 2B/40	
	mm	mm		mm	mm	mm		mm	1/min.	Nm			
GHFC.16.R.02-06	7	16	2	0.8	27	8.5	M8	10	20800	1,2	XPLX 0603..	279.14	616
GHFC.20.R.03-06	11	20	3	0.8	33	10.5	M10	15	19800	1,2	XPLX 0603..	316.91	620
GHFC.25.R.04-06	16	25	4	0.8	35	12.5	M12	17	18700	1,2	XPLX 0603..	354.69	625
GHFC.32.R.05-06	23	32	5	0.8	35	17.0	M16	24	22000	1,2	XPLX 0603..	392.48	632
GHFC.42.R.07-06	33	42	7	0.8	35	17.0	M16	24	15000	1,2	XPLX 0603..	431.83	04207
GHFC.25.R.02-09	12	25	2	1.0	35	12.5	M12	17	30000	3,2	XDLX 09T3..	334.23	025
GHFC.25.R.03-09	12	25	3	1.0	35	12.5	M12	17	30000	3,2	XDLX 09T3..	358.81	125
GHFC.32.R.03-09	19	32	3	1.0	35	17.0	M16	24	27000	3,2	XDLX 09T3..	374.80	032
GHFC.42.R.05-09	19	42	5	1.0	35	17.0	M16	24	26100	3,2	XDLX 09T3..	419.85	04205
GHFC.32.R.02-12	15	32	2	2.0	35	17.0	M16	24	21600	5	XOLX 1204..	350.59	132
GHFC.35.R.03-12	18	35	3	2.0	35	17.0	M16	24	21360	5	XOLX 1204..	374.80	035
GHFC.42.R.04-12	25	42	4	2.0	35	17.0	M16	24	20800	5	XOLX 1204..	404.85	04204

MaxiMill – HFC high-feed end mill

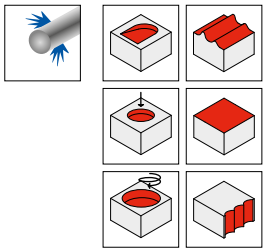


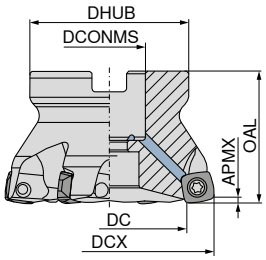


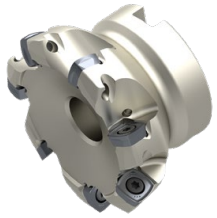


Designation	DC	DCX	ZNF	APMX	OAL	LH	DCONMS $_{h6}$	RPMX	torque moment	Insert	50 681 ... £ 2B/40		50 681 ... £ 2B/40	
	mm	mm		mm	mm	mm	mm	1/min.	Nm					
CHFC.16.R.02-06-B-40	7.0	16	2	0.8	89	40	16	17300	1,2	XPLX 0603..			279.14	616
CHFC.16.R.02-06-A-40-200	7.0	16	2	0.8	200	40	16	4600	1,2	XPLX 0603..	279.14	716		
CHFC.20.R.03-06-B-50	11.0	20	3	0.8	101	50	20	14500	1,2	XPLX 0603..			316.91	620
CHFC.20.R.03-06-A-50-225	11.0	20	3	0.8	225	50	20	4200	1,2	XPLX 0603..	316.91	720		
CHFC.25.R.04-06-B-50	16.0	25	4	0.8	107	50	25	15600	1,2	XPLX 0603..			354.69	625
CHFC.25.R.04-06-A-50-225	16.0	25	4	0.8	225	50	25	4600	1,2	XPLX 0603..	354.69	725		
CHFC.32.R.05-06-B-25-60	23.0	32	5	0.8	117	60	25	11000	1,2	XPLX 0603..			392.48	632
CHFC.32.R.05-06-A-25-60-225	23.0	32	5	0.8	225	60	25	3900	1,2	XPLX 0603..	392.48	732		
CHFC.25.R.02-09-A-50-225	12.3	25	2	1.0	225	50	25	9000	3,2	XDLX 09T3..	334.23	025		
CHFC.25.R.03-09-A-50-225	12.3	25	3	1.0	225	50	25	9000	3,2	XDLX 09T3..	358.81	125		
CHFC.32.R.03-09-A-63-250	19.3	32	3	1.0	250	63	32	8100	3,2	XDLX 09T3..	374.80	032		
CHFC.32.R.02-12-A-63-250	14.8	32	2	2.0	250	63	32	6480	5	XOLX 1204..	350.59	132		
CHFC.35.R.03-12-A-63-250	17.8	35	3	2.0	250	63	32	6480	5	XOLX 1204..	374.80	035		

MaxiMill – HFC high-feed face mill







Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	**50 683 ...** £ 2B/40	
AHFC.32.R.03-09	19.3	32	3	1.0	40	16	38	27700	3,2	XDLX 09T3..	374.80	**032**
AHFC.35.R.04-09	19.3	35	4	1.0	40	16	38	26700	3,2	XDLX 09T3..	399.27	**035**
AHFC.40.R.04-09	27.3	40	4	1.0	40	16	38	26400	3,2	XDLX 09T3..	415.61	**140**
AHFC.42.R.05-09	29.3	42	5	1.0	40	16	38	26100	3,2	XDLX 09T3..	439.94	**142**
AHFC.50.R.05-09	37.3	50	5	1.0	40	22	43	23500	3,2	XDLX 09T3..	488.98	**150**
AHFC.52.R.06-09	39.3	52	6	1.0	40	22	43	23000	3,2	XDLX 09T3..	513.45	**152**
AHFC.63.R.06-09	50.3	63	6	1.0	40	22	48	20500	3,2	XDLX 09T3..	562.25	**163**
AHFC.66.R.07-09	53.3	66	7	1.0	40	22	48	20000	3,2	XDLX 09T3..	586.71	**16600**
AHFC.40.R.03-12	22.8	40	3	2.0	40	16	38	21120	5	XOLX 1204..	391.28	**040**
AHFC.42.R.04-12	24.8	42	4	2.0	40	16	38	20880	5	XOLX 1204..	415.61	**042**
AHFC.50.R.04-12	32.8	50	4	2.0	40	22	43	18800	5	XOLX 1204..	464.40	**050**
AHFC.52.R.05-12	34.8	52	5	2.0	40	22	43	18400	5	XOLX 1204..	488.98	**052**
AHFC.63.R.05-12	45.8	63	5	2.0	40	22	48	16400	5	XOLX 1204..	537.69	**063**
AHFC.66.R.06-12	48.8	66	6	2.0	40	22	48	16000	5	XOLX 1204..	562.25	**066**
AHFC.80.R.07-12	62.8	80	7	2.0	50	27	58	14000	5	XOLX 1204..	635.64	**080**
AHFC.100.R.08-12	82.8	100	8	2.0	50	32	78	12000	5	XOLX 1204..	709.16	**100**
AHFC.63.R.05-19	36.7	63	5	3.3	40	22	48	5500	5	XOLX 1906..	562.99	**263**
AHFC.80.R.06-19	53.7	80	6	3.3	50	27	58	4700	5	XOLX 1906..	684.09	**280**
AHFC.100.R.08-19	73.7	100	8	3.3	52	32	78	4100	5	XOLX 1906..	814.25	**300**
AHFC.125.R.10-19	98.7	125	10	3.3	63	40	88	3600	5	XOLX 1906..	1,022.80	**325**
AHFC.160.R.11-19	133.7	160	11	3.3	63	40	98	3100	5	XOLX 1906..	1,236.41	**360** [1]

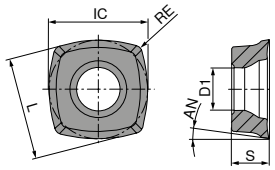
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

	TORX® blade		 Clamping key – T		 Key D		 Power Screw		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		**80 397 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£		£	
Insert	Y7		Y7		Y7		2A/28		2A/28		2A/28		Y7	
XDLX 09T3..	8.91	**036**			16.32	**113**			5.31	**303**	3.79	**110**	205.52	**192**
XDLX 09T3.. (Ø32 – Ø42)	8.91	**036**	6.37	**040**	16.32	**113**	15.86	**151**	5.31	**303**	3.79	**304**	205.52	**192**
XOLX 1204..	8.91	**037**			17.48	**114**			5.31	**303**	3.04	**01200**	244.07	**193**
XOLX 1204.. (Ø40 – Ø42)	8.91	**037**	6.37	**040**	17.48	**114**	15.86	**151**	5.31	**303**	3.04	**01200**	244.07	**193**
XOLX 1906..	8.91	**037**			17.48	**114**			5.31	**303**	4.96	**302**	244.07	**193**
XPLX 0603..	8.91	**033**			13.73	**110**			5.31	**303**	3.13	**116**	205.52	**192**

15

XPLX / XDLX / XOLX / XOHX

Designation	IC	D1	L	BS	S	AN
	mm	mm	mm	mm	mm	°
XPLX 0603..	6.35	2.8	6	1	2.75	11
XDLX 09T3..	9.52	4.4	9	1.9	3.97	15
XO.X 1204..	12.70	5.5	12	1.3	4.76	10
XOLX 1906..	19.14	6.0	19	-	6.35	10



XPLX

		-M50 CTCP220	-M50 CTPP225	-M50 CTPP235	-M50 CTPM225	-M50 CTPM240	-F40 CTPM245	-F40 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		XPLX	XPLX	XPLX	XPLX	XPLX	XPLX	XPLX
		51 019 ...	51 019 ...	51 019 ...	51 019 ...	51 019 ...	51 116 ...	51 116 ...
ISO	RE	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
	mm							
060305ER	0.5						18.23 455	18.23 90501
060305SR	0.5	14.95 255	14.95 055	14.95 105	14.95 205	14.95 405		
P		●	●	●	●	○	●	●
M				○	●	●	●	●
K				○				
N								
S								○
H								
O								

XPLX

		-M50 CTCK215	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
		XPLX	XPLX	XPLX
		51 019 ...	50 518 ...	51 116 ...
ISO	RE	£ 1B/61	£ 1H/17	£ 1H/17
	mm			
060305ER	0.5		18.23 558	18.23 55500
060305SR	0.5	14.95 505		
P				
M				
K		●		
N				
S			●	●
H				
O				

XDLX

		-M50 CTCP220 DRAGONSKIN		-M50 CTPP225 DRAGONSKIN		-M50 CTCP230 DRAGONSKIN		-M50 CTPP235 DRAGONSKIN	
									
		XDLX		XDLX		XDLX		XDLX	
		51 016 ...		51 016 ...		51 016 ...		51 016 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61	
09T308SR	0.8	15.40	258	15.40	058	15.40	008	15.40	108
P			●		●		●		●
M									○
K							○		○
N									
S									
H									
O									

XDLX

		-M50 CTPM225 DRAGONSKIN		-M50 CTCM235 DRAGONSKIN		-M50 CTPM240 DRAGONSKIN		-F40 CTPM245 DRAGONSKIN		-M50 CTPM245 DRAGONSKIN		-M50 CTCM245 DRAGONSKIN	
													
		XDLX		XDLX		XDLX		XDLX		XDLX		XDLX	
		51 016 ...		51 016 ...		51 016 ...		51 115 ...		51 016 ...		51 016 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1H/17		£ 1H/17		£ 1H/17	
09T308ER	0.8							18.59	458				
09T308SR	0.8	15.40	208	15.40	308	15.40	408			18.59	458	18.59	90801
P		●		●		○		●		●		●	
M		●		●		●		●		●		●	
K													
N													
S													○
H													
O													

15

XDLX

		-M50 CTCK215		-F40 CTC5240		-F40 CTCS245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
							
		XDLX		XDLX		XDLX	
		51 016 ...		50 503 ...		51 115 ...	
ISO	RE mm	£ 1B/61		£ 1H/17		£ 1H/17	
09T308ER	0.8			18.59	558	18.59	558
09T308SR	0.8	15.40	508				
P							
M							
K		●					
N							
S				●		●	
H							
O							

XOLX

		-M50 CTCP220		-M50 CTPP225		-M50 CTCP230		-M50 CTPP235		-R50 CTPP235	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
											
		XOLX		XOLX		XOLX		XOLX		XOLX	
		51 017 ...		51 017 ...		51 017 ...		51 017 ...		51 018 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61	
120410SR	1.0	18.47	260	18.47	060	18.47	010	18.47	110	18.47	110
P		●		●		●		●		●	
M								○		○	
K						○		○		○	
N											
S											
H											
O											

XOLX

		-M50 CTPM225	-M50 CTCM235	-M50 CTPM240	-F40 CTPM245	-M50 CTPM245	-F40 CTCM245	-M50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		XOLX	XOLX	XOLX	XOLX	XOLX	XOLX	XOLX
		51 017 ...	51 017 ...	51 017 ...	51 022 ...	51 017 ...	51 022 ...	51 017 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17	£ 1H/17	£ 1H/17
120410ER	1.0				21.76 460		21.76 91001	
120410SR	1.0	18.47 210	18.47 310	18.47 410		21.76 460		21.76 91001
P		●	●	○	●	●	●	●
M		●	●	●	●	●	●	●
K								
N								
S							○	○
H								
O								

XOLX / XOHX

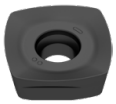
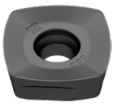
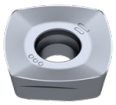
		-M50 CTCK215	-F40 CTC5240	-F50 CTC5240	-F40 CTCS245	-F50 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XOLX	XOLX	XOHX	XOLX	XOHX
		51 017 ...	50 504 ...	51 124 ...	51 022 ...	51 124 ...
ISO	RE mm	£ 1B/61	£ 1H/17	£ 1H/17	£ 1H/17	£ 1H/17
120410ER	1.0		21.76 558		21.76 560	
120410SR	1.0	18.47 510		28.28 16000		28.28 56000
P						
M						
K		●				
N						
S			●	●	●	●
H						
O						

15

XOLX

		-M50 CTCP230		-M50 CTPP235		-M50 CTPM240		-F40 CTPM245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
									
		XOLX		XOLX		XOLX		XOLX	
		51 017 ...		51 017 ...		51 017 ...		51 022 ...	
ISO	RE mm	£ 1B/61		£ 1B/61		£ 1B/61		£ 1H/17	
190615ER	1.5							33.01	465
190615SR	1.5	26.84	015	26.84	115	26.84	415		
P		●		●		○		●	
M				○		●		●	
K		○		○					
N									
S									
H									
O									

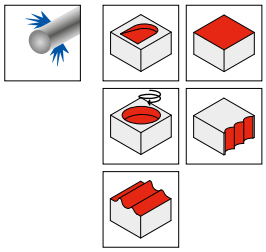
XOLX

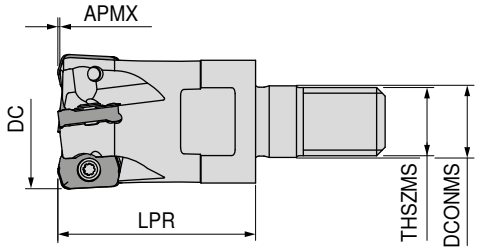
		-F40 CTCM245		-M50 CTCK215		-M50 CTPK220		-F40 CTC5240		-F40 CTCS245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
											
		XOLX		XOLX		XOLX		XOLX		XOLX	
		51 022 ...		51 017 ...		51 017 ...		50 504 ...		51 022 ...	
ISO	RE mm	£ 1H/17		£ 1B/61		£ 1B/61		£ 1H/17		£ 1H/17	
190615ER	1.5	33.01	91501					33.01	515	33.01	56500
190615SR	1.5			26.84	515	26.84	61500				
P		●									
M		●									
K				●		●					
N											
S		○						●		●	
H											
O											

Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 176–179
Starting Parameter	→ 176–179	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

MaxiMill – DHFC high-feed screw-in cutter

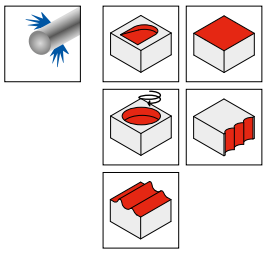


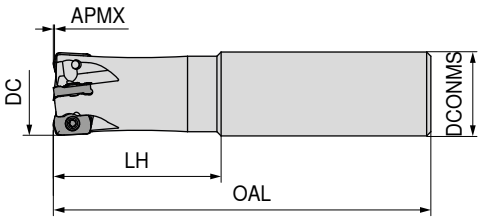




Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	torque moment Nm	Insert	56 411 ... £ WA	
GDHFC.16.R.02-09	16	2	0.75	29	8.5	M8	0,65	LNKX 0925..	269.39	01602
GDHFC.16.R.03-09	16	3	0.75	29	8.5	M8	0,65	LNKX 0925..	293.73	01603
GDHFC.20.R.04-09	20	4	0.75	29	10.5	M10	0,65	LNKX 0925..	337.05	02004
GDHFC.25.R.05-09	25	5	0.75	33	12.5	M12	0,65	LNKX 0925..	391.18	02505
GDHFC.32.R.05-09	32	5	0.75	42	17.0	M16	0,65	LNKX 0925..	418.28	03205
GDHFC.35.R.06-09	35	6	0.75	42	17.0	M16	0,65	LNKX 0925..	442.59	03506
GDHFC.42.R.06-09	42	6	0.75	42	17.0	M16	0,65	LNKX 0925..	461.59	04206

MaxiMill – DHFC high-feed end mill







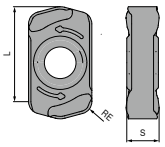


Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	torque moment Nm	Insert	56 417 ... £ WA	
CDHFC.16.R.05-09-A-32	16	3	0.75	80	32	16	0,65	LNKX 0925..	293.73	01603
CDHFC.20.R.04-09-A-40	20	4	0.75	90	40	20	0,65	LNKX 0925..	337.05	02004

Spare parts	TORX® blade 80 950 ... £ Y7		Key D 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Clamping screw 56 950 ... £ WA		Torque screwdriver 80 950 ... £ Y7	
DC										
16 - 42	8.91	051	13.95	117	5.31	303	4.21	15000	217.91	191

LNKX

Designation	L mm	S mm
LNKX 0925..	9	2.50



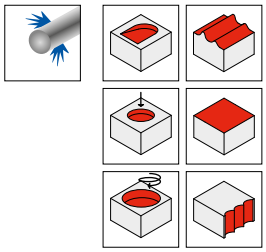
LNKX

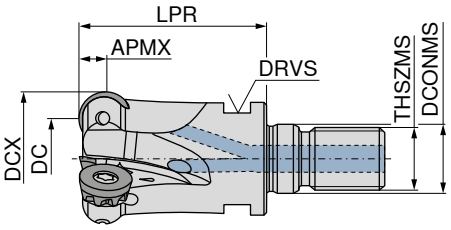
		-R50 CTPP231	-M50 CTPP236	-R50 CTPP236	-M50 CTPM241	-R50 CTPK221
						
		LNKX	LNKX	LNKX	LNKX	LNKX
		56 353 ...	56 355 ...	56 353 ...	56 355 ...	56 353 ...
ISO	RE mm	£ WB	£ WB	£ WB	£ WB	£ WB
0925ZSR	1	22.12 12000	22.12 02500	22.12 02000	22.12 42500	22.12 27000
P		●	●	●	○	○
M		○	○	○	●	
K		○	○	○		●
N						
S					○	
H						
O						

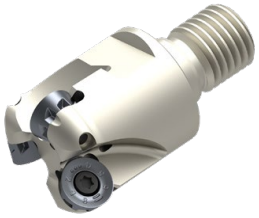
Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 180
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

MaxiMill – 251 RS Screw in cutter



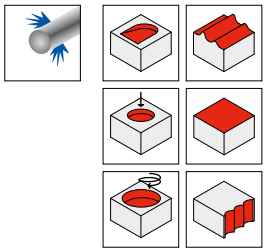


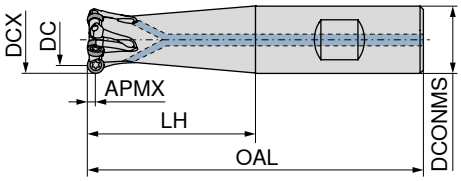


Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 684 ... £ 2B/40	
G251.20.R.05-05-RS	15	20	5	2.5	10.5	33	M10	15	31800	0,7	RDHX 0501..	337.62	**220**
G251.25.R.06-05-RS	20	25	6	2.5	12.5	35	M12	17	24450	0,7	RDHX 0501..	388.72	**225**
G251.32.R.07-05-RS	27	32	7	2.5	17.0	35	M16	24	19850	0,7	RDHX 0501..	466.34	**232**
G251.20.R.03-08-RS	12	20	3	4.0	10.5	33	M10	15	25000	1,2	RDHX 0802..	316.91	**120**
G251.25.R.04-08-RS	17	25	4	4.0	12.5	35	M12	17	19000	1,2	RDHX 0802..	354.69	**125**
G251.32.R.05-08-35-RS	24	32	5	4.0	17.0	35	M16	24	19000	1,2	RDHX 0802..	431.24	**132**
G251.20.R.02-10-RS	10	20	2	5.0	10.5	33	M10	15	30000	2	RP.X 10T3..	256.35	**020**
G251.25.R.03-10-RS	15	25	3	5.0	12.5	35	M12	17	30000	2	RP.X 10T3..	344.65	**025**
G251.32.R.04-10-RS	22	32	4	5.0	17.0	35	M16	24	25000	2	RP.X 10T3..	401.09	**032**
G251.25.R.02-12-35-RS	13	25	2	6.0	12.5	35	M12	17	25000	3,2	RP.X 1204..	248.61	**525**
G251.32.R.03-12-35-RS	20	32	3	6.0	17.0	35	M16	24	19850	3,2	RP.X 1204..	303.36	**532**
G251.35.R.03-12-35-RS	23	35	3	6.0	17.0	35	M16	24	15900	3,2	RP.X 1204..	303.36	**535**
G251.42.R.04-12-42-RS	30	42	4	6.0	17.0	42	M16	24	15000	3,2	RP.X 1204..	360.51	**542**

	TORX® blade		 Key D		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		**80 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts Insert	£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ Y7	
RDHX 0501..	8.91	**031**	14.85	**108**	5.31	**303**	3.13	**149**	217.91	**191**
RDHX 0802..	8.91	**033**	13.73	**110**	5.31	**303**	3.13	**116**	217.91	**191**
RP.X 10T3..	8.91	**035**	16.05	**112**	5.31	**303**	3.13	**840**	205.52	**192**
RP.X 1204..	8.91	**036**	16.32	**113**	5.31	**303**	3.79	**304**	205.52	**192**

MaxiMill – 251 RS End milling cutter



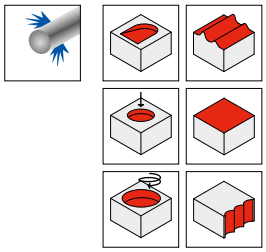


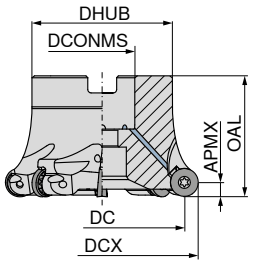


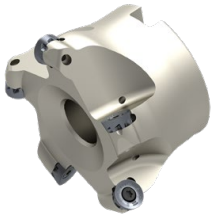
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	RPMX 1/min.	Insert	50 685 ... £ 2B/40		50 685 ... £ 2B/40	
C251.12.R-03-05-B-16-25-RS	7	12	3	2.5	75	25	16	40000	RDHX 0501..			294.51	**012**
C251.12.R-03-05-A-32-165-RS	7	12	3	2.5	165	32	12	16000	RDHX 0501..	283.62	**112**		
C251.16.R-04-05-B-32-RS	11	16	4	2.5	81	32	16	40000	RDHX 0501..			344.65	**316**
C251.16.R-04-05-A-40-165-RS	11	16	4	2.5	165	40	16	18000	RDHX 0501..	336.77	**016**		
C251.20.R-05-05-B-40-RS	15	20	5	2.5	91	40	20	31800	RDHX 0501..			401.09	**620**
C251.20.R-05-05-A-50-165-RS	15	20	5	2.5	165	50	20	18000	RDHX 0501..	393.46	**120**		
C251.16.R-02-08-B-32-RS	8	16	2	4.0	81	32	16	40000	RDHX 0802..			242.92	**116**
C251.16.R-02-08-A-40-165-RS	8	16	2	4.0	165	40	16	18000	RDHX 0802..	233.47	**216**		
C251.20.R-03-08-B-40-RS	12	20	3	4.0	91	40	20	31800	RDHX 0802..			308.69	**220**
C251.20.R-03-08-A-60-RS	12	20	3	4.0	110	50	20	30000	RDHX 0802..	316.91	**020**		
C251.20.R-03-08-A-50-200-RS	12	20	3	4.0	200	50	20	25000	RDHX 0802..	299.24	**320**		
C251.25.R-04-08-B-50-RS	17	25	4	4.0	107	50	25	25500	RDHX 0802..			365.00	**625**
C251.25.R-04-08-A-60-RS	17	25	4	4.0	116	60	25	19000	RDHX 0802..	354.69	**125**		
C251.25.R-04-08-A-60-225-RS	17	25	4	4.0	225	60	25	18000	RDHX 0802..	355.55	**225**		
C251.20.R-02-10-A-50-RS	10	20	2	5.0	102	50	20	25000	RP.X 10T3..	258.55	**420**		
C251.20.R-02-10-A-50-200-RS	10	20	2	5.0	200	50	20	25000	RP.X 10T3..	258.55	**520**		
C251.25.R.03-10-A-60-RS	15	25	3	5.0	116	60	25	25000	RP.X 10T3..	349.37	**025**		
C251.25.R-03-10-B-60-RS	15	25	3	5.0	116	60	25	20000	RP.X 10T3..			349.37	**325**
C251.25.R-03-10-A-60-225-RS	15	25	3	5.0	225	60	25	18000	RP.X 10T3..	349.37	**425**		
C251.32.R.04-10-A-70-RS	22	32	4	5.0	130	70	32	25000	RP.X 10T3..	393.46	**032**		
C251.25.R-02-12-B-30-RS	13	25	2	6.0	86	30	25	25000	RP.X 1204..			318.61	**525**
C251.32.R-03-12-A-RS	20	32	3	6.0	100	40	32	19000	RP.X 1204..	368.49	**232**		
C251.32.R-03-12-B-40-RS	20	32	3	6.0	100	40	32	19000	RP.X 1204..			368.49	**132**

Spare parts Insert	TORX® blade 80 950 ... £ Y7		Key D 80 950 ... £ Y7		Molykote 70 950 ... £ 2A/28		Clamping screw 70 950 ... £ 2A/28		Torque screwdriver 80 950 ... £ Y7	
RDHX 0501..	8.91	**031**	14.85	**108**	5.31	**303**	3.13	**149**	217.91	**191**
RDHX 0802..	8.91	**033**	13.73	**110**	5.31	**303**	3.13	**116**	217.91	**191**
RP.X 10T3..	8.91	**035**	16.05	**112**	5.31	**303**	3.13	**840**	205.52	**192**
RP.X 10T3..			16.05	**112**	5.31	**303**	3.13	**840**		
RP.X 1204..	8.91	**036**	16.32	**113**	5.31	**303**	3.79	**304**	205.52	**192**

MaxiMill – 251 RS Shell mill







50 686 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
A251.40.R.03-10-RS	30	40	3	5	40	38	16	15900	2	RP.X 10T3..	382.19	**240**
A251.40.R.05-10-RS	30	40	5	5	40	38	16	16000	2	RP.X 10T3..	430.75	**140**
A251.42.R.06-10-RS	32	42	6	5	40	38	16	16000	2	RP.X 10T3..	495.05	**142**
A251.50.R.04-10-RS	40	50	4	5	40	43	22	12700	2	RP.X 10T3..	419.72	**350**
A251.50.R.06-10-RS	40	50	6	5	40	43	22	12500	2	RP.X 10T3..	512.25	**150**
A251.52.R.06-10-RS	42	52	6	5	40	43	22	12500	2	RP.X 10T3..	512.25	**152**
A251.40.R.04-12-RS	28	40	4	6	40	38	16	15900	3,2	RP.X 1204..	396.23	**340**
A251.50.R.04-12-RS	38	50	4	6	40	43	22	12700	3,2	RP.X 1204..	408.96	**250**
A251.50.R.05-12-RS	38	50	5	6	40	43	22	12500	3,2	RP.X 1204..	480.88	**050**
A251.52.R.05-12-RS	40	52	5	6	40	43	22	12500	3,2	RP.X 1204..	504.39	**052**
A251.63.R.06-12-RS	51	63	6	6	40	48	22	10000	3,2	RP.X 1204..	593.75	**063**
A251.66.R.07-12-RS	54	66	7	6	40	48	22	9000	3,2	RP.X 1204..	625.97	**166**
A251.80.R.05-12-RS	68	80	5	6	50	58	27	7950	3,2	RP.X 1204..	541.92	**180**
A251.80.R.07-12-RS	68	80	7	6	50	58	27	8000	3,2	RP.X 1204..	669.80	**080**
A251.100.R.06-12-RS	88	100	6	6	50	78	32	6350	3,2	RP.X 1204..	604.78	**100**
A251.100.R.10-12-RS	88	100	10	6	50	78	32	6350	3,2	RP.X 1204..	883.52	**200**
A251.50.R.04-16-RS	34	50	4	8	40	48	22	12700	5	RP.X 1605..	480.88	**450**
A251.52.R.04-16-RS	36	52	4	8	40	48	22	10100	5	RP.X 1605..	480.88	**452**
A251.63.R.05-16-RS	47	63	5	8	40	48	22	10100	5	RP.X 1605..	606.21	**163**
A251.66.R.05-16-RS	50	66	5	8	40	48	22	7950	5	RP.X 1605..	610.70	**466**
A251.80.R.06-16-RS	64	80	6	8	50	58	27	7950	5	RP.X 1605..	736.29	**280**
A251.100.R.07-16-RS	84	100	7	8	50	78	32	6350	5	RP.X 1605..	860.17	**300**
A251.125.R.08-16-RS	109	125	8	8	63	88	40	5050	5	RP.X 1605..	910.41	**225**
A251.80.R.05-20-RS	60	80	5	10	50	58	27	7950	5	RP.X 2006..	623.41	**380**
A251.100.R.06-20-RS	80	100	6	10	50	78	32	6350	5	RP.X 2006..	745.72	**400**
A251.125.R.06-20-RS	105	125	6	10	63	88	40	5050	5	RP.X 2006..	755.05	**125**

TORX® blade


Clamping key – T


Key D


Power Screw


Molykote


Clamping screw


Torque screwdriver

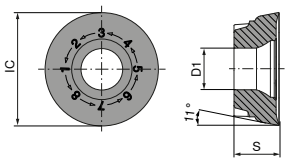
80 950 ... | **80 397 ...** | **80 950 ...** | **70 950 ...** | **70 950 ...** | **70 950 ...** | **80 950 ...**

Spare parts Insert	£ Y7		£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ 2A/28		£ Y7	
RP.X 10T3..	8.91	**035**	6.37	**040**	16.05	**112**	15.86	**151**	5.31	**303**	3.13	**840**	205.52	**192**
RP.X 1204..	8.91	**036**	6.37	**040**	16.32	**113**	15.86	**151**	5.31	**303**	3.79	**304**	205.52	**192**
RP.X 1605..	8.91	**037**	8.11	**050**	17.48	**114**	20.76	**154**	5.31	**303**	3.04	**01200**	244.07	**193**
RP.X 2006..	8.91	**037**			17.48	**114**			5.31	**303**	4.96	**302**	244.07	**193**

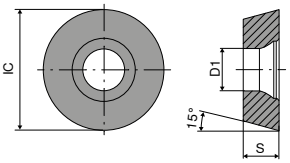
15

RDHX / RPHX / RPNX

Designation	IC mm	D1 mm	S mm
RDHX 0501..	5	2.5	1.59
RDHX 0802..	8	2.8	2.38
RP.X 10T3..	10	3.4	3.97
RP.X 1204..	12	4.4	4.76
RP.X 1605..	16	5.5	5.56
RP.X 2006..	20	6.0	6.35



RP.X 10T3.. / RP.X 1204.. / RP.X 1605.. / RPNX 2006..

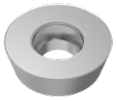


RDHX 0501.. / RDHX0802..

RDHX

	-SN CTCP230 DRAGONSKIN	-SN CTPP235 DRAGONSKIN	-F50 CTPM240 DRAGONSKIN	-F50 CTPM245 DRAGONSKIN	-F50 CTCM245 DRAGONSKIN
	 RDHX	 RDHX	 RDHX	 RDHX	 RDHX
	51 048 ...	51 048 ...	51 083 ...	51 083 ...	51 083 ...
ISO	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
0501M0SN	14.67 020	14.67 120		13.48 465	
0802M0SN	14.97 025	14.97 125	14.97 420	17.74 470	17.74 92001
0802M4SN				17.74 471	17.74 92101
P	●	●	○	●	●
M		○	●	●	●
K	○	○			
N					
S					○
H					
O					

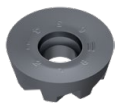
RDHX

	-FN H216T	-M31 CTC5240 DRAGONSKIN	-F50 CTCS245 DRAGONSKIN
	 RDHX	 RDHX	 RDHX
	50 481 ...	50 481 ...	51 083 ...
ISO	£ 1B/61	£ 1H/17	£ 1H/17
0501M0FN	11.64 600		
0802M0EN		17.74 500	
0802M0FN	12.00 602		
0802M0SN			17.74 570
0802M4EN		17.74 50100	
P			
M			
K	○		
N	●		
S		●	●
H			
O	○		

RPHX / RPNX

ISO	-SN TCM10		-F50 CTCP230 DRAGONSKIN		-M50 CTCP230 DRAGONSKIN		-SN CTCP230 DRAGONSKIN		-SN CTCP230 DRAGONSKIN	
										
	CERMET RPHX		RPNX		RPNX		RPHX		RPNX	
	50 483 ...		51 055 ...		51 054 ...		51 052 ...		51 057 ...	
	£ 1B/79		£ 1B/18		£ 1B/61		£ 1B/61		£ 1B/61	
10T3M0SN	15.53	900								
10T3M8SN			15.53	020	11.83	020	15.53	020		
1204M0SN	17.03	902								
1204M8SN			13.60	025	13.60	025	17.03	025	13.60	025
1605M8SN					18.47	030	23.16	030	18.47	030
2006M8SN									24.05	035
P	●		●		●		●		●	
M										
K	○		○		○		○		○	
N										
S										
H										
O										

RPHX / RPNX

ISO	-F50 CTPP235 DRAGONSKIN		-F50 CTPP235 DRAGONSKIN		-M30 CTPP235 DRAGONSKIN		-M30 CTPP235 DRAGONSKIN	
								
	RPHX		RPNX		RPHX		RPNX	
	51 051 ...		51 055 ...		51 049 ...		51 053 ...	
	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61	
10T3M8EN					15.53	120		
10T3M8SN	15.53	12000	11.83	120				
1204M8SN	17.03	125	13.60	125				
1605M0SN			18.47	130				
2006M8EN							24.05	120
P	●		●		●		●	
M	○		○		○		○	
K	○		○		○		○	
N								
S								
H								
O								

15

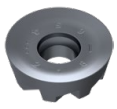
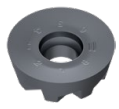
RPNX / RPHX

	-M50 CTPP235 DRAGONSKIN		-M50 CTPP235 DRAGONSKIN		-SN CTPP235 DRAGONSKIN		-SN CTPP235 DRAGONSKIN	
								
	RPNX		RPHX		RPHX		RPNX	
	51 054 ...		51 050 ...		51 052 ...		51 057 ...	
ISO	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/18	
10T3M8SN	11.83	12000	15.53	12000	15.53	120		
1204M8SN	13.60	125			17.03	125	13.60	125
1605M8SN	18.47	130			23.16	130	18.47	130
2006M8SN							24.05	135
P	●		●		●		●	
M	○		○		○		○	
K	○		○		○		○	
N								
S								
H								
O								

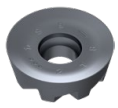
RPHX

	-F50 CTPM225 DRAGONSKIN		-M30 CTPM225 DRAGONSKIN		-SN CTPM225 DRAGONSKIN		-F50 CTCM235 DRAGONSKIN		-M30 CTCM235 DRAGONSKIN	
										
	RPHX		RPHX		RPHX		RPHX		RPHX	
	51 051 ...		51 049 ...		51 052 ...		51 051 ...		51 049 ...	
ISO	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61	
1204M8EN			17.03	225					17.03	325
1204M8SN	17.03	225			17.03	225	17.03	325		
P	●		●		●		●		●	
M	●		●		●		●		●	
K										
N										
S										
H										
O										

RPHX / RPNX

ISO	-F50 CTPM240 DRAGONSKIN		-F50 CTPM240 DRAGONSKIN		-M30 CTPM240 DRAGONSKIN		-M30 CTPM240 DRAGONSKIN		-M50 CTPM240 DRAGONSKIN	
	 RPHX		 RPNX		 RPHX		 RPNX		 RPHX	
	51 051 ...		51 055 ...		51 049 ...		51 053 ...		51 050 ...	
	£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61		£ 1B/61	
10T3M8EN					15.53	420				
10T3M8SN	15.53	420							15.53	420
1204M8EN					17.03	425				
1204M8SN	17.03	425							17.03	425
1605M8EN					23.16	430				
1605M8SN	23.16	430								
2006M8EN							24.05	420		
2006M8SN			24.05	435						
P	○		○		○		○		○	
M	●		●		●		●		●	
K										
N										
S										
H										
O										

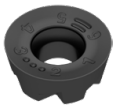
RPHX / RPNX

ISO	CTPM245 DRAGONSKIN		-F50 CTPM245 DRAGONSKIN		-F50 CTPM245 DRAGONSKIN		-M32 CTPM245 DRAGONSKIN		-M50 CTPM245 DRAGONSKIN	
	 RPHX		 RPHX		 RPNX		 RPHX		 RPHX	
	51 052 ...		51 051 ...		51 055 ...		51 108 ...		51 050 ...	
	£ 1H/17		£ 1H/17		£ 1H/17		£ 1H/17		£ 1H/17	
10T3M4SN			19.62	470 [1]	16.30	470 [1]			19.62	470 [1]
10T3M8SN			19.62	471	16.30	471			19.62	471
1204M4EN	21.61	475 [1]					21.61	475 [1]		
1204M4SN			21.61	475 [1]	19.19	475 [1]			21.61	475 [1]
1204M6SN			21.61	476					21.61	476
1204M8SN			21.61	477	19.19	476			21.61	477
1605M8SN			29.49	480						
2006M4SN			37.33	485 [1]						
2006M8SN					29.49	485				
P	●		●		●		●		●	
M	●		●		●		●		●	
K										
N										
S										
H										
O										

1) Insert with 4 indexes

15

RPNX / RPHX

	-F50 CTCM245 DRAGONSKIN	-M50 CTCM245 DRAGONSKIN	-F50 CTCM245 DRAGONSKIN	-M50 CTCM245 DRAGONSKIN
				
	RPNX	RPNX	RPHX	RPHX
	51 055 ...	51 054 ...	51 051 ...	51 050 ...
ISO	£ 1H/17	£ 1H/17	£ 1H/17	£ 1H/17
10T3M4SN	19.62 92001[1)]		19.62 92001[1)]	19.62 92001[1)]
10T3M8SN	19.62 92101		19.62 92101	
1204M4SN	19.19 92501[1)]		21.61 92501[1)]	21.61 92501[1)]
1204M6SN		19.19 92601	21.61 92601	21.61 92601
1204M8SN	19.19 92601			21.61 92701
1605M8SN	21.61 93001		29.49 93001	
2006M8SN	29.49 93501	29.49 93501		
P	●	●	●	●
M	●	●	●	●
K				
N				
S	○	○	○	○
H				
O				

1) Insert with 4 indexes

RPHX / RPNX

NEW

	-SN CTCK215 DRAGONSKIN	-SN CTCK215 DRAGONSKIN	-SN CTPK220 DRAGONSKIN	-F10 CTPX715 DRAGONSKIN	-27P H216T
					
	RPHX	RPNX	RPNX	RPHX	RPHX
	51 052 ...	51 057 ...	51 057 ...	51 156 ...	50 483 ...
ISO	£ 1B/61	£ 1B/18	£ 1B/61	£ 1A/90	£ 1A/90
10T3M8FN				23.05 02002	17.75 600
10T3M8SN	15.53 520		11.83 620		
1204M8FN				25.55 02502	19.67 602
1204M8SN	17.03 525	13.60 525	13.60 625		
1605M8FN				34.87 03002	26.84 604
1605M8SN	23.16 530	18.47 530	18.47 630		
2006M8SN		24.05 535	24.05 635		
P				○	
M				○	
K	●	●	●	●	○
N				●	●
S				○	
H					
O				○	○

RPNX / RPHX

	-M31 CTC5240 DRAGONSKIN		-M31 CTC5240 DRAGONSKIN		-F50 CTCS245 DRAGONSKIN		-F50 CTCS245 DRAGONSKIN		-R60 CTP6215	
										
	RPNX		RPHX		RPHX		RPNX		RPNX	
	51 149 ...		50 493 ...		51 051 ...		51 055 ...		50 508 ...	
ISO	£ 1H/17		£ 1H/17		£ 1H/17		£ 1H/17		£ 1B/61	
10T3M4EN			19.62	550 [1]						
10T3M4SN					19.62	570 [1]				
10T3M8EN			19.62	551						
10T3M8SN					19.62	571				
1204M4EN			21.61	552 [1]						
1204M4SN					21.61	575				
1204M6EN			21.61	56200						
1204M6SN					21.61	57800				
1204M8EN			21.61	582					14.67	300
1204M8SN					21.61	577				
1605M8EN			29.49	555	29.49	58100				
2006M8EN	29.49	12001								
2006M8SN							29.49	585		
P										
M										
K										●
N										
S		●		●		●		●		
H										●
O										

1) Insert with 4 indexes

Milling guide

Cutting data standard values	→ 145–148	Machining strategy	→ 181
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

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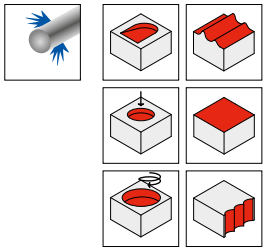
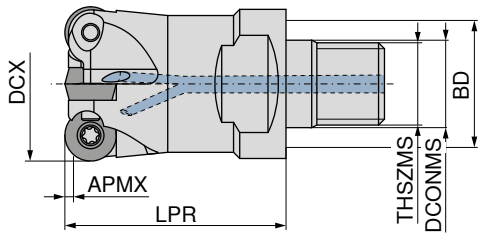
R 1000 screw-in button insert milling cutter

▲ Insert angle 0°





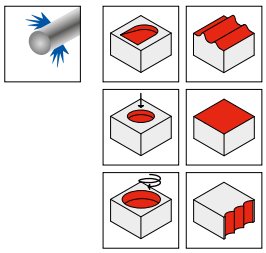


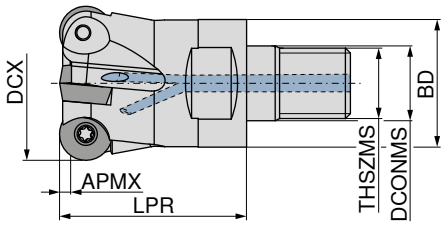
Designation	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	BD mm	torque moment Nm	Insert	56 403 ... £ WA	
R1000G.15.2.M8-07.IK	15	2	1.5	M8	28.5	8.5	13.8	0,9	RD.X 0702..	219.71	**153**
R1000G.16.3.M8-07.IK	16	3	1.5	M8	28.5	8.5	13.8	0,9	RD.X 0702..	269.70	**161**
R1000G.20.4.M10-07.IK	20	4	1.5	M10	28.5	10.5	18.0	0,9	RD.X 0702..	337.78	**203**
R1000G.25.5.M12-07.IK	25	5	1.5	M12	28.5	12.5	21.0	0,9	RD.X 0702..	387.77	**252**
R1000G.30.5.M16-07.IK	30	5	1.5	M16	28.5	17.0	29.0	0,9	RD.X 0702..	413.99	**301**
R1000G.35.6.M16-07.IK	35	6	1.5	M16	28.5	17.0	29.0	0,9	RD.X 0702..	441.92	**351**
R1000G.42.7.M16-07.IK	42	7	1.5	M16	42.5	17.0	29.0	0,9	RD.X 0702..	525.41	**421**
R1000G.20.2.M10-10.IK	20	2	2.8	M10	29.0	10.5	18.0	2,4	RD.X 1003..	234.71	**204**
R1000G.25.2.M12-10.IK	25	2	2.8	M12	33.0	12.5	21.0	2,4	RD.X 1003..	235.95	**253**
R1000G.25.3.M12-10.IK	25	3	2.8	M12	33.0	12.5	21.0	2,4	RD.X 1003..	246.18	**254**
R1000G.30.4.M12-10.IK	30	4	2.3	M12	33.0	12.5	21.0	2,4	RD.X 1003..	340.49	**302**
R1000G.30.4.M16-10.IK	30	4	2.8	M16	43.0	17.0	23.0	2,4	RD.X 1003..	340.49	**303**
R1000G.35.5.M16-10.IK	35	5	2.8	M16	43.0	17.0	29.0	2,4	RD.X 1003..	415.68	**352**
R1000G.42.5.M16-10.IK	42	5	2.8	M16	43.0	17.0	29.0	2,4	RD.X 1003..	440.87	**422**
R1000G.42.6.M16-10.IK	42	6	2.8	M16	43.0	17.0	29.0	2,4	RD.X 1003..	468.37	**423**
R1000G.24.2.M12-12.IK	24	2	3.0	M12	33.0	12.5	21.0	2,4	RD.X 12T3..	244.30	**241**
R1000G.35.3.M16-12.IK	35	3	3.0	M16	43.0	17.0	29.0	2,4	RD.X 12T3..	275.28	**353**
R1000G.35.4.M16-12.IK	35	4	3.0	M16	43.0	17.0	29.0	2,4	RD.X 12T3..	355.49	**354**
R1000G.42.4.M16-12.IK	42	4	3.0	M16	43.0	17.0	29.0	2,4	RD.X 12T3..	388.99	**424**
R1000G.42.5.M16-12.IK	42	5	3.0	M16	43.0	17.0	29.0	2,4	RD.X 12T3..	430.86	**425**
R1000G.32.2.M16-16.IK	32	2	4.0	M16	43.5	17.0	29.0	4,3	RD.X 1604..	283.65	**321**
R1000G.35.3.M16-16.IK	35	3	4.0	M16	43.5	17.0	29.0	4,3	RD.X 1604..	349.02	**355**

	TORX® blade	Clamping Screw	over clamp	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	56 950 ...	56 950 ...	80 950 ...	70 950 ...	56 950 ...	80 950 ...
Spare parts	£ Y7	£ WA	£ WA	£ Y7	£ 2A/28	£ WA	£ Y7
Insert							
RD.X 0702..	8.91 **032**			13.73 **109**	5.31 **303**	5.50 **006**	217.91 **191**
RD.X 1003..	8.91 **036**			16.32 **113**	5.31 **303**	7.41 **010**	205.52 **192**
RD.X 12T3..	8.91 **036**	4.79 **022**		16.32 **113**	5.31 **303**	7.41 **010**	205.52 **192**
RD.X 1604..	8.91 **037**		3.36 **210**	17.48 **114**	5.31 **303**	7.90 **012**	205.52 **192**

R 1007 screw-in button insert milling cutter

▲ Insert angle 7°
▲ for Steel < 10 % Cr







Designation	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	BD mm	torque moment Nm	Insert	56 405 ... £ WA	
R1007G.25.3.M12-10.IK	25	3	2.5	M12	32.5	12.5	21	2,4	RD.X 1003..	246.18	**251**
R1007G.42.6.M16-10.IK	42	6	2.5	M16	42.5	17.0	29	2,4	RD.X 1003..	468.37	**421**
R1007G.35.4.M16-12.IK	35	4	3.0	M16	42.5	17.0	29	2,4	RD.X 12T3..	355.49	**352**

	TORX® blade		 Clamping Screw		 Key D		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		**56 950 ...**		**80 950 ...**		**70 950 ...**		**56 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£		£		£	
Insert	Y7		WA		Y7		2A/28		WA		Y7	
RD.X 1003..	8.91	**036**			16.32	**113**	5.31	**303**	7.41	**010**	205.52	**192**
RD.X 12T3..	8.91	**036**	4.79	**022**	16.32	**113**	5.31	**303**	7.41	**010**	205.52	**192**

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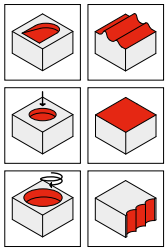
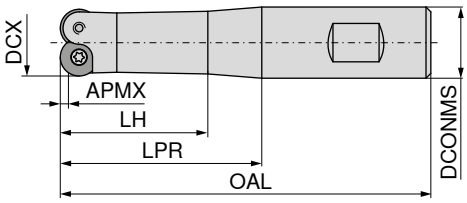
R 1002 shank button insert milling cutter

▲ Insert angle 0°







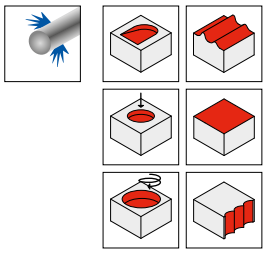


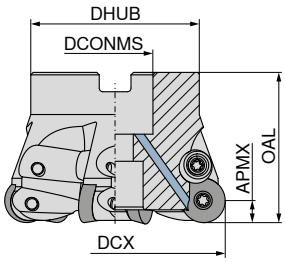
56 443 ...

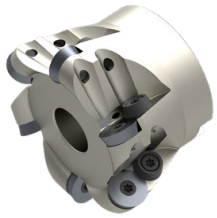
Designation	DCX mm	ZNF	APMX mm	OAL mm	LPR mm	LH mm	DCONMS mm	Insert	£ WA	
R1002C.15.2.40-07	15	2	2.6	89	40	23	16	RD.X 0702..	195.96	**151**
R1002C.15.2.60-07	15	2	2.6	109	60	23	16	RD.X 0702..	208.48	**152**
R1002C.15.2.80-07	15	2	2.6	131	80	22	20	RD.X 0702..	223.46	**153**
R1002C.15.2.100-07	15	2	2.6	151	100	22	20	RD.X 0702..	237.63	**154**
R1002C.20.2.40-10	20	2	4.0	91	40	23	20	RD.X 1003..	219.71	**201**
R1002C.20.2.60-10	20	2	4.0	111	60	23	20	RD.X 1003..	225.14	**202**
R1002C.20.2.80-10	20	2	4.0	137	80	23	25	RD.X 1003..	236.37	**203**
R1002C.20.2.100-10	20	2	4.0	157	100	23	25	RD.X 1003..	250.11	**204**
R1002C.20.2.120-10	20	2	4.0	177	125	23	25	RD.X 1003..	265.53	**205**

R 1000 shell button insert milling cutter

▲ Insert angle 0°







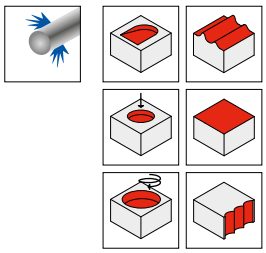
56 407 ...

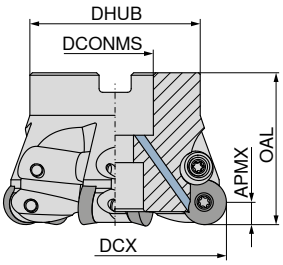
Designation	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	£ WA	
R1000A.42.6.43-10.IK	42	6	2.8	43.0	16	35	2,4	RD.X 1003..	468.37	**420**
R1000A.42.4.43-12.IK	42	4	3.0	43.0	16	35	2,4	RD.X 12T3..	376.52	**421**
R1000A.42.5.43-12.IK	42	5	3.0	43.0	16	35	2,4	RD.X 12T3..	430.86	**422**
R1000A.52.5.53-12.IK	52	5	3.5	53.0	22	40	2,4	RD.X 12T3..	467.09	**521**
R1000A.52.4.53,5-16.IK	52	4	4.7	53.5	22	40	4,3	RD.X 1604..	458.79	**522**
R1000A.66.5.53,5-16.IK	66	5	5.1	53.5	27	48	4,3	RD.X 1604..	540.79	**661**
R1000A.80.6.53,5-16.IK	80	6	5.8	53.5	27	60	4,3	RD.X 1604..	693.44	**801**

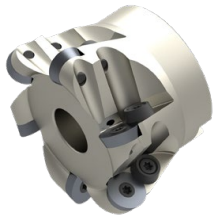
	TORX® blade	 Clamping Screw	 over clamp	 Key D	 Molykote	 Clamping screw	 Torque screwdriver									
	80 950 ...		**56 950 ...**		**56 950 ...**		**80 950 ...**		**70 950 ...**		**56 950 ...**		**80 950 ...**				
Spare parts	£		£		£		£		£		£		£				
Insert	Y7		WA		WA		Y7		2A/28		WA		Y7				
RD.X 1003..	8.91	**036**					16.32	**113**	5.31	**303**	7.41	**010**	205.52	**192**			
RD.X 12T3..	8.91	**036**	4.79	**022**			16.32	**113**	5.31	**303**	7.41	**010**	205.52	**192**			
RD.X 1604..	8.91	**037**			3.36	**210**	17.48	**114**	5.31	**303**	7.90	**012**	205.52	**192**			

R 1007 shell button insert milling cutter

▲ Insert angle 7°
▲ for Steel < 10 % Cr + Milling machines with low power







Designation	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	56 409 ... £ WA	
R1007A.42.6.42,5-10.IK	42	6	3.5	42.5	16	35	2,4	RD.X 1003..	468.37	**421**
R1007A.52.7.52,5-10.IK	52	7	3.5	52.5	22	40	2,4	RD.X 1003..	680.98	**521**
R1007A.52.5.52,5-12.IK	52	5	3.5	52.5	22	40	2,4	RD.X 12T3..	467.09	**522**
R1007A.66.6.52,5-12.IK	66	6	3.5	52.5	27	48	2,4	RD.X 12T3..	551.67	**661**
R1007A.80.7.54,5-12.IK	80	7	3.5	54.5	27	60	2,4	RD.X 12T3..	693.44	**801**
R1007A.52.5.53-16.IK	52	5	4.1	53.0	22	40	4,3	RD.X 1604..	512.70	**523**
R1007A.66.5.53-16.IK	66	5	4.6	53.0	27	48	4,3	RD.X 1604..	540.79	**662**
R1007A.66.6.53-16.IK	66	6	5.1	53.0	27	48	4,3	RD.X 1604..	622.45	**663**
R1007A.80.6.53-16.IK	80	6	5.1	53.0	27	60	4,3	RD.X 1604..	693.44	**802**
R1007A.100.7.53-16	100	7	5.1	53.0	32	70	4,3	RD.X 1604..	856.95	**910** 1)
R1007A.125.8.53-16	125	8	5.2	53.0	40	90	4,3	RD.X 1604..	971.88	**925** 1)
R1007A.160.9.53-16	160	9	5.1	53.0	40	120	4,3	RD.X 1604..	1,333.22	**960** 1)

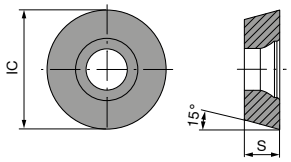
1) Without Through Coolant

	TORX® blade		 Clamping Screw		 over clamp		 Key D		 Molykote		 Clamping screw		 Torque screwdriver	
	80 950 ...		56 950 ...		56 950 ...		80 950 ...		70 950 ...		56 950 ...		80 950 ...	
Spare parts	£		£		£		£		£		£		£	
Insert	Y7		WA		WA		Y7		2A/28		WA		Y7	
RD.X 1003..	8.91	**036**					16.32	**113**	5.31	**303**	7.41	**010**	205.52	**192**
RD.X 12T3..	8.91	**036**	4.79	**022**			16.32	**113**	5.31	**303**	7.41	**010**	205.52	**192**
RD.X 1604..	8.91	**037**			3.36	**210**	17.48	**114**	5.31	**303**	7.90	**012**	205.52	**192**

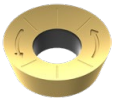
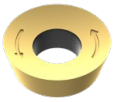
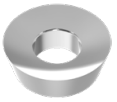
15

RDHX / RDMX / RDEX / RDPX

Designation	IC mm	S mm
RD.X 0702..	7	2.38
RD.X 1003..	10	3.18
RD.X 12T3..	12	3.97
RD.X 1604..	16	4.76



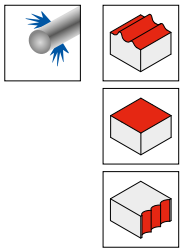
RDHX / RDMX / RDEX / RDPX

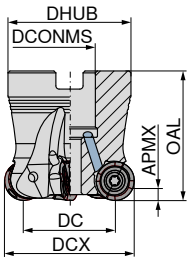
	WTN1205		WAN1240		WAX1240		-HP WAN2225		-F30P WUN4210	
										
	RDHX		RDMX		RDEX		RDPX		RDHX	
	56 302 ...		56 309 ...		56 314 ...		56 348 ...		56 304 ...	
ISO	£ WB		£ WB		£ WB		£ WB		£ WB	
0702M0E									20.48	611
0702M0T	22.28	111			15.63	611				
1003M0S							21.89	231		
1003M0T	21.89	131	16.67	731	16.01	631			23.55	631
12T3M0S							23.71	241		
12T3M0T	23.71	141	19.18	741	18.25	641			28.52	641
1604M0S							29.58	251		
1604M0T	23.71	151	20.71	751	20.65	651			34.77	651
P	●		●		●					
M	●		○		○		●			
K	●		○		○				○	
N									●	
S							●			
H	●									
O									○	

Milling guide

Cutting data standard values	→ 182–184	Machining strategy	→ 185+186
Technical Information	→ 193–198	Grade description	→ 199–201
Designation System	→ 202–208		

MaxiMill – 252 Shell mill







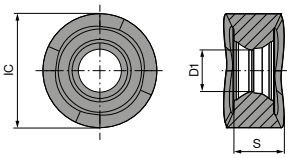
NEW

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	50 689 ... £ 2B/40	
A252.40.R.05-10	30	40	5	2.5	40	16	38	2	RNHU 1004..	495.88	**140**
A252.42.R.05-10	32	42	5	2.5	40	16	38	2	RNHU 1004..	568.68	**142**
A252.50.R.06-10	40	50	6	2.5	40	22	43	2	RNHU 1004..	589.63	**150**
A252.52.R.07-10	42	52	7	2.5	40	22	43	2	RNHU 1004..	640.38	**152**
A252.63.R.08-10	53	63	8	2.5	40	22	48	2	RNHU 1004..	725.74	**16300**
A252.80.R.10-10	70	80	10	2.5	50	27	58	2	RNHU 1004..	825.54	**18000**
A252.40.R.04-12	28	40	4	3.0	40	16	38	3,2	RNHU 1205..	455.58	**240**
A252.50.R.05-12	38	50	5	3.0	40	22	43	3,2	RNHU 1205..	553.17	**250**
A252.52.R.05-12	40	52	5	3.0	40	22	43	3,2	RNHU 1205..	554.50	**252**
A252.63.R.06-12	51	63	6	3.0	40	22	48	3,2	RNHU 1205..	683.35	**263**
A252.66.R.07-12	54	66	7	3.0	40	22	48	3,2	RNHU 1205..	719.80	**266**
A252.80.R.08-12	68	80	8	3.0	50	27	58	3,2	RNHU 1205..	786.16	**280**
A252.100.R.10-12	88	100	10	3.0	50	32	78	3,2	RNHU 1205..	935.59	**30000**
A252.125.R.12-12	113	125	12	3.0	63	40	88	3,2	RNHU 1205..	1,131.91	**32500**

Spare parts	TORX® blade		Clamping key – T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		80 397 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
Insert	£ Y7		£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ 2A/28		£ Y7	
RNHU 1004.. (Ø40 – Ø80)	8.91	**053**			20.40	**127**			5.31	**303**	3.74	**710**	205.52	**192**
RNHU 1205.. (Ø40)	8.91	**054**	6.37	**040**	21.01	**128**	15.86	**151**	5.31	**303**	3.85	**839**	205.52	**192**
RNHU 1205.. (Ø50 – Ø125)	8.91	**054**			21.01	**128**			5.31	**303**	3.85	**839**	205.52	**192**

RNHU

Designation	IC mm	D1 mm	S mm
RNHU 1004..	10	3.4	4.60
RNHU 1205..	12	4.4	5.30



RNHU

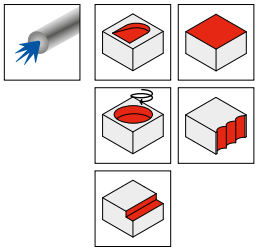
	NEW -M50 CTPP235 DRAGONSKIN	NEW -F50 CTPM240 DRAGONSKIN	NEW -M31 CTPM245 DRAGONSKIN	NEW -M32 CTPM245 DRAGONSKIN	NEW -M31 CTC5240 DRAGONSKIN	NEW -M31 CTC5240 DRAGONSKIN
	 RNHU	 RNHU	 RNHU	 RNHU	 RNHU	 RNHU
	51 130 ...	51 129 ...	51 106 ...	51 107 ...	50 520 ...	50 521 ...
ISO	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17	£ 1H/17	£ 1H/17
1004M4ER	22.21 12000	22.21 42000	30.04 470	30.04 470	30.04 550	
1205M4ER		24.05 42500	32.89 475	32.89 475		32.89 552
1205M4SR	24.05 12500					
P	●	○	●	●		
M	○	●	●	●		
K	○					
N						
S					●	●
H						
O						

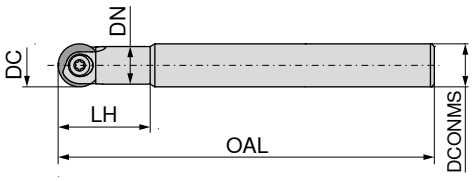
Milling guide

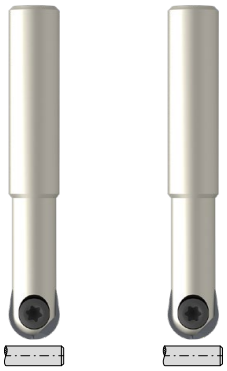
Cutting data standard values	→ 145–148	Machining strategy	→ 187
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

K 2000 / K 2001 shank copy milling cutter

▲ with carbide shank







ISO designation	DC mm	DN mm	LH mm	OAL mm	DCONMS mm	torque moment Nm	56 100 ... £ WA		56 101 ... £ WA	
K2000C.6.16.100	6	5.3	16	100	8	0,5	686.64	060 [1]		
K2000C.6.20.100	6	5.8	20	100	6	0,5	686.64	061 [1]		
K2000C.6.70.150	6	5.8	70	150	6	0,5	893.16	062 [1]		
K2000C.6.100.200	6	5.8	100	200	6	0,5	1,082.22	063 [1]		
K2000C.8.25.80	8	7.0	25	80	8	1	728.95	081 [1]		
K2000C.8.25.100	8	7.0	25	100	8	1	728.95	082 [1]		
K2000C.8.40.150	8	7.0	40	150	8	1	808.57	083 [1]		
K2000C.10.35.80	10	8.8	35	80	10	3	875.76	101 [1]		
K2000C.10.35.120	10	8.8	35	120	10	3	903.11	102 [1]		
K2000C.10.50.150	10	8.8	50	150	10	3	1,000.15	103 [1]		
K2000C.12.35.80	12	10.5	35	80	12	4	913.08	121 [1]		
K2001C.12.35.80	12	10.5	35	80	12	4			913.08	121
K2000C.12.35.120	12	10.5	35	120	12	4	952.86	122 [1]		
K2001C.12.35.120	12	10.5	35	120	12	4			952.86	122
K2000C.12.50.160	12	10.5	50	160	12	4	1,020.07	123 [1]		
K2001C.12.50.160	12	10.5	50	160	12	4			1,020.07	123
K2001C.16.40.100	16	14.0	40	100	16	5			1,258.89	161
K2001C.16.40.140	16	14.0	40	140	16	5			1,258.89	162
K2001C.16.55.175	16	14.0	55	175	16	5			1,370.80	163
K2001C.20.50.100	20	18.0	50	100	20	5			1,599.73	201
K2001C.20.50.140	20	18.0	50	140	20	5			1,599.73	202
K2001C.20.75.190	20	18.0	75	190	20	5			1,880.86	203
K2001C.25.60.160	25	22.4	60	160	25	8			2,273.95	252
K2001C.25.90.210	25	22.4	90	210	25	8			2,838.70	253

1) Without Through Coolant

Applicable inserts

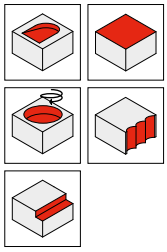
	ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4

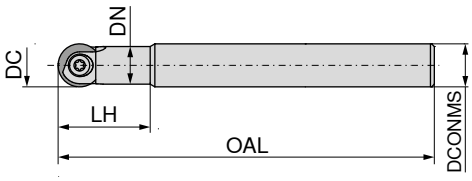
	XOHX06.. -MR2, XOHX-FM1

15

K 2002 shank copy milling cutter

▲ cylindrical steel shank version







56 102 ...

Designation	DC mm	DN mm	LH mm	OAL mm	DCONMS mm	torque moment Nm	£ WA	
K2002C.12.32.90	12	10.5	32	90	12	4	196.54	**121**
K2002C.12.32.130	12	10.5	32	130	12	4	196.54	**122**
K2002C.12.46.150	12	10.5	46	150	12	4	206.49	**123**
K2002C.16.36.100	16	14.0	36	100	16	5	208.98	**161**
K2002C.16.36.140	16	14.0	36	140	16	5	208.98	**162**
K2002C.16.53.160	16	14.0	53	160	16	5	223.93	**163**
K2002C.20.45.160	20	18.0	45	160	20	5	218.96	**202**
K2002C.20.61.175	20	18.0	61	175	20	5	258.74	**203**
K2002C.25.45.160	25	22.4	45	160	25	8	306.01	**252**
K2002C.25.70.190	25	22.4	70	190	25	8	318.46	**253**
K2002C.32.56.175	32	28.6	56	175	32	8	393.11	**322**
K2002C.32.80.210	32	28.6	80	210	32	8	413.01	**323**

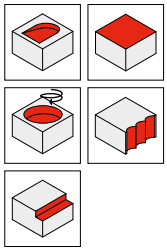
Applicable inserts

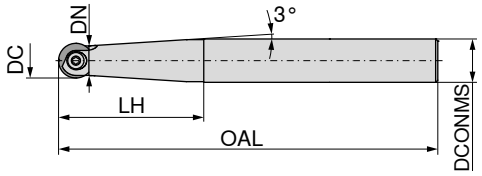
	**ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4**

	**XOHX-FM1**

K 2003 shank copy milling cutter

▲ tapered execution







56 104 ...

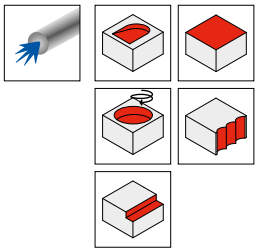
Designation	DC mm	DN mm	LH mm	OAL mm	DCONMS mm	torque moment Nm	£ WA	
K2003C.6.16.90	6	5.3	40	90	10	0,5	223.93	**061**
K2003C.8.50.85	8	7.5	50	85	12	1	266.20	**081**
K2003C.8.50.140	8	7.5	50	140	12	1	266.20	**082**
K2003C.10.35.85	10	9.0	35	85	12	3	266.20	**101**
K2003C.10.35.150	10	9.0	35	150	12	3	266.20	**102**
K2003C.12.60.110	12	10.5	60	110	16	4	268.72	**121**
K2003C.12.60.160	12	10.5	60	160	16	4	268.72	**122**
K2003C.16.67.120	16	14.0	67	120	20	5	291.11	**161**
K2003C.16.67.175	16	14.0	67	175	20	5	291.11	**162**
K2003C.20.80.190	20	18.0	80	190	25	5	338.37	**201**
K2003C.25.100.210	25	22.4	100	210	32	8	417.96	**251**
K2003C.32.123.240	32	28.6	123	240	40	8	534.90	**321**

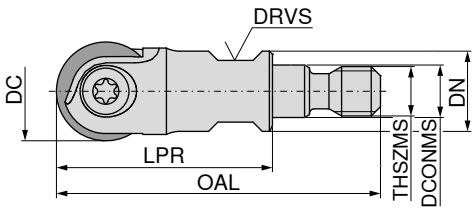
Applicable inserts

	**ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4**

	**XOHX-FM1**

K 2000 screw-in copy milling cutter







Designation	DC mm	LPR mm	DN mm	OAL mm	DCONMS mm	THSZMS	DRVS mm	torque moment Nm	56 120 ... £ WA	
K2000G.8.25.M6	8	25	10	39.5	6.5	M6	8	1	440.38	**081** 1)
K2000G.10.25.M6	10	25	10	39.5	6.5	M6	8	3	437.88	**101** 1)
K2000G.12.25.M6	12	25	10	39.5	6.5	M6	8	4	452.80	**121** 1)
K2000G.12.26.M8	12	26	13	43.5	8.5	M8	10	4	452.80	**122**
K2000G.16.26.M8	16	26	13	43.5	8.5	M8	10	5	472.71	**161**
K2000G.20.30.M10	20	30	18	49.5	10.5	M10	15	5	480.15	**201**
K2000G.25.40.M12	25	40	21	62.0	12.5	M12	17	8	500.08	**251**
K2000G.32.45.M16	32	45	30	69.0	17.0	M16	26	8	527.45	**321**

1) Without Through Coolant

Applicable inserts



ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4



XOHX-FM1

TORX® blade


Key D


Molykote

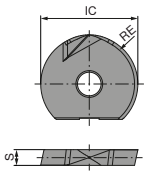

Clamping screw


Torque screwdriver

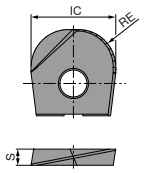
Spare parts DC	80 950 ... £ Y7		80 950 ... £ Y7		70 950 ... £ 2A/28		56 950 ... £ WA		80 950 ... £ Y7	
6	8.91	**031**	14.85	**108**	5.31	**303**	12.89	**041**	217.91	**191**
8	8.91	**033**	13.73	**110**	5.31	**303**	12.89	**042**	217.91	**191**
10	8.91	**036**	16.32	**113**	5.31	**303**	12.89	**043**	244.07	**193**
12	8.91	**037**	17.48	**114**	5.31	**303**	17.42	**044**	244.07	**193**
16	8.91	**037**	17.48	**114**	5.31	**303**	17.42	**045**	244.07	**193**
20	8.91	**037**	17.48	**114**	5.31	**303**	17.42	**046**	244.07	**193**
25			18.84	**131**	5.31	**303**	17.49	**047**		
32			18.84	**131**	5.31	**303**	18.06	**048**		

ROHX / XOHX / ROGX

Designation	IC mm	S mm
ROHX0616R..	6	1.60
ROHX0820R..	8	2.00
ROHX1025R..	10	2.50
XOHX10254..	10	2.50
XOHX12255..	12	2.50
RO.X1225R..	12	2.50
RO.X1630R..	16	3.00
XOHX16307..	16	3.00
XOHX20309..	20	3.00
RO.X2030R..	20	3.00
RO.X2540R..	25	4.00
RO.X3250R..	32	5.00



RO.X



XOHX

ROHX / XOHX / ROGX

		-MR5 CTPP211	-FM1 CTPP216	-FM3 CTPP216	-FM4 CTPP216	-FM4 CTPK226	-MR4 CTPK231	-FM6 CTCN211
								
		ROHX	XOHX	ROHX	ROHX	ROHX	ROGX	ROHX
		56 149 ...	56 169 ...	56 147 ...	56 141 ...	56 141 ...	56 143 ...	56 145 ...
ISO	RE mm	£ WB	£ WB	£ WB	£ WB	£ WB	£ WB	£ WB
0616 R3	3.0			56.04 30200	46.69 90200			136.83 602 1)
0820 R4	4.0	56.97 71300		67.95 31300	44.88 71300	47.05 11300		176.65 613 1)
1025 R5	5.0	56.97 72400		67.95 32400	44.88 72400	47.05 12400		176.65 624 1)
102540	4.0		61.54 92400					
1225 R6	6.0			69.03 33500	46.69 73500	47.05 13500	45.79 53500	176.65 635 1)
122550	5.0		65.92 93500					
1630 R8	8.0			74.33 34600	53.65 74600	54.84 14600	53.65 54600	201.54 646 1)
163070	7.0		70.51 94700					
2030 R10	10.0			78.74 35700	61.54 75700	61.30 15700	61.54 55700	
203090	9.0		80.38 95900					
2540 R12,5	12.5			97.99 36800	91.76 76800	91.43 16800	90.65 56800	
3250 R16	16.0			131.31 37900	134.03 77900	135.59 17900	125.06 57900	
P		●	●	●	●	●	●	
M		○	○	○	○	●	●	
K		○	●	●	●	●	●	
N		○	○	○	○		○	○
S		○	○	○	○		○	
H		○	●	●	●	○	○	
O		○	○	○	○			●

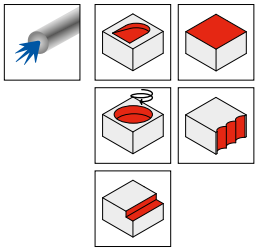
1) Specifically for machining graphite !

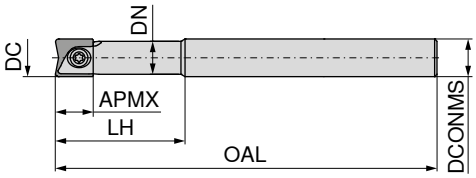
Milling guide

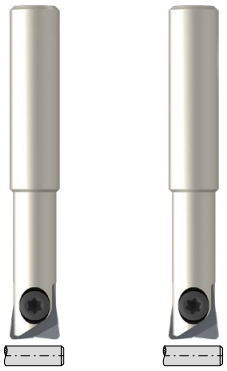
Cutting data standard values	→ 188+189	Depth of Cut	→ 190
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

K 2005 / K 2006 shank copy milling cutter

▲ with carbide shank







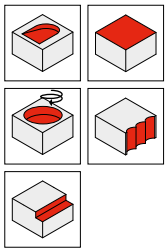
Designation	DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS mm	torque moment Nm	56 110 ... £ WA		56 111 ... £ WA	
K2005C.8.27.82	8	9.5	7.0	27	82	8	1	728.95	**081** [1]		
K2005C.8.27.102	8	9.5	7.0	27	102	8	1	728.95	**082** [1]		
K2005C.8.42.152	8	9.5	7.0	42	152	8	1	808.57	**083** [1]		
K2005C.10.37.82	10	11.5	8.8	37	82	10	3	875.76	**101** [1]		
K2005C.10.37.122	10	11.5	8.8	37	122	10	3	903.11	**102** [1]		
K2005C.10.52.152	10	11.5	8.8	52	152	10	3	1,000.15	**103** [1]		
K2005C/K2006C.12.37.82	12	14.0	10.5	37	82	12	4	913.08	**121** [1]	913.08	**121**
K2005C/K2006C.12.37.122	12	14.0	10.5	37	122	12	4	952.86	**122** [1]	952.86	**122**
K2005C/K2006C.12.52.162	12	14.0	10.5	52	162	12	4	1,020.07	**123** [1]	1,020.07	**123**
K2006C.16.42.102	16	16.0	14.0	42	102	16	5			1,258.89	**161**
K2006C.16.42.142	16	16.0	14.0	42	142	16	5			1,258.89	**162**
K2006C.16.57.177	16	16.0	14.0	57	177	16	5			1,370.80	**163**
K2006C.20.52.102	20	18.0	18.0	52	102	20	5			1,599.73	**201**
K2006C.20.52.142	20	18.0	18.0	52	142	20	5			1,599.73	**202**
K2006C.20.77.192	20	18.0	18.0	77	192	20	5			1,880.86	**203**
K2006C.25.62.162	25	23.5	22.4	62	162	25	8			2,273.95	**252**
K2006C.25.92.212	25	23.5	22.4	92	212	25	8			2,838.70	**253**

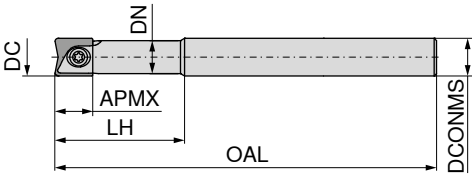
1) Without Through Coolant

Applicable inserts

	XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6
	XOGX-MF4

K 2007 shank copy milling cutter





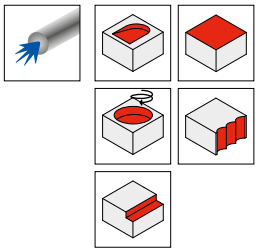


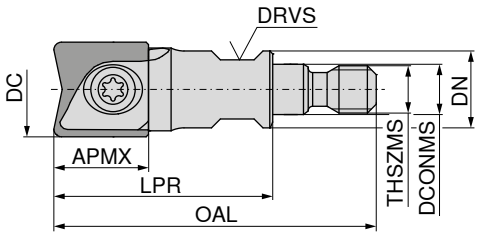
Designation	DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS mm	torque moment Nm	56 112 ... £ WA	
K2007C.12.34.132	12	14.0	10.5	34	132	12	4	196.54	**122**
K2007C.12.34.92	12	14.0	10.5	34	92	12	4	216.45	**121**
K2007C.12.48.152	12	14.0	10.5	48	152	12	4	206.49	**123**
K2007C.16.38.102	16	16.0	14.0	38	102	16	5	208.98	**161**
K2007C.16.38.142	16	16.0	14.0	38	142	16	5	208.98	**162**
K2007C.16.55.162	16	16.0	14.0	55	162	16	5	223.93	**163**
K2007C.20.47.162	20	18.0	18.0	47	162	20	5	218.96	**202**
K2007C.20.63.177	20	18.0	18.0	63	177	20	5	258.74	**203**
K2007C.25.47.162	25	23.5	22.4	47	162	25	8	306.01	**252**
K2007C.25.72.192	25	23.5	22.4	72	192	25	8	318.46	**253**
K2007C.32.58.177	32	28.0	28.6	58	177	32	8	393.11	**322**
K2007C.32.82.212	32	28.0	28.6	82	212	32	8	413.01	**323**

Applicable inserts

	**XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6**
	XOGX-MF4

K 2005 screw-in copy milling cutter







56 130 ...

Designation	DC mm	APMX mm	DN mm	LPR mm	OAL mm	DCONMS mm	THSZMS	DRVS mm	torque moment Nm	£ WA	
K2005G.8.25.M6	8	9.5	10	25	39.5	6.5	M6	8	1	440.38	**081** 1)
K2005G.10.25.M6	10	11.5	10	25	39.5	6.5	M6	8	3	437.88	**101** 1)
K2005G.12.25.M6	12	14.0	10	25	39.5	6.5	M6	8	4	452.80	**121** 1)
K2005G.12.28.M8	12	14.0	13	28	45.5	8.5	M8	8	4	452.80	**122**
K2005G.16.28.M8	16	16.0	13	28	45.5	8.5	M8	10	5	472.71	**161**
K2005G.20.32.M10	20	18.0	18	32	51.5	10.5	M10	15	5	480.15	**201**
K2005G.25.42.M12	25	23.5	21	42	64.0	12.5	M12	17	8	500.08	**251**
K2005G.32.47.M16	32	28.0	30	47	71.0	17.0	M16	26	8	527.45	**321**

1) Without Through Coolant

Applicable inserts



XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6
XOGX-MF4

TORX® blade

80 950 ...



Key D

80 950 ...



Molykote

70 950 ...



Clamping screw

56 950 ...



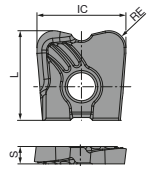
Torque screwdriver

80 950 ...

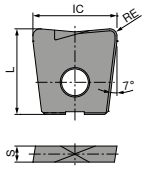
Spare parts DC	£ Y7		£ Y7		£ 2A/28		£ WA		£ Y7	
8	8.91	**033**	13.73	**110**	5.31	**303**	12.89	**042**	217.91	**191**
10	8.91	**036**	16.32	**113**	5.31	**303**	12.89	**043**	244.07	**193**
12	8.91	**037**	17.48	**114**	5.31	**303**	17.42	**044**	244.07	**193**
16	8.91	**037**	17.48	**114**	5.31	**303**	17.42	**045**	244.07	**193**
20	8.91	**037**	17.48	**114**	5.31	**303**	17.42	**046**	244.07	**193**
25			18.84	**131**	5.31	**303**	17.49	**047**		
32			18.84	**131**	5.31	**303**	18.06	**048**		

XOHX / XOGX

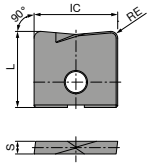
Designation	IC mm	S mm	L mm
XO.X10251..	10	2.50	11.5
XO.X12251..	12	2.50	14.0
XO.X16301..	16	3.00	16.0
XO.X16303..	16	3.00	16.0
XO.X20301..	20	3.00	18.0
XO.X20304..	20	3.00	18.0
XOGX12252..	12	2.50	14.0
XOHX06160..	6	1.60	8.0
XOHX08200..	8	2.00	9.5
XOHX08201..	8	2.00	9.5
XOHX10250..	10	2.50	11.5
XOHX12252..	12	3.00	14.0
XOHX20302..	20	3.00	18.0
XOHX25401..	25	4.00	23.5
XOHX25402..	25	4.00	23.5
XOHX25405..	25	4.00	23.5
XOHX32502..	32	5.00	28.0



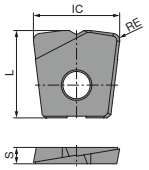
XOGX



XOHX



XOHX



XOHX

XOHX / XOGX

ISO	RE mm	-MR2 CTPP211 XOHX 56 167 ... £ WB		-MR6 CTPP211 XOHX 56 163 ... £ WB		-FM2 CTPP216 XOHX 56 165 ... £ WB		-FM5 CTPP216 XOHX 56 159 ... £ WB		-MF4 CTPP216 XOGX 56 161 ... £ WB		-MR3 CTPK231 XOHX 56 171 ... £ WB		-MR2 CTCN211 XOHX 56 168 ... £ WB	
061605	0.5	58.25	71000											136.83	610 [1]
082006	0.6			62.63	71000	55.12	71000	48.17	71000						
082010	1.0	63.73	71200			55.12	71200							161.71	612 [1]
102508	0.8			62.63	72100	55.12	72100	47.62	72100			69.42	32100		
102510	1.0	63.73	72200			55.12	72200			55.67	92200			171.68	622 [1]
122510	1.0	68.29	73200	68.29	73200	56.97	73200	53.65	73200	60.42	93200	69.42	53200	189.09	632 [1]
122520	2.0	68.29	73500			56.97	73500			60.42	93500				
163010	1.0	73.80	74200			65.92	74200			68.29	94200			236.36	642 [1]
163013	1.3			72.72	74300	65.92	74300	61.54	74300						
163015	1.5											73.80	54400		
163030	3.0	73.80	74700			65.92	74500			68.29	94700				
203010	1.0	84.98	75200			72.72	75200			77.10	95200				
203016	1.6			82.77	75400	72.72	75400	70.51	75400						
203020	2.0											87.16	55500		
203040	4.0	84.98	75800			72.72	75800			77.10	95800				
254010	1.0	108.40	76200			93.95	76200								
254020	2.0			113.91	76500	93.95	76500	98.34	76500						
254050	5.0	108.40	76900			93.95	76900								
325025	2.5			160.95	77600			136.43	77600						
P		●		●		●		●		●		●			
M		○		○		○		○		○		●			
K		○		○		●		●		●		●			
N		○		○		○		○		○		○		○	
S		○		○		○		○		○		○			
H		○		○		●		●		●		○			
O		○		○		○		○		○				●	

1) Specifically for machining graphite !

Milling guide

Cutting data standard values	→ 188+189	Depth of Cut	→ 190
Technical Information	→ 193–198	Chip groove description and overview	→ 199–201
Grade description and overview	→ 202–208		

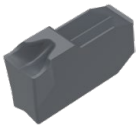
15

Application tips – **MaxiMill** – Slot-SX

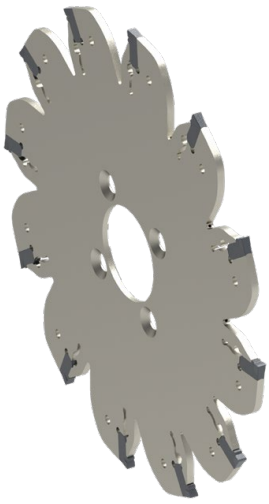
▲ The following components are required to complete the tool:



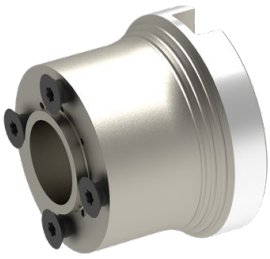
Spanner



Grooving insert



Saw cutters

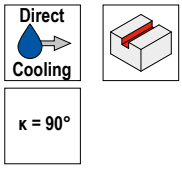


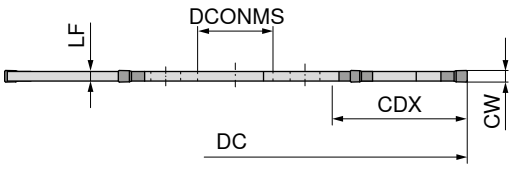
Multipurpose milling cutter adapter

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws







NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 383 ... £ 2B/40	
ASLOT.80.R.6.13.DC-SX2	80	2	23	13	1.65	6	SX E2 ..	AD.SLOT.13...	614.07	**08002**
ASLOT.80.R.6.13.DC-SX3	80	3	23	13	2.50	6	SX E3 ..	AD.SLOT.13...	614.07	**08003**
ASLOT.80.R.4.13.DC-SX4	80	4	23	13	3.50	4	SX E4 ..	AD.SLOT.13...	614.07	**08004**
ASLOT.80.R.4.13.DC-SX5	80	5	23	13	4.50	4	SX E5 ..	AD.SLOT.13...	614.07	**08005**



Clamping screw



Ejector SX

Spare parts for Article no.	50 950 ... £ 2A/28		70 950 ... £ 2A/28	
50 383 08002	5.66	**00100**	33.78	**836**
50 383 08003	5.66	**00100**	33.78	**836**
50 383 08004	5.66	**00100**	34.45	**837**
50 383 08005	5.66	**00100**	34.45	**837**

Suitable multipurpose milling cutter adapters can be found on → **Page 136**

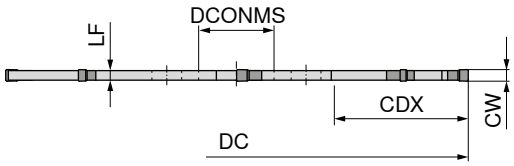
MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws

Direct Cooling

κ = 90°





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS H6 mm	LF mm	ZEFP	Insert	Adapter	£ 2B/40	50 384 ...
ASLOT.100.R.8.22.DC-SX2	100	2	29	22	1.65	8	SX E2 ..	AD.SLOT.22...	818.75	**10002**
ASLOT.100.R.8.22.DC-SX3	100	3	29	22	2.50	8	SX E3 ..	AD.SLOT.22...	818.75	**10003**
ASLOT.100.R.6.22.DC-SX4	100	4	29	22	3.50	6	SX E4 ..	AD.SLOT.22...	818.75	**10004**
ASLOT.100.R.6.22.DC-SX5	100	5	29	22	4.50	6	SX E5 ..	AD.SLOT.22...	818.75	**10005**
ASLOT.100.R.4.22.DC-SX6	100	6	29	22	5.40	4	SX E6 ..	AD.SLOT.22...	818.75	**10006**



Clamping screw



Ejector SX

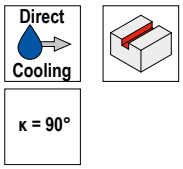
Spare parts for Article no.	£ 2A/28	50 950 ...	£ 2A/28	70 950 ...
50 384 10002	5.66	**00100**	33.78	**836**
50 384 10003	5.66	**00100**	33.78	**836**
50 384 10004	5.66	**00100**	34.45	**837**
50 384 10005	5.66	**00100**	34.45	**837**
50 384 10006	5.66	**00100**	34.45	**837**

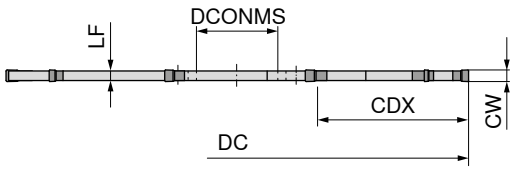
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws







NEW

Designation	DC mm	CW mm	CDX mm	DCONMS H6 mm	LF mm	ZEFP	Insert	Adapter	50 385 ... £ 2B/40	
ASLOT.125.R.10.22.DC-SX2	125	2	42	22	1.65	10	SX E2 ..	AD.SLOT.22...	1,023.47	**12502**
ASLOT.125.R.10.22.DC-SX3	125	3	42	22	2.50	10	SX E3 ..	AD.SLOT.22...	1,023.47	**12503**


Clamping screw


Ejector SX

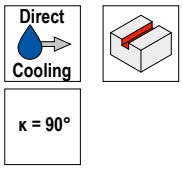
Spare parts for Article no.	50 950 ... £ 2A/28		70 950 ... £ 2A/28	
50 385 12502	5.66	**00100**	33.78	**836**
50 385 12503	5.66	**00100**	33.78	**836**

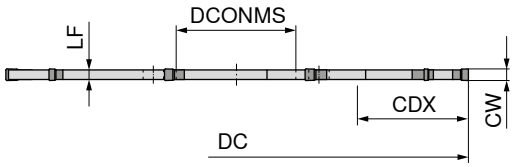
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws







NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 386 ... £ 2B/40	
ASLOT.125.R.10.32.DC-SX2	125	2	30	32	1.65	10	SX E2 ..	AD.SLOT.32...	1,023.47	**12502**
ASLOT.125.R.10.32.DC-SX3	125	3	30	32	2.50	10	SX E3 ..	AD.SLOT.32...	1,023.47	**12503**
ASLOT.125.R.8.32.DC-SX4	125	4	30	32	3.50	8	SX E4 ..	AD.SLOT.32...	1,023.47	**12504**
ASLOT.125.R.8.32.DC-SX5	125	5	30	32	4.50	8	SX E5 ..	AD.SLOT.32...	1,023.47	**12505**
ASLOT.125.R.8.32.DC-SX6	125	6	30	32	5.40	8	SX E6 ..	AD.SLOT.32...	1,023.47	**12506**


Clamping screw


Ejector SX

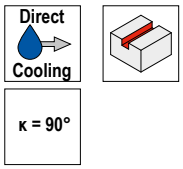
Spare parts for Article no.	50 950 ... £ 2A/28		70 950 ... £ 2A/28	
50 386 12502	5.85	**00200**	33.78	**836**
50 386 12503	5.85	**00200**	33.78	**836**
50 386 12504	5.85	**00200**	34.45	**837**
50 386 12505	5.85	**00200**	34.45	**837**
50 386 12506	5.85	**00200**	34.45	**837**

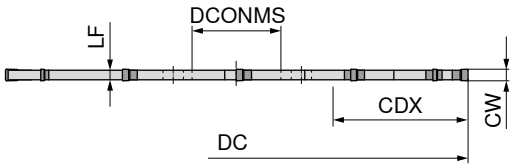
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws







NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 387 ... £ 2B/40	
ASLOT.160.R.12.32.DC-SX2	160	2	48	32	1.65	12	SX E2 ..	AD.SLOT.32...	1,155.91	**16002**
ASLOT.160.R.12.32.DC-SX3	160	3	48	32	2.50	12	SX E3 ..	AD.SLOT.32...	1,155.91	**16003**


Clamping screw


Ejector SX

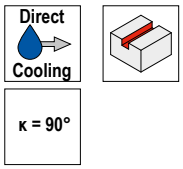
Spare parts for Article no.	50 950 ... £ 2A/28		70 950 ... £ 2A/28	
50 387 16002	5.85	**00200**	33.78	**836**
50 387 16003	5.85	**00200**	33.78	**836**

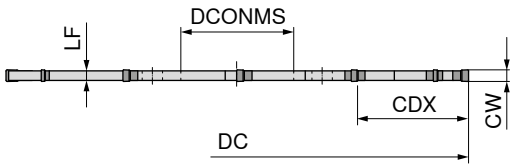
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws







NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 388 ... £ 2B/40	
ASLOT.160.R.12.40.DC-SX2	160	2	39	40	1.65	12	SX E2 ..	AD.SLOT.40...SK	1,155.91	**16002**
ASLOT.160.R.12.40.DC-SX3	160	3	39	40	2.50	12	SX E3 ..	AD.SLOT.40...SK	1,155.91	**16003**
ASLOT.160.R.10.40.DC-SX4	160	4	39	40	3.50	10	SX E4 ..	AD.SLOT.40...SK	1,155.91	**16004**
ASLOT.160.R.10.40.DC-SX5	160	5	39	40	4.50	10	SX E5 ..	AD.SLOT.40...SK	1,155.91	**16005**
ASLOT.160.R.10.40.DC-SX6	160	6	39	40	5.40	10	SX E6 ..	AD.SLOT.40...SK	1,155.91	**16006**


Clamping screw


Ejector SX

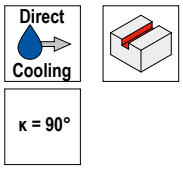
Spare parts for Article no.	50 950 ... £ 2A/28		70 950 ... £ 2A/28	
50 388 16002	21.06	**00300**	33.78	**836**
50 388 16003	21.06	**00300**	33.78	**836**
50 388 16004	21.06	**00300**	34.45	**837**
50 388 16005	21.06	**00300**	34.45	**837**
50 388 16006	21.06	**00300**	34.45	**837**

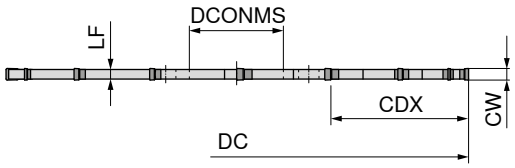
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws







NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 389 ... £ 2B/40	
ASLOT.200.R.16.40.DC-SX2	200	2	59	40	1.65	16	SX E2 ..	AD.SLOT.40...SK	1,541.20	**20002**
ASLOT.200.R.16.40.DC-SX3	200	3	59	40	2.50	16	SX E3 ..	AD.SLOT.40...SK	1,541.20	**20003**
ASLOT.200.R.14.40.DC-SX4	200	4	59	40	3.50	14	SX E4 ..	AD.SLOT.40...SK	1,541.20	**20004**
ASLOT.200.R.14.40.DC-SX5	200	5	59	40	4.50	14	SX E5 ..	AD.SLOT.40...SK	1,541.20	**20005**
ASLOT.200.R.14.40.DC-SX6	200	6	59	40	5.40	14	SX E6 ..	AD.SLOT.40...SK	1,541.20	**20006**


Clamping screw


Ejector SX

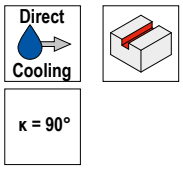
Spare parts for Article no.	50 950 ... £ 2A/28		70 950 ... £ 2A/28	
50 389 20002	21.06	**00300**	33.78	**836**
50 389 20003	21.06	**00300**	33.78	**836**
50 389 20004	21.06	**00300**	34.45	**837**
50 389 20005	21.06	**00300**	34.45	**837**
50 389 20006	21.06	**00300**	34.45	**837**

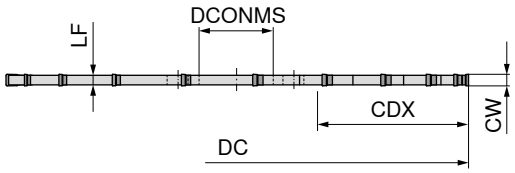
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws







NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 380 ... £ 2B/40	
ASLOT.250.R.20.40.DC-SX3	250	3	84	40	2.5	20	SX E3 ..	AD.SLOT.40...ZK	2,709.17	**25003**
ASLOT.250.R.18.40.DC-SX4	250	4	84	40	3.5	18	SX E4 ..	AD.SLOT.40...ZK	2,709.17	**25004**
ASLOT.250.R.18.40.DC-SX5	250	5	84	40	4.5	18	SX E5 ..	AD.SLOT.40...ZK	2,710.36	**25005**
ASLOT.250.R.18.40.DC-SX6	250	6	84	40	5.4	18	SX E6 ..	AD.SLOT.40...ZK	3,588.14	**25006**[1)]

1) Not ex-stock



Clamping screw



Ejector SX

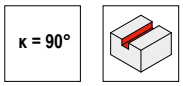
Spare parts for Article no.	50 950 ... £ 2A/28		70 950 ... £ 2A/28	
50 380 25003	21.06	**00400**	33.78	**836**
50 380 25004	21.06	**00400**	34.45	**837**
50 380 25005	21.06	**00400**	34.45	**837**
50 380 25006	21.06	**00400**	34.45	**837**

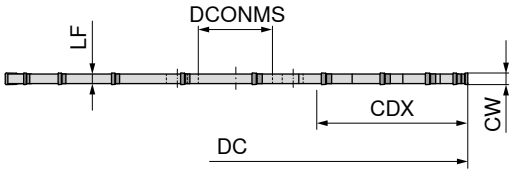
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws







NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 390 ... £ 2B/40	
ASLOT.250.R.20.40-SX3	250	3	84	40	2.5	20	SX E3 ..	AD.SLOT.40...ZK	1,854.28	**25003**
ASLOT.250.R.18.40-SX4	250	4	84	40	3.5	18	SX E4 ..	AD.SLOT.40...ZK	1,854.28	**25004**
ASLOT.250.R.18.40-SX5	250	5	84	40	4.5	18	SX E5 ..	AD.SLOT.40...ZK	1,854.28	**25005**
ASLOT.250.R.18.40-SX6	250	6	84	40	5.4	18	SX E6 ..	AD.SLOT.40...ZK	2,769.37	**25006**[1)]

1) Not ex-stock



Clamping screw



Ejector SX

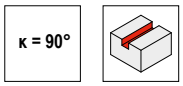
Spare parts for Article no.	50 950 ... £ 2A/28		70 950 ... £ 2A/28	
50 390 25003	21.06	**00400**	33.78	**836**
50 390 25004	21.06	**00400**	34.45	**837**
50 390 25005	21.06	**00400**	34.45	**837**
50 390 25006	21.06	**00400**	34.45	**837**

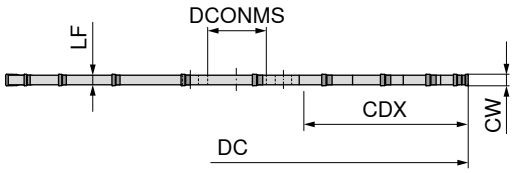
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

MaxiMill – Slot-SX slot milling and parting off cutter

Scope of supply:

Slot milling and parting off cutters **without** assembly key, **without** clamping screws







NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	LF mm	ZEFP	Insert	Adapter	50 391 ... £ 2B/40	
ASLOT.315.R.22.40-SX4	315	4	115	40	3.5	22	SX E4 ..	AD.SLOT.40...ZK	2,071.01	**31504**
ASLOT.315.R.22.40-SX5	315	5	115	40	4.5	22	SX E5 ..	AD.SLOT.40...ZK	2,071.01	**31505**
ASLOT.315.R.22.40-SX6	315	6	115	40	5.4	22	SX E6 ..	AD.SLOT.40...ZK	3,588.14	**31506**[1)]

1) Not ex-stock


Clamping screw


Ejector SX

Spare parts for Article no.	50 950 ... £ 2A/28		70 950 ... £ 2A/28	
50 391 31504	21.06	**00400**	34.45	**837**
50 391 31505	21.06	**00400**	34.45	**837**
50 391 31506	21.06	**00400**	34.45	**837**

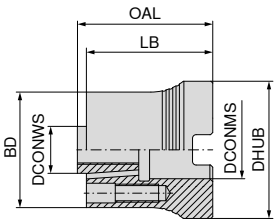
Suitable multipurpose milling cutter adapters can be found on → **Page 136**

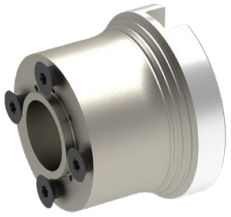
MaxiMill – Slot-SX multipurpose milling cutter adapter

Scope of supply:

Multipurpose milling cutter adapter including screws







NEW

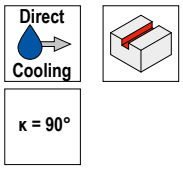
Designation	DCONMS mm	DCONWS h6 mm	DHUB mm	LB mm	OAL mm	BD mm	50 395 ... £ 2E/45	
AD.SLOT.13.32.A16	16	13	38	35	37.5	32	191.68	**01300**
AD.SLOT.22.40.A22	22	22	48	35	37.5	40	196.75	**02200**
AD.SLOT.22.40.A22.40	22	22	40	35	37.5	40	183.58	**02300**
AD.SLOT.32.63.A27	27	32	58	45	47.5	63	214.80	**03200**
AD.SLOT.40.80.A32.SK	32	40	78	55	57.5	80	272.12	**04000**
AD.SLOT.40.80.A32.ZK	32	40	78	55	57.5	80	272.12	**04100**

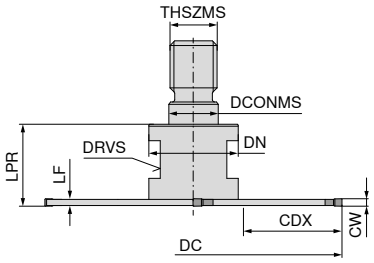
Spare parts for Article no.	 Clamping screw 50 950 ... £ 2A/28		 Clamping screw 50 950 ... £ 2A/28		 Clamping screw 50 950 ... £ 2A/28		 Power Screw 70 950 ... £ 2A/28	
50 395 01300	5.66	**00100**					15.86	**151**
50 395 02200	5.66	**00100**						
50 395 03200	5.85	**00200**						
50 395 04000					21.06	**00300**		
50 395 04100			21.06	**00400**				

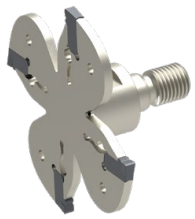
MaxiMill – Slot-SX screw-in multipurpose milling cutter

Scope of supply:

Screw-in multipurpose milling cutter **without** assembly key







NEW

50 392 ...

Designation	DC mm	CW mm	CDX mm	DCONMS mm	THSZMS	LF mm	DN mm	LPR mm	DRVS mm	ZEFP	Insert	£ 2B/40	
GSLOT.63.R.4.M10.DC-SX2	63	2	21	10.5	M10	1.65	19	18	15	4	SX E2 ..	710.39	**06302**
GSLOT.63.R.4.M10.DC-SX3	63	3	21	10.5	M10	2.50	19	18	15	4	SX E3 ..	710.39	**06303**



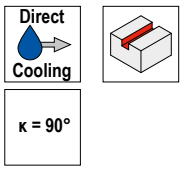
70 950 ...

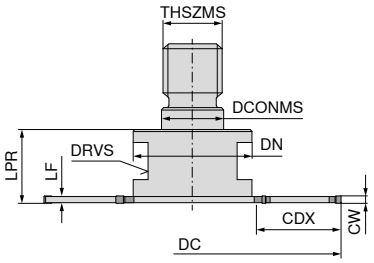
Spare parts for Article no.	£ 2A/28	
50 392 06302	33.78	**836**
50 392 06303	33.78	**836**

MaxiMill – Slot-SX screw-in multipurpose milling cutter

Scope of supply:

Screw-in multipurpose milling cutter **without** assembly key







NEW

50 393 ...

Designation	DC mm	CW mm	CDX mm	DCONMS mm	THSZMS	LF mm	DN mm	LPR mm	DRVS mm	ZEFP	Insert	£ 2B/40	
GSLOT.80.R.6.M16.DC-SX2	80	2	23	17	M16	1.65	32	20	24	6	SX E2 ..	891.02	**08002**
GSLOT.80.R.6.M16.DC-SX3	80	3	23	17	M16	2.50	32	20	24	6	SX E3 ..	891.02	**08003**
GSLOT.80.R.4.M16.DC-SX4	80	4	23	17	M16	3.50	32	20	24	4	SX E4 ..	891.02	**08004**



70 950 ...

Spare parts for Article no.	£ 2A/28	
50 393 08002	33.78	**836**
50 393 08003	33.78	**836**
50 393 08004	34.45	**837**

MaxiMill – Slot-SX screw-in multipurpose milling cutter

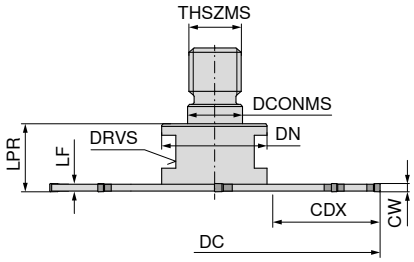
Scope of supply:

Screw-in multipurpose milling cutter **without** assembly key





κ = 90°





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS mm	THSZMS	LF mm	DN mm	LPR mm	DRVS mm	ZEFP	Insert	50 394 ... £ 2B/40	
GSLOT.100.R.8.M16.DC-SX2	100	2	33	17	M16	1.65	32	20	24	8	SX E2 ..	1,059.57	**10002**
GSLOT.100.R.8.M16.DC-SX3	100	3	33	17	M16	2.50	32	20	24	8	SX E3 ..	1,059.57	**10003**
GSLOT.100.R.6.M16.DC-SX4	100	4	33	17	M16	3.50	32	20	24	6	SX E4 ..	1,059.57	**10004**



Ejector SX

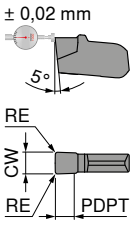
Spare parts for Article no.	70 950 ... £ 2A/28	
50 394 10002	33.78	**836**
50 394 10003	33.78	**836**
50 394 10004	34.45	**837**

Suitable adapters for screw-in cutters can be found in – Chapter 16 Adapters and accessories

Insert SX



F	M	R
◢		



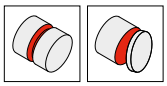
-F2
CTP1340
DRAGONSKIN



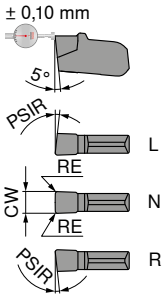
Designation	CW mm	RE mm	PDPT mm	for tool holder	70 346 ... £ 1C/72	
SX E2.00 N 0.20	2	0.2	1.5	-SX2	22.88	**622**
SX E3.00 N 0.30	3	0.3	2.0	-SX3	24.59	**623**
SX E4.00 N 0.40	4	0.4	2.5	-SX4	26.03	**624**

P	●
M	●
K	○
N	○
S	●
H	
O	

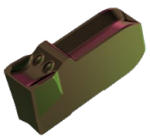
Insert SX



F	M	R
	◢	



-M1
CTCP335
DRAGONSKIN



-M1
CTP1340
DRAGONSKIN



Designation	IH	CW mm	RE mm	for tool holder	70 342 ... £ 1C/72		70 342 ... £ 1C/72	
SX E2.00 N 0.20	N	2	0.2	-SX2	15.79	**52200**	15.35	**622**
SX E3.00 N 0.20	N	3	0.2	-SX3	16.32	**523**	16.32	**623**
SX E4.00 N 0.30	N	4	0.3	-SX4	17.22	**524**	17.22	**624**
SX E5.00 N 0.30	N	5	0.3	-SX5	18.88	**52500**	18.33	**625**
SX E6.00 N 0.40	N	6	0.4	-SX6	20.36	**52600**	19.75	**626**

P	●	●
M	○	●
K	●	○
N		○
S		●
H		
O		

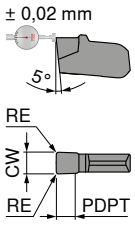
15

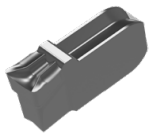
Insert SX



F	M	R
	●	

-27P
H216T



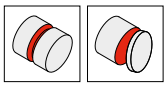


70 349 ...

Designation	CW mm	RE mm	PDPT mm	for tool holder	£ 1C/72	
SX E2.00 N 0.20	2	0.2	2.0	-SX2	18.19	**122**
SX E3.00 N 0.30	3	0.3	2.5	-SX3	19.48	**123**
SX E4.00 N 0.40	4	0.4	3.0	-SX4	20.61	**124**

P	
M	
K	○
N	●
S	
H	
O	○

Insert SX

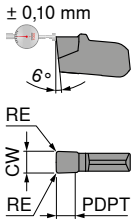


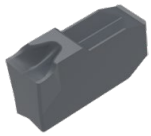
F	M	R
	●	

NEW

-M7
CTP1340

DRAGONSKIN



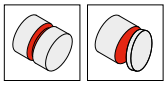


70 347 ...

Designation	CW mm	RE mm	PDPT mm	for tool holder	£ 1C/72	
SX E2.00 N 0.20	2	0.2	1.5	-SX2	15.79	**62200**
SX E3.00 N 0.20	3	0.2	2.0	-SX3	16.82	**62300**
SX E4.00 N 0.30	4	0.3	2.5	-SX4	17.73	**62400**
SX E5.00 N 0.30	5	0.3	2.7	-SX5	18.88	**62500**
SX E6.00 N 0.40	6	0.4	3.0	-SX6	20.36	**62600**

P	●
M	●
K	○
N	○
S	●
H	
O	

Insert SX

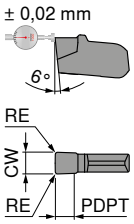


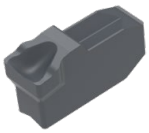
F	M	R

NEW

-M8
CTP1340

DRAGONSKIN





Designation	CW mm	RE mm	PDPT mm	for tool holder	70 348 ... £ 1C/72	
SX E2.00 N 0.20	2	0.2	1.5	-SX2	23.57	**62200**
SX E3.00 N 0.20	3	0.2	2.0	-SX3	25.34	**62300**
SX E4.00 N 0.30	4	0.3	2.5	-SX4	26.80	**62400**
SX E5.00 N 0.30	5	0.3	2.7	-SX5	28.53	**62500**
SX E6.00 N 0.40	6	0.4	3.0	-SX6	30.77	**62600**

P	●
M	●
K	○
N	○
S	●
H	
O	

Milling guide

Cutting data standard values	→ 191	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

15

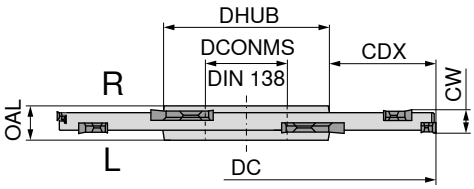
TX slot milling and parting off cutter

▲ Note: slot milling and parting off cutters TX are cross-pitched and equipped with indexable inserts for both right-hand and left-hand version.
▲ ZEFP = number of inserts

Scope of supply:

slot milling and parting off cutter, 2 spare clamping screws and 1 Torx key







Designation	DC	CW	ZNF	CDX	DCONMS	DHUB	OAL	ZEFP	Insert	torque moment	50 730 ... £ V5	
	mm	mm		mm	mm	mm	mm			Nm		
TX.STF.80X27.03.Z4	80	3	4	18.0	27	40	8	8	TX. 161702	0,7	1,085.44	**083**
TX.STF.100X32.03.Z5	100	3	5	25.0	32	46	8	10	TX. 161702	0,7	1,154.47	**103**
TX.STF.125X40.03.Z6	125	3	6	32.0	40	54	10	12	TX. 161702	0,7	1,258.99	**123**
TX.STF.160X40.03.Z8	160	3	8	50.0	40	54	10	16	TX. 161702	0,7	1,472.85	**163** 1)
TX.STF.80X27.04.Z4	80	4	4	18.0	27	40	8	8	TX. 162302	1,3	906.85	**084**
TX.STF.100X32.04.Z5	100	4	5	25.0	32	46	8	10	TX. 162302	1,3	1,143.21	**104**
TX.STF.125X40.04.Z6	125	4	6	32.0	40	54	10	12	TX. 162302	1,3	1,247.73	**124**
TX.STF.160X40.04.Z8	160	4	8	50.0	40	54	10	16	TX. 162302	1,3	1,459.98	**164** 1)
TX.STF.80X27.06.Z4	80	6	4	21.0	27	36	10	8	TX. 223202	2	593.30	**086**
TX.STF.80X22.06.Z4	80	6	4	22.0	22	33	10	8	TX. 223202	2	593.30	**080**
TX.STF.100X32.06.Z5	100	6	5	25.5	32	47	10	10	TX. 223202	2	707.47	**106**
TX.STF.125X40.06.Z6	125	6	6	32.5	40	58	10	12	TX. 223202	2	953.51	**136**
TX.STF.160X40.06.Z8	160	6	8	50.0	40	58	10	16	TX. 223202	2	1,499.44	**166** 1)
TX.STF.80X27.08.Z4	80	8	4	21.0	27	36	12	8	TX. 224302	2,8	593.30	**088**
TX.STF.100X32.08.Z5	100	8	5	25.5	32	47	12	10	TX. 224302	2,8	707.47	**108**
TX.STF.125X40.08.Z6	125	8	6	32.5	40	58	12	12	TX. 224302	2,8	953.51	**138**
TX.STF.160X40.08.Z8	160	8	8	50.0	40	58	12	16	TX. 224302	2,8	1,225.23	**168** 1)
TX.STF.80X27.10.Z4	80	10	4	21.0	27	36	12	8	TX. 225402	3	593.30	**090**
TX.STF.100X32.10.Z5	100	10	5	25.5	32	47	12	10	TX. 225402	3	707.47	**110**
TX.STF.125X40.10.Z6	125	10	6	32.5	40	58	14	12	TX. 225402	3	953.51	**140**
TX.STF.160X40.10.Z8	160	10	8	50.0	40	58	14	16	TX. 225402	3	1,499.44	**170** 1)

1) Without Through Coolant

TORX® blade


Key D


Molykote


Clamping screw


Torque screwdriver

Spare parts	80 950 ... £ Y7		80 950 ... £ Y7		70 950 ... £ 2A/28		70 950 ... £ V5		80 950 ... £ Y7	
CW										
3	8.91	**032**	13.73	**109**	5.31	**303**	10.31	**858**	217.91	**191**
4	8.91	**033**	13.73	**110**	5.31	**303**	4.79	**218**	217.91	**191**
6	8.91	**036**	16.32	**113**	5.31	**303**	6.09	**101**	205.52	**192**
8	8.91	**037**	17.48	**114**	5.31	**303**	6.09	**135**	205.52	**192**
10	8.91	**037**	17.48	**114**	5.31	**303**	6.09	**146**	205.52	**192**

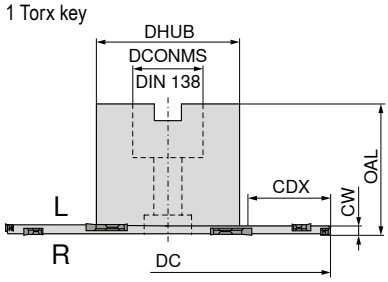
TX shell / slot milling and parting off cutter

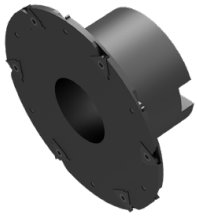
▲ Note: slot milling and parting off cutters TX are cross-pitched and equipped with indexable inserts for both right-hand and left-hand version.
▲ ZEFP = number of inserts

Scope of supply:

slot milling and parting off cutter, 2 spare clamping screws and 1 Torx key







50 734 ...

Designation	DC mm	CW mm	ZNF	CDX mm	DCONMS mm	DHUB mm	OAL mm	ZEFP	torque moment Nm	Insert	£ V5	
TX.ASF.100.R.03.Z5	100	3	5	25.0	27	48	50	10	0,7	TX. 161702	1,226.65	**300**
TX.ASF.125.R.03.Z6	125	3	6	37.5	27	48	50	12	0,7	TX. 161702	1,903.85	**225**
TX.ASF.160.R.03.Z8	160	3	8	44.0	40	70	50	16	0,7	TX. 161702	2,039.31	**260** 1)
TX.ASF.100.R.04.Z5	100	4	5	25.0	27	48	50	10	3,2	TX. 162302	1,213.28	**100**
TX.ASF.125.R.04.Z6	125	4	6	37.5	27	48	50	12	3,2	TX. 162302	1,753.13	**025**
TX.ASF.125.R.04.Z6	125	4	6	26.5	40	70	50	12	3,2	TX. 162302	1,705.51	**125**
TX.ASF.160.R.04.Z8	160	4	8	55.0	27	48	50	16	3,2	TX. 162302	2,148.06	**060** 1)
TX.ASF.160.R.04.Z8	160	4	8	44.0	40	70	50	16	3,2	TX. 162302	2,020.25	**160** 1)
TX.ASF.180.R.04.Z9	180	4	9	54.0	40	70	50	18	3,2	TX. 162302	2,338.83	**180** 1)
TX.ASF.200.R.04.Z10	200	4	10	64.0	40	70	50	20	3,2	TX. 162302	2,602.05	**200** 1)

1) Without Through Coolant


Washer

TORX® blade


Clamping Screw

Key D


Molykote

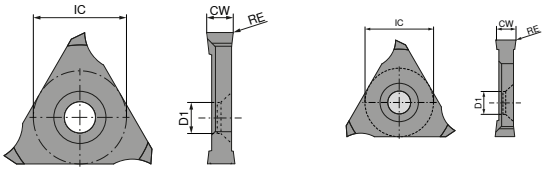

Clamping screw


Torque screwdriver

		70 950 ...		**80 950 ...**		**70 950 ...**		**80 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts		£		£		£		£		£		£		£	
CW	**DCONMS**	V5		Y7		V5		Y7		2A/28		V5		Y7	
3	27	2.02	**221**	8.91	**032**	3.58	**219**	13.73	**109**	5.31	**303**	10.31	**858**	217.91	**191**
3	40	3.58	**222**	8.91	**032**	15.50	**220**	13.73	**109**	5.31	**303**	10.31	**858**	217.91	**191**
4	27	2.02	**221**	8.91	**033**	3.58	**219**	13.73	**110**	5.31	**303**	4.79	**218**	205.52	**192**
4	40	3.58	**222**	8.91	**033**	15.50	**220**	13.73	**110**	5.31	**303**	4.79	**218**	205.52	**192**

TX-L / TX-R

Designation	IC mm	D1 mm	CW mm
TX . 1617..	10	3.95	1.7
TX . 1623..	10	3.95	2.3
TX . 2232..	13	5.50	3.2
TX . 2243..	13	5.50	4.3
TX . 2254..	13	5.50	5.4



TX_L / TX_R



ISO	RE mm	TX-L 50 382 ... £ V5		TX-R 50 381 ... £ V5		TX-L 50 382 ... £ V5		TX-R 50 381 ... £ V5	
TX 161702	0.15	30.13	**217**	30.13	**217**				
TX 162302	0.15	43.36	**223**	43.36	**223**				
TX 223202	0.15	65.43	**232**	65.43	**232**				
TX 223202	0.20					58.26	**532**	58.26	**532**
TX 224302	0.15	64.92	**243**	64.92	**243**				
TX 224302	0.20					59.44	**543**	59.44	**543**
TX 225402	0.15	49.12	**254**	49.12	**254**				
TX 225402	0.20					42.18	**554**	42.18	**554**
P		●		●					
M		●		●					
K		●		●					
N		●		●		●		●	
S		○		○					
H									
O		○		○		○		○	

Milling guide

Cutting data standard values	→ 192	Technical Information	→ 193–198
Chip groove description and overview	→ 199–201	Grade description and overview	→ 202–208

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

* Tensile strength

Cutting data standard values

Index	CTEP210		TCM10		CTCP220		CTPP225		CTCP230		CTPP231		CTPP235		CTPP236	
	CERMET		CERMET													
	DRAGONSKIN												DRAGONSKIN			
	Cutting Material **hard** (v_c↑) → **tough** (v_c↓)															
	v_c (m/min)															
P.1.1	344		292		339	170	263	157	286	150	200	100	246	137	300	180
P.1.2	302		257		308	154	234	143	242	133	170	90	208	121	270	160
P.1.3	263		224		280	140	207	129	202	118	140	80	172	106	225	130
P.1.4	250		214		270	135	198	125	189	112	170	90	160	101	270	160
P.1.5	230		197		256	128	185	118	169	105	160	90	143	94	240	140
P.2.1	308		262		313	157	238	145	249	136	170	90	214	123	270	160
P.2.2	246		211		268	134	196	124	185	111	130	70	157	100	200	120
P.2.3	230		197		256	128	185	118	169	105	170	90	143	94	270	160
P.2.4	181		157		220	110	151	102	118	85	120	60	98	76	180	110
P.3.1					140	70	130	65	140	87	170	90	121	97	270	160
P.3.2					95	50	100	50	90	55	140	80	108	83	180	140
P.3.3					50	30	70	35	40	22	120	70	96	69	150	120
P.4.1					140	70	130	65	140	87	140	80	121	97	180	140
P.4.2					118	60	115	58	115	71	130	70	114	90	170	130
M.1.1											170	90	121	97	270	160
M.2.1													108	83		
M.3.1													117	93		
K.1.1									310	190	150	110	160	110	360	90
K.1.2	300		240						160	100	150	110	150	110	360	90
K.2.1	350		280						200	120	150	110	150	110	230	170
K.2.2	300		240						130	80	150	110	150	110	160	110
K.3.1	300		240						190	115					210	160
K.3.2									160	100					210	160
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	CTPM225		CTCM235		CTPM240		CTPM241		CTPM245		CTCM245		CTN3105		CTL3215	
													CERAMIC		CBN	
	DRAGONSKIN															
	Cutting Material **hard** (v_c↑) → **tough** (v_c↓)															
	v_c (m/min)															
P.1.1	272	191	251	184	226	141	200	100	244	139	279	134				
P.1.2	231	163	210	152	188	126	170	90	207	124	242	119				
P.1.3	193	137	172	123	152	112	140	70	173	109	208	104				
P.1.4	180	129	160	113	140	107	170	90	161	104	196	99				
P.1.5	161	116	141	99	123	100	150	80	144	97	179	92				
P.2.1	237	167	217	157	194	128	170	90	212	126	247	121				
P.2.2	177	127	157	111	137	106	120	60	158	103	193	98				
P.2.3	161	116	141	99	123	100	170	90	144	97	179	92				
P.2.4	114	84	94	62	78	83	110	60	101	78	136	73				
P.3.1	148	121	136	115	126	105	210	100	155	107	175	122				
P.3.2	121	101	128	110	112	95	180	100	143	93	163	108				
P.3.3	95	81	120	105	98	85	160	90	131	79	151	94				
P.4.1	148	121	136	115	126	105	140	90	155	107	175	122				
P.4.2	134	111	132	113	119	100	130	80	149	100	169	115				
M.1.1	**148**	**121**	**136**	**115**	**126**	**105**	**210**	**100**	**155**	**107**	**175**	**122**				
M.2.1	**121**	**101**	**128**	**110**	**112**	**95**	**180**	**90**	**143**	**93**	**163**	**108**				
M.3.1	**140**	**115**	**134**	**114**	**121**	**102**	**210**	**100**	**152**	**103**	**172**	**118**				
K.1.1													**800**		**800**	
K.1.2													**600**		**600**	
K.2.1																
K.2.2															**450**	
K.3.1																
K.3.2																
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1								60				80				
S.1.2								60				70				
S.2.1								60				35				
S.2.2								60				25				
S.2.3								60				30				
S.3.1								60				80				
S.3.2								60				50				
S.3.3								60				40				
H.1.1																
H.1.2															150	
H.1.3																
H.1.4																
H.2.1															280	
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	CTCK215		CTPK220		CTPK221		CTPX715		H216T		CTWN215		CTC5240		CTCS245		CTP6215	
	DRAGONSKIN		DRAGONSKIN				DRAGONSKIN						DRAGONSKIN					
	Cutting Material **hard** (v_c↑) → **tough** (v_c↓)																	
	v_c (m/min)																	
P.1.1					190	120	240	130										
P.1.2					180	100	200	120										
P.1.3					150	80	170	100										
P.1.4					180	100	160	100										
P.1.5					170	90	140	90										
P.2.1					180	100	210	120										
P.2.2					140	80	150	100										
P.2.3					180	100	140	90										
P.2.4					130	80	100	70										
P.3.1					210	120	120	90										
P.3.2					160	90	100	80										
P.3.3					130	80	90	70										
P.4.1					210	120	120	90										
P.4.2					190	100	110	90										
M.1.1							120	100										
M.2.1							110	90										
M.3.1							120	100										
K.1.1	360	210	320	190	270	200	**320**	190	130	130	130	130					280	250
K.1.2	220	130	170	100	270	200	**170**	100	110	110	110	110					190	160
K.2.1	230	140	210	130	250	180	**210**	130	130	130	130	130					180	150
K.2.2	160	100	140	90	180	120	**140**	90	120	120	120	120					180	150
K.3.1	250	150	200	120	220	170	**200**	120	130	130	130	130					250	220
K.3.2	210	130	170	100	220	170	**170**	100	110	120	110	110					190	160
N.1.1								**1500**		**1500**		**1500**						
N.1.2								**1000**		**1000**		**1000**						
N.2.1								**1100**		**1100**		**1100**						
N.2.2								**1000**		**1000**		**1000**						
N.2.3								**280**		**280**		**280**						
N.3.1								**350**		**350**		**350**						
N.3.2								**350**		**350**		**350**						
N.3.3								**320**		**320**		**320**						
N.4.1								**320**		**320**		**320**						
S.1.1								60						**80**		**64**		
S.1.2								50						**70**		**56**		
S.2.1								30						**35**		**28**		
S.2.2								20						**25**		**20**		
S.2.3								20						**30**		**24**		
S.3.1								60						**80**		**64**		
S.3.2								40						**50**		**40**		
S.3.3								30						**40**		**32**		
H.1.1																	**50**	
H.1.2																	**40**	
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1							160	160	160	160	160	160						
O.1.2																		
O.2.1							240	240	240	240	240	240						
O.2.2																		
O.3.1																		

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

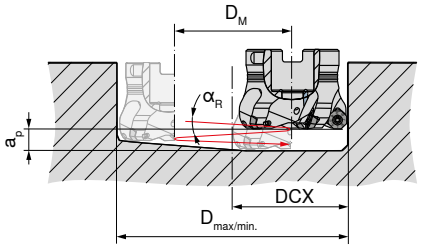
System MaxiMill 274-04/-09

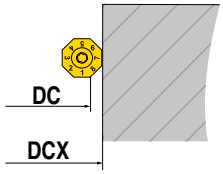
Machining strategy

Helical plunging



$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX





OF..04

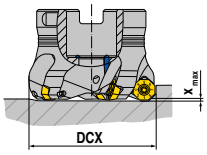
DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
20	**25,5**	45	39	2,3
25	**30,6**	55	49	1,9
32	**37,6**	69	63	1,4
40	**45,7**	85	79	1,2
50	**55,7**	105	99	0,9
63	**68,7**	131	125	0,7
80	**85,7**	165	159	0,6
100	**105,7**	205	199	0,5
125	**130,7**	255	249	0,4

SF..09

DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
18,8	**27,4**	45,00	42,0	1,9
23,8	**32,5**	55,00	52,0	1,5
30,7	**39,5**	69,00	66,0	1,1
38,7	**47,6**	85,00	82,0	0,9
48,6	**57,6**	105,00	102,0	0,7
61,7	**70,6**	131,00	128,0	0,5
78,7	**87,5**	165,00	162,0	0,4
98,7	**107,5**	205,00	202,0	0,3
123,7	**132,5**	255,00	252,0	0,3

Axial ramping





OF..04

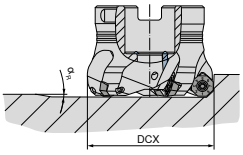
DC mm	DCX mm	x_{max} mm
20	**25,6**	2,5
25	**30,7**	2,5
32	**37,7**	2,5
40	**45,7**	2,5
50	**55,7**	2,5
63	**68,7**	2,5
80	**85,7**	2,5
100	**105,7**	2,5
125	**130,7**	2,5

SF..09

DC mm	DCX mm	x_{max} mm
18,8	**27,4**	3,7
23,8	**32,5**	3,5
30,7	**39,5**	3,2
38,7	**47,6**	3,1
48,6	**57,6**	3,1
61,7	**70,6**	3,0
78,7	**87,5**	2,9
98,7	**107,5**	2,7
123,7	**132,5**	2,7

Angled ramping





OF..04

DC mm	DCX mm	$\alpha_{R\,max}$ °
20	**25,6**	14,2
25	**30,7**	9,5
32	**37,7**	6,5
40	**45,7**	4,7
50	**55,7**	3,5
63	**68,7**	2,7
80	**85,7**	2,0
100	**105,7**	1,6
125	**130,7**	1,2

SF..09

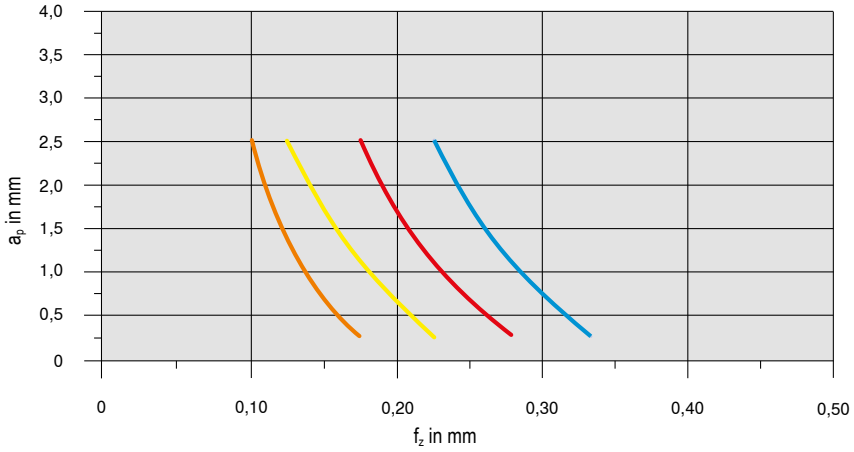
DC mm	DCX mm	$\alpha_{R\,max}$ °
18,8	**27,4**	20,4
23,8	**32,5**	13,0
30,7	**39,5**	8,0
38,7	**47,6**	5,8
48,6	**57,6**	4,3
61,7	**70,6**	3,2
78,7	**87,5**	2,3
98,7	**107,5**	1,7
123,7	**132,5**	1,3

System MaxiMill 274-04

Starting Parameter



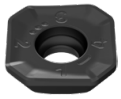
OF.. 04



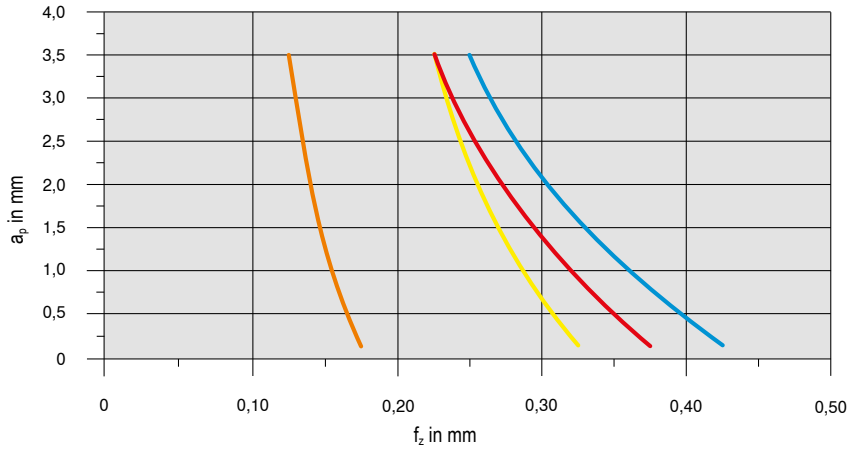
Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**OFHT040305SN-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OFHT040305SN-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**OFHT040305SN-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**OFHT040305SN-F50**	**CTC5240**	35	Emulsion

System MaxiMill 274-09

Starting Parameter



SF.. 09



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SFKT0903AFSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SFHT0903AFSR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SFKT0903AFSR-R50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SFHT0903AFSR-F50**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

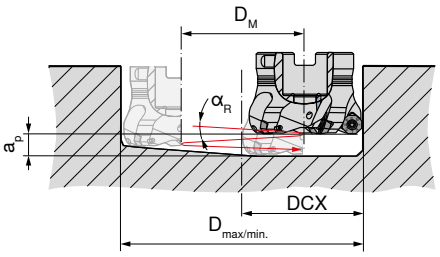
System MaxiMill 274-05/-12

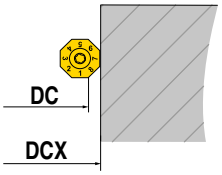
Machining strategy

Helical plunging



$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX





OF..05

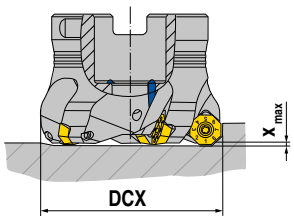
DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
40	**48**	87	85	1,6
50	**58**	107	99	1,1
63	**71**	133	125	0,9
80	**88**	167	159	0,7
100	**107,9**	207	199	0,5
125	**132,9**	257	249	0,4
160	**167,9**	327	325	0,35

SF..12

DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
47,0	**61,0**	107	105	0,5
59,9	**74,0**	133	131	0,4
76,9	**90,9**	167	165	0,3
96,9	**110,9**	207	205	0,25
121,9	**135,9**	257	255	0,2

Axial ramping





OF..05

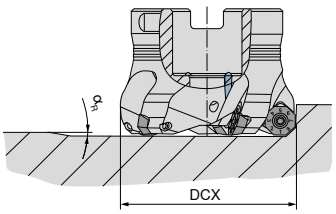
DC mm	DCX mm	X_{max} mm
40	**48**	2,5
50	**58**	2,2
63	**71**	1,9
80	**88**	1,8
100	**107,9**	1,1
125	**132,9**	1,4
160	**167,9**	1,1

SF..12

DC mm	DCX mm	X_{max} mm
47,0	**61,0**	3,4
59,9	**74,0**	3,2
76,9	**90,9**	3,0
96,9	**110,9**	2,5
121,9	**135,9**	2,6

Angled ramping





OF..05

DC mm	DCX mm	$\alpha_{R\,max}$ °
40	**48**	6,5
50	**58**	3,2
63	**71**	2,0
80	**88**	1,5
100	**107,9**	0,7
125	**132,9**	0,7
160	**167,9**	0,4

SF..12

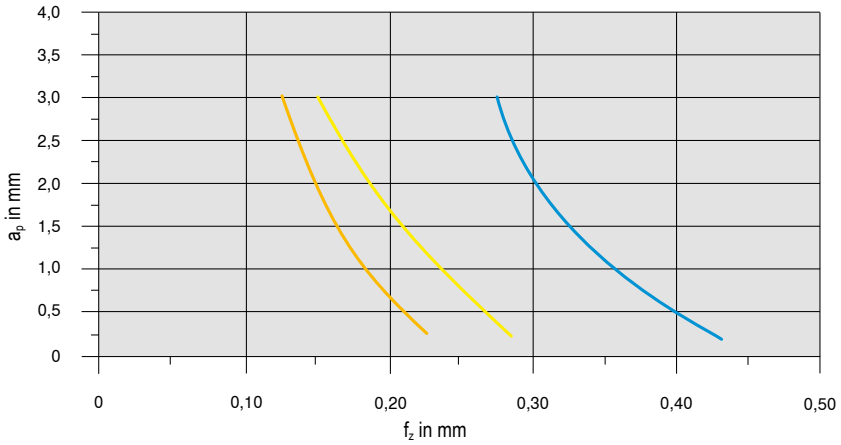
DC mm	DCX mm	$\alpha_{R\,max}$ °
47,0	**61,0**	4,9
59,9	**74,0**	3,4
76,9	**90,9**	2,4
96,9	**110,9**	1,6
121,9	**135,9**	1,3

System MaxiMill 274-05

Starting Parameter



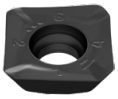
OF.. 05



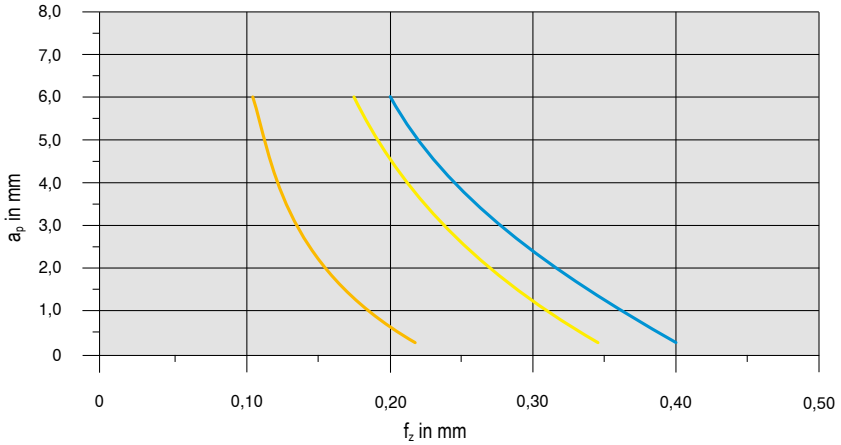
Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**OFHT050410SN-M50**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OFHT050410SN-F50**	**CTPM240**	180	Dry
Heat-resistant	**S.2.2**	Inconel 718	**OFHT050410SN-F50**	**CTC5240**	35	Emulsion

System MaxiMill 274-12

Starting Parameter



SF.. 12



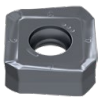
Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SFKT1204AFSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SFKT1204AFSR-M50**	**CTPM240**	180	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SFHT1204AFER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

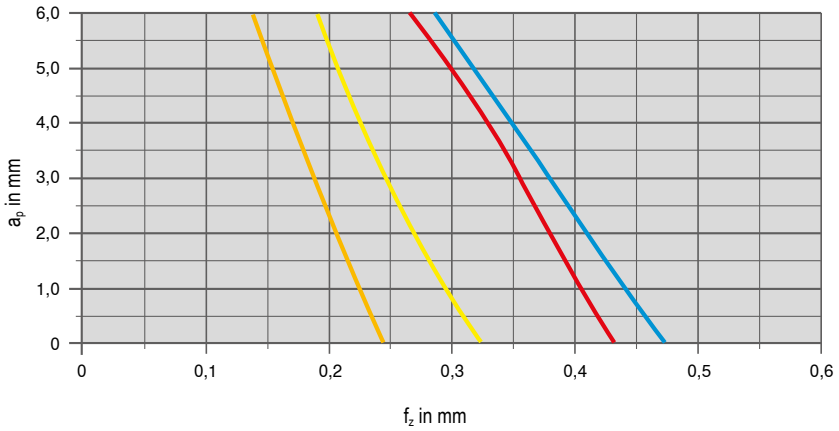
From v_c > 400 m/min, the tool must be balanced!

MaxiMill 271-12 system

Starting Parameter



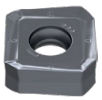
SOHU 12



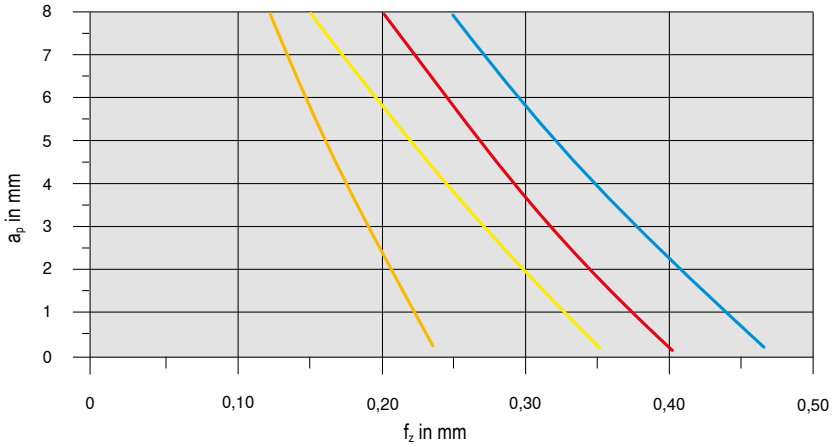
Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SOHU 1204ABSR-M50**	**CTPP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SOHU 1204ABSR-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SOHU 1204ABSR-R50**	**CTCK215**	300	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SOHU 1204ABSR-F50**	**CTC5240**	30	Emulsion

System MaxiMill 271-17

Starting Parameter



SAKU 17



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SAKU 1706ABSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SAKU 1706ABSR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SAKU 1706ABSR-R50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SAKU 1706ABSR-F50**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

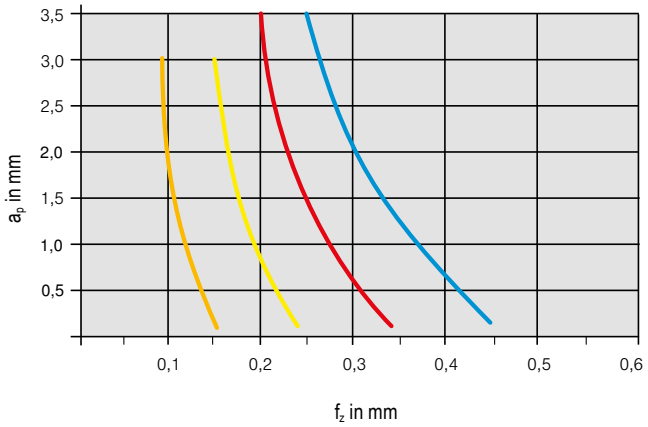
From v_c > 400 m/min, the tool must be balanced!

MaxiMill 273-06 system

Starting Parameter



OAKU 06



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**OAKU 060508SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OAKU 060508SR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**OAKU 060508SR-R50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**OAKU 060508ER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

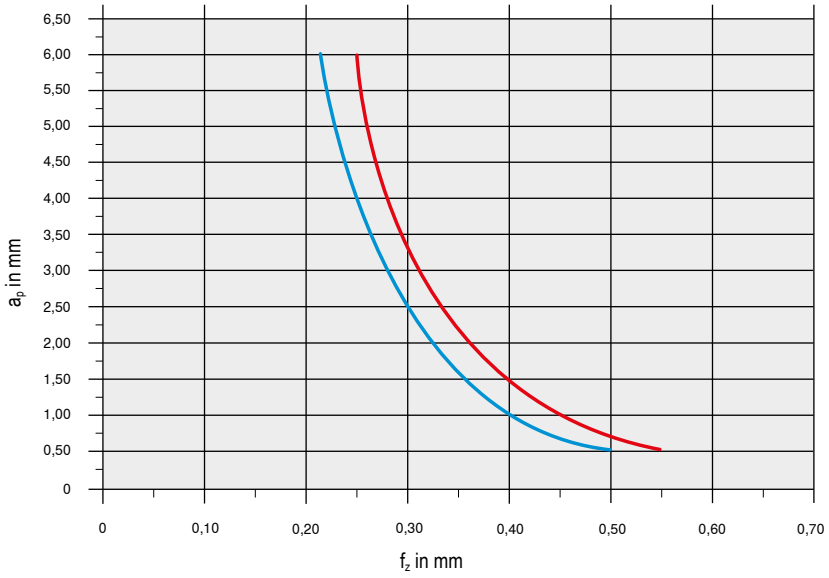
From v_c > 400 m/min, the tool must be balanced!

MaxiMill 273-08 system

Starting Parameter



ONKU 08



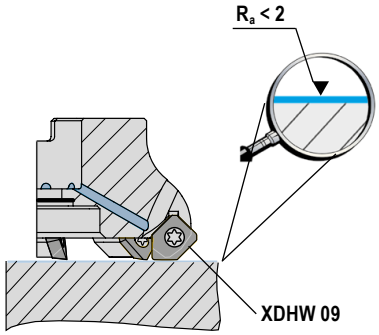
Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**ONKU 080608SR-M50**	**CTPP235**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**ONKU 080608SR-R50**	**CTCK215**	250	Dry

Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

MaxiMill 270 system

Machining strategy



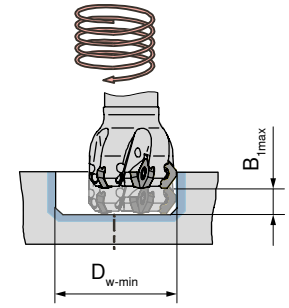
Finish milling with trailing edge inserts

Two Masterfinish inserts are mounted in each 125mm head

Steel	SDNT	0903AESN-29	CTPP235	+	XDHW	0903AESN CTPP235
	SDNT	0903AESN-29	CTCP230	+	XDHW	0903AESN CTCP230
	SDHT	0903AESN-33	CTCP230	+	XDHW	0903AESN CTCP230
	SDHW	0903AESN	TCM10	+	XDHW	0903AESN TCM10
Cast iron	SDNT	0903AESN-31	CTCK215	+	XDHW	0903AEEN CTCK215
Non-ferrous metals	SDHT	0903AEFN-ALP	-27P H216T	+	XDHW	0903AEFN -27P H216T

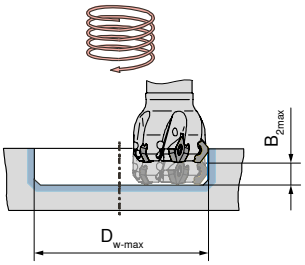
Helical plunging (without pilot hole)





C 270-09

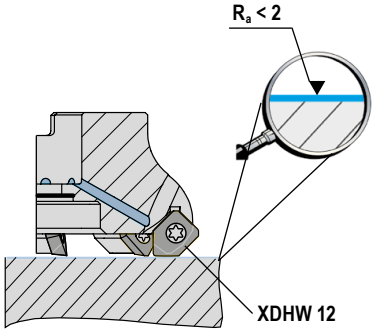
DC mm	D_{w-min} mm	$B_{1\,max}$ mm	D_{w-max} mm	$B_{2\,max}$ mm
6	14,4	1,5	19,0	1,5
12	28,5	1,5	31,0	1,5
16	36,5	1,5	39,0	1,5
20	44,5	1,5	47,0	1,5
25	54,5	1,5	57,0	1,5
32	68,5	1,5	71,0	1,5



A 270-09

DC mm	D_{w-min} mm	$B_{1\,max}$ mm	D_{w-max} mm	$B_{2\,max}$ mm
32	68,5	1,5	71,0	1,5
40	84,5	1,5	87,0	1,5
50	104,5	1,5	107,0	1,5
63	130,5	1,5	133,0	1,5
80	164,5	1,5	167,0	1,5
100	204,5	1,5	207,0	1,5
125	254,5	1,5	257,0	1,5
160	324,5	1,5	327,0	1,5

System MaxiMill 270-12



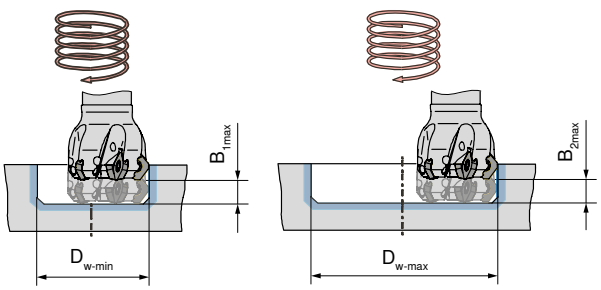
Finish milling with trailing edge inserts

Two Masterfinish inserts are mounted in each 125mm head

Steel	SDMT	1204AESN-29R	CTPP235	+	XDHW	1204AESN CTPP235
	SDMT	1204AESN-29R	CTCP230	+	XDHW	1204AESN CTCP230
	SDHW	1204AESN-R	TCM10	+	XDHW	1204AESN TCM10
Cast iron	SDMT	1204AEEN-31	CTCK215	+	XDHW	1204AEEN CTCK215
	SDHW	1204AESN-R	CTCK215	+	XDHW	1204AEEN CTCK215
Non-ferrous metals	SDHT	1204AEFN-ALP	-27P H216T	+	XDHW	1204AEFN -27P H216T

Helical plunging (without pilot hole)



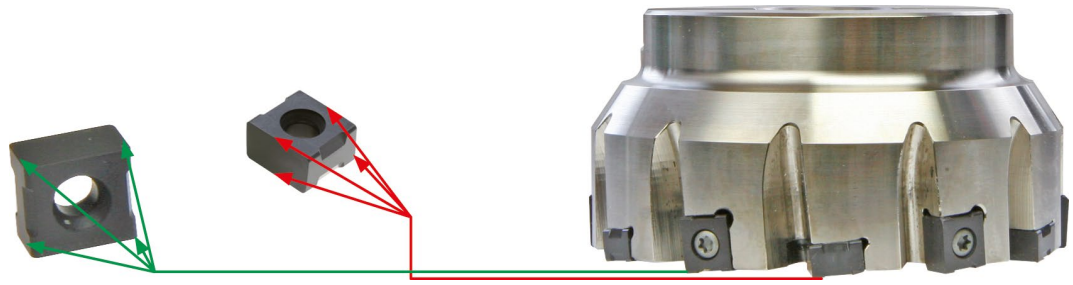


DC mm	D_{w-min} mm	$B_{1\,max}$ mm	D_{w-max} mm	$B_{2\,max}$ mm
32	74,5	1,5	78,0	1,5
40	90,5	1,5	94,0	1,5
50	110,5	1,5	114,0	1,5
63	136,5	1,5	140,0	1,5
80	170,5	1,5	174,0	1,5
100	210,5	1,5	214,0	1,5
125	260,5	1,5	264,0	1,5
160	330,5	1,5	334,0	1,5

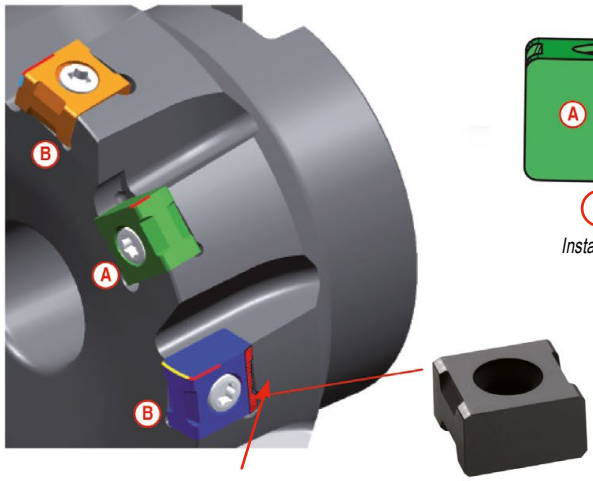
From v_c > 400 m/min, the tool must be balanced!

MaxiMill HEC 11 / HEC 12 system

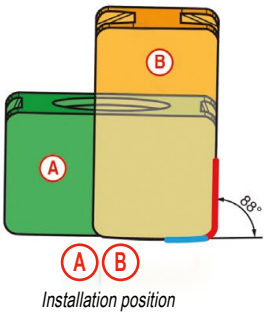
4 cutting edges per installation position



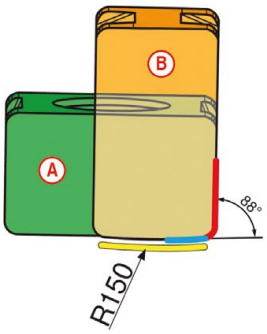
Correct assembly of standard and trailing edge inserts



Marking for the correct assembly



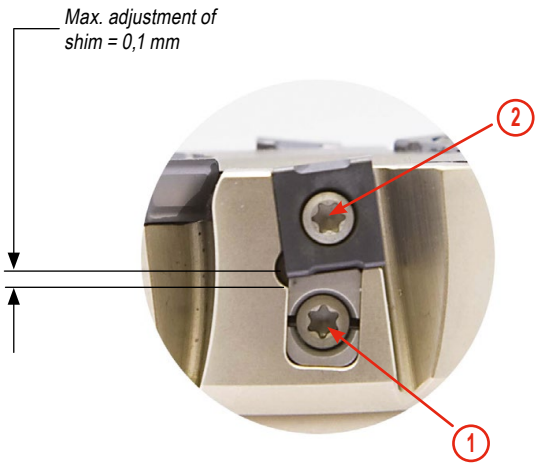
Installation position



Face machining insert — B
Insert main cutting edge — A B
Trailing edge facet — B

Adjust the tools in axial direction

- ▲ Install the wedge into the cutter body and lightly clamp the clamping screw so as not to clamp. — 1
- ▲ Install the inserts as shown and tighten to 1,0 Nm torque. — 2
- ▲ Using pre-setting equipment, mark the highest cutting edge. — 1
- ▲ With small adjustments of the setting screw set all cutting edges to the same height by 0,005 mm or better. — 1
- ▲ Clamp insert with 3,2 Nm torque. — 2



Average chip thickness [h_m] – the approach

Face milling

1 Select appropriate average chip thickness [h_m] for the steel from the table.

Material	Tensile strength N/mm²	h_m mm
for steel	...–800	0,2
for steel	800–1000	0,18
for steel	1000–1200	0,16
for steel	1200–...	0,14
for stainless steel	... –750	0,21
for stainless steel	750–900	0,19
for stainless steel	900–1150	0,17
for stainless steel	1150– ...	0,15

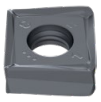
2 Select the corrected feed rate value from the table based on the appropriate chip thickness [h_m] and depth of cut [a_e].

h_m mm	Corrected feed value f_z for h_m			
0,20	0,40 **	0,40 **	0,33	0,28
0,18	0,40 **	0,40 **	0,29	0,25
0,16	0,40 **	0,36	0,26	0,23
0,14	0,36	0,31	0,23	0,20
0,21	0,40 **	0,40 **	0,34	0,30
0,19	0,40 **	0,40 **	0,31	0,27
0,17	0,40 **	0,38	0,28	0,24
0,15	0,39	0,34	0,24	0,21
a_e =	**0,3 x DC**	**0,4 x DC**	**0,75 x DC**	**1 x DC**

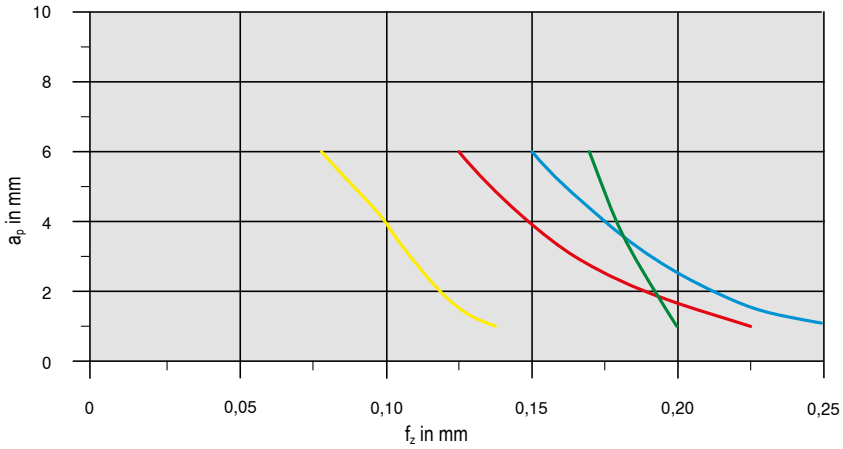
** f_z > 0,4 mm: Danger of an open space contact

MaxiMill 491-09 system

Starting Parameter



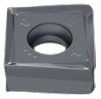
SNHU 09



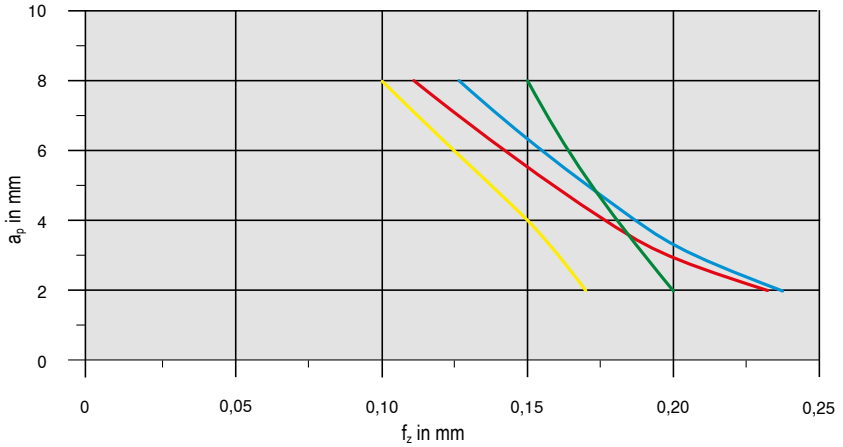
Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SNHU09T308SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SNHU09T308SR-F50**	**CTPM240**	180	Emulsion
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SNHU09T308SR-R50**	**CTCK215**	250	Dry
Non-ferrous metals	**N.1.2**	AlMgSi1	**SNHU09T308FR-F10**	**CTWN215**	500	Emulsion

MaxiMill 491-12 system

Starting Parameter



SNHU 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SNHU120408SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SNHU120408SR-F50**	**CTPM240**	180	Emulsion
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SNHU120408SR-R50**	**CTCK215**	250	Dry
Non-ferrous metals	**N.1.2**	AlMgSi1	**SNHU120408FR-F10**	**CTC5240**	500	Emulsion

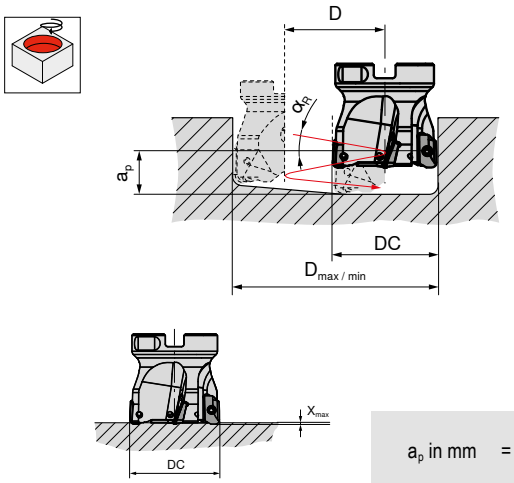
Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 211-07

Machining strategy

Helical plunging

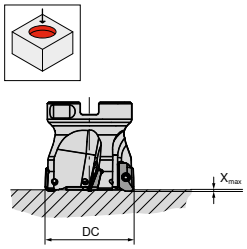


a_p in mm = $D * \pi * \tan \alpha_R$

DC mm	D_{max} / RE 0,4 mm	D_{min} mm	$\alpha_{R\,max}$ °
10	19	13	5,5
12	23	17	6,0
16	31	25	3,0
20	39	33	2,0
25	49	43	1,5
32	63	57	1,2
40	79	73	0,8
50	99	93	0,7

DC mm	D mm	$\alpha_{R\,max\,360°}$ °
10	13	5,5
12	17	6,0
16	25	3,0
20	33	2,0
25	43	1,5
32	57	1,2
40	73	0,8
50	93	0,7

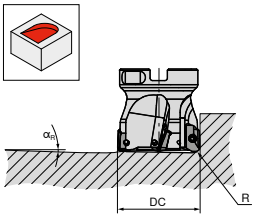
Axial ramping



DC mm	X_{max} mm
10	0,8
12	0,8
16	0,8
20	0,8
25	0,8
32	0,8
40	0,8
50	0,8

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface

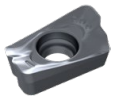
Angled ramping



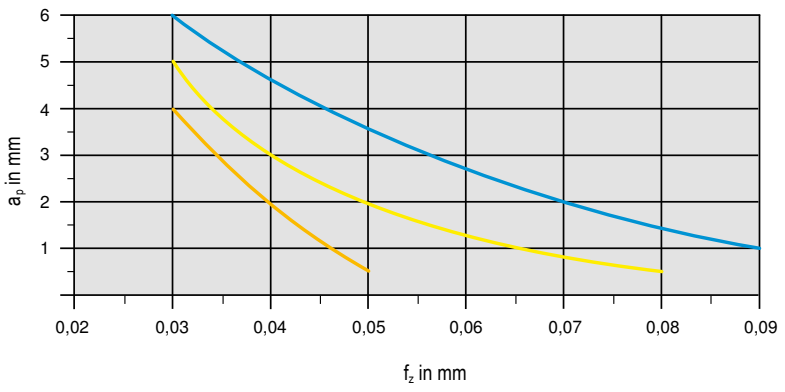
DC mm	α °
10	11,0
12	7,9
16	4,3
20	3,0
25	2,5
32	1,6
40	1,2
50	1,0

$D = D_{max} - DC / D_{min} - DC$

Starting Parameter



XDKT 07



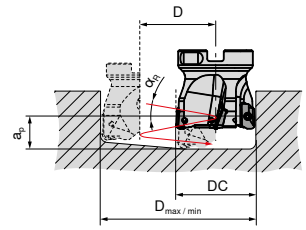
Material			Inserts		v_c in m/min	Cooling
Steel	P.2.2	40CrMnMoS 8-6	XDKT070308SR-M50	CTCP230	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XDKT070308SR-F50	CTPM240	180	Dry
Heat-resistant	S.2.2	Inconel 718	XDKT070308ER-F50	CTC5240	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

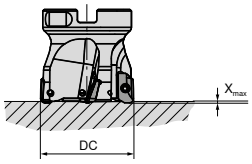
System MaxiMill 211-11

Machining strategy



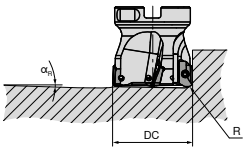
1 Helical plunging





2 Axial ramping





3 Angled ramping



DC mm	1 Helical plunging RE = 0,8 mm	2 Axial ramping X_{max}	3 Angled ramping α_R
12	α_R 16 ° $D_{max.}$ 21 mm $D_{min.}$ 14 mm	1,3 mm	18 °
16	α_R 9,5 ° $D_{max.}$ 29 mm $D_{min.}$ 21 mm	1,5 mm	10,8 °
20	α_R 7 ° $D_{max.}$ 37 mm $D_{min.}$ 30 mm	2,0 mm	9,8 °
25	α_R 4,5 ° $D_{max.}$ 47 mm $D_{min.}$ 40 mm	2,0 mm	7,5 °
32	α_R 3,2 ° $D_{max.}$ 61 mm $D_{min.}$ 53 mm	1,0 mm	4,8 °
40	α_R 2,2 ° $D_{max.}$ 77 mm $D_{min.}$ 72 mm	1,6 mm	2,9 °
50	α_R 1,7 ° $D_{max.}$ 98 mm $D_{min.}$ 93 mm	1,6 mm	2,2 °
63	α_R 1,5 ° $D_{max.}$ 123 mm $D_{min.}$ 116 mm	1,6 mm	1,8 °
80	α_R 1,0 ° $D_{max.}$ 157 mm $D_{min.}$ 153 mm	1,6 mm	1,4 °
100	α_R 0,8 ° $D_{max.}$ 197 mm $D_{min.}$ 193 mm	1,6 mm	1,1 °
125	α_R 0,6 ° $D_{max.}$ 247 mm $D_{min.}$ 243 mm	1,6 mm	0,8 °

Maximum speed related to projection length n_{max} in min^{-1}					
DC mm	l_a = 1–2 x Ø mm	l_a = 2,5 x Ø mm	l_a = 3 x Ø mm	l_a = 4 x Ø mm	l_a = 5 x Ø mm
12	55000	51500	47000	42000	37000
16	42000	38500	34100	28900	24200
20	36900	33000	28500	23900	19500
25	33200	29000	24400	19900	15400
32	30200	26000	20900	16600	11900
40	27700	23000	18000	13500	9000
50	25400	20400	15400	10800	6100
63	23300	18300	12900	8300	3700
80	21300	16100	10600	5800	
100	19600	14100	8400		
125	17900	12800	7600		

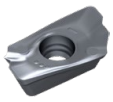
$D_{max.}$ in mm = largest diameter for flat bottom hole

$D_{min.}$ in mm = Smallest diameter for flat bottom surface

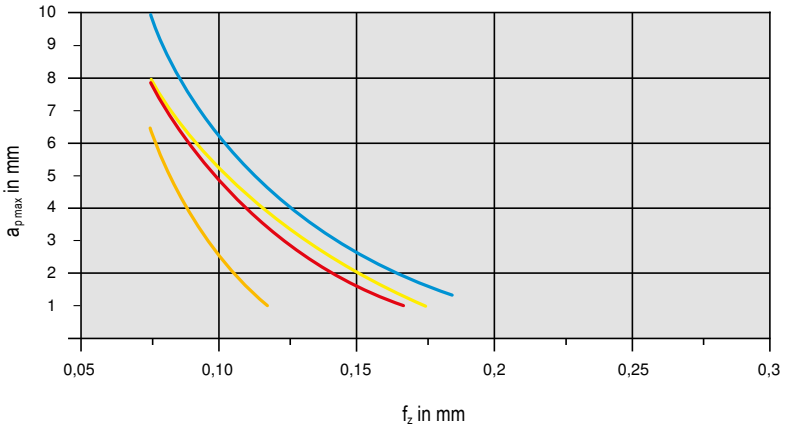
a_p in mm = D x π x tan (α_R) = Pitch

l_s in mm = Overhang length

Starting Parameter



XDKT 11



Material			Inserts		v_c in m/min	Cooling
Steel	P.2.2	40CrMnMoS 8-6	XDKT11T308SR-M50	CTCP230	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XDKT11T308SR-F50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	XDKT11T308SR-R50	CTCK215	250	Dry
Heat-resistant	S.2.2	Inconel 718	XDKT11T308ER-F50	CTC5240	35	Emulsion

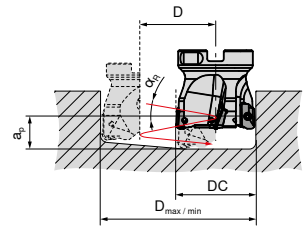
Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

15

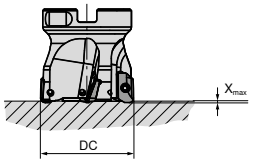
System MaxiMill 211-15

Machining strategy



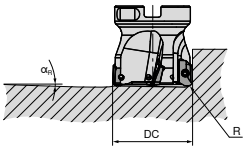
1 Helical plunging





2 Axial ramping





3 Angled ramping



DC mm		1 Helical plunging RE = 0,8 mm	2 Axial ramping X_{max}	3 Angled ramping α_R
25	α_R	7,5 °	2,7 mm	9,5 °
	$D_{max.}$	48 mm		
	$D_{min.}$	37 mm		
32	α_R	5 °	2,5 mm	6,8 °
	$D_{max.}$	62 mm		
	$D_{min.}$	47 mm		
40	α_R	3,2 °	2,5 mm	5,1 °
	$D_{max.}$	78 mm		
	$D_{min.}$	63 mm		
50	α_R	2,5 °	2,5 mm	2,5 °
	$D_{max.}$	98 mm		
	$D_{min.}$	86 mm		
63	α_R	1,5 °	2,5 mm	2,5 °
	$D_{max.}$	124 mm		
	$D_{min.}$	111 mm		
80	α_R	1,3 °	2,5 mm	2,0 °
	$D_{max.}$	158 mm		
	$D_{min.}$	147 mm		
100	α_R	1,1 °	2,5 mm	1,5 °
	$D_{max.}$	198 mm		
	$D_{min.}$	190 mm		
125	α_R	0,9 °	2,5 mm	0,9 °
	$D_{max.}$	248 mm		
	$D_{min.}$	240 mm		
160	α_R	0,6 °	2,5 mm	0,7 °
	$D_{max.}$	318 mm		
	$D_{min.}$	310 mm		

Maximum speed related to projection length n_{max} in min^{-1}			
DC mm	l_a = 2 x Ø mm	l_a = 3 x Ø mm	l_a = 5 x Ø mm
25	26560	19520	13320
32	24160	16720	9520
40	22160	14400	7200
50	20320	12320	4880
63	18640	10320	2960
80	17040	8480	
100	15680	6720	
125	14320		
160	13200		

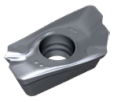
$D_{max.}$ in mm = largest diameter for flat bottom hole

$D_{min.}$ in mm = Smallest diameter for flat bottom surface

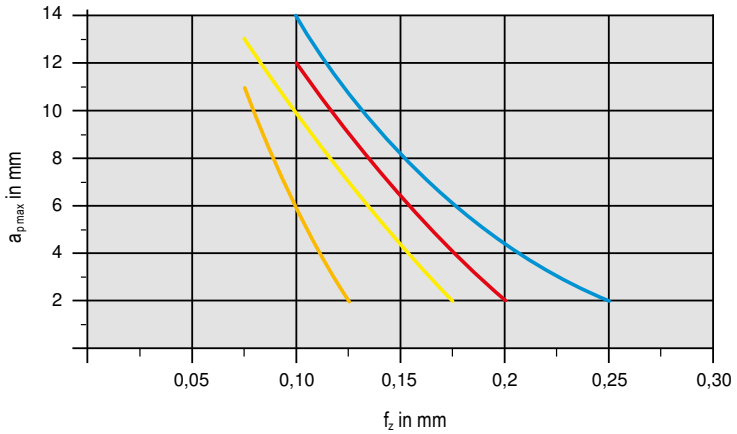
a_p in mm = D x π x tan (α_R) = Pitch

l_a in mm = Overhang length

Starting Parameter



XDKT 15



Material			Inserts		v_c in m/min	Cooling
Steel	P.2.2	40CrMnMoS 8-6	XDKT150508SR-M50	CTCP230	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XDKT150508SR-F50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	XDKT150508SR-R50	CTCK215	250	Dry
Heat-resistant	S.2.2	Inconel 718	XDKT150508ER-F40	CTC5240	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

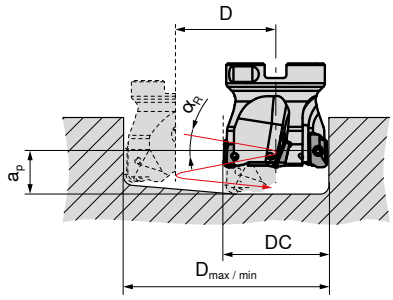
From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 211-20

Machining strategy

Helical plunging



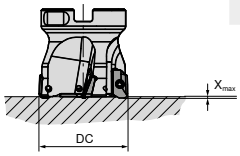


DC mm	D_{max} / RE 0,4 mm	D_{min} mm	$\alpha_{R\,max}$ °
63	124	107	2,2
80	158	143	1,7
100	198	183	1,3

a_p in mm $= D * \pi * \tan \alpha_R$

Axial ramping

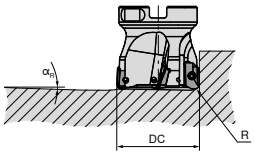




DC mm	X_{max} mm
63	2,0
80	2,0
100	2,0

Angled ramping



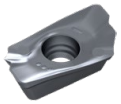


DC mm	α °
63	2,2
80	1,7
100	1,3

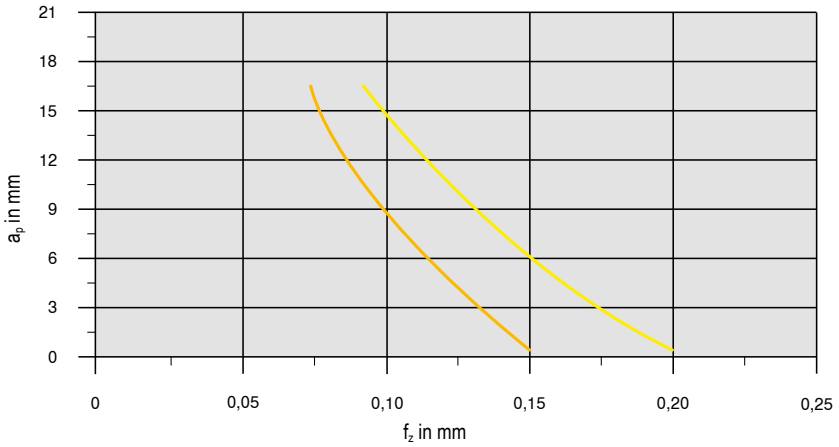
$D = D_{max} - DC / D_{min} - DC$

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface

Starting Parameter



XDKT 20



Material			Inserts		v_c in m/min	Cooling
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDKT200708ER-F40**	**CTPM240**	180	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XDKT200708ER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 490-09

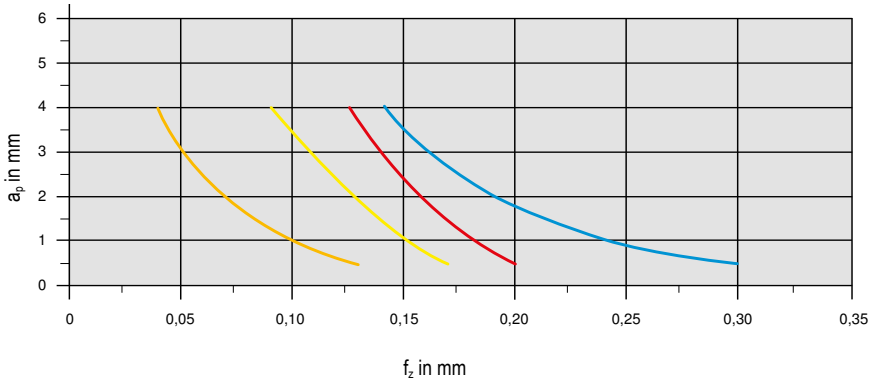
Machining strategy

System MaxiMill 490-09 is not suitable for plunging!

Starting Parameter



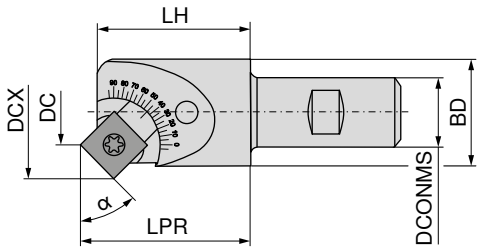
SDNT 09



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SDNT09T308SR-29**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SDNT09T308SR-33**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SDNT09T308SR-31**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SDNT09T308ER-M31**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

MaxiMill 490-09 adjustable angle milling cutter – dimensions



Constant dimensions			Angle-dependent dimensions*			
BD	DCONMS	LH	α	DC*	DCX	LPR*
18,6	16	32	**0°**	**9,35/1,60****	**20,14**	**33,07**
			5°	3,81	20,82	33,40
			10°	4,59	21,44	33,69
			15°	**5,42**	**21,98**	**33,95**
			20°	6,30	22,45	34,17
			25°	7,23	22,85	34,35
			30°	**8,18**	**23,16**	**34,49**
			35°	9,15	23,39	34,58
			40°	10,14	23,53	34,64
			45°	**11,13**	**23,59**	**34,65**
			50°	12,12	23,56	34,61
			55°	13,09	23,44	34,54
			60°	**14,04**	**23,24**	**34,42**
			65°	14,96	22,96	34,26
			70°	15,84	22,60	34,06
			75°	**16,68**	**22,16**	**33,83**
			80°	17,46	21,65	33,56
			85°	18,19	21,07	33,25
			90°	**10,07/1,90****	**20,44**	**32,93**

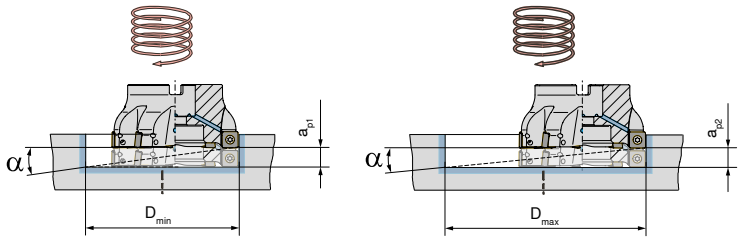
* Tangential cutting point at deepest engagement point
** Smallest diameter in centre

System MaxiMill 490-12

Machining strategy

Helical plunging (without pilot hole)





$$B = (D_W - DC) \times \pi \times \tan \alpha$$

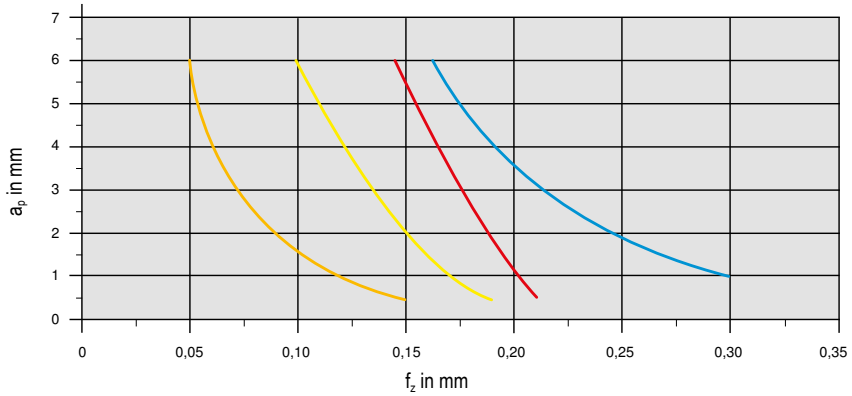
D_w = Diameter of the hole to be produced
DC = Nominal diameter of the milling tool
B = Axial feed to 360° circular movement

DC mm	D_{min} mm	a_{p1} mm	D_{max} mm	a_{p2} mm	α °
50	77	2,5	98	4,8	2,0
63	103	1,8	124	3,0	1,0
80	137	2,1	158	3,0	0,8
100	177	2,1	198	2,9	0,6
125	227	1,8	248	2,4	0,4

Starting Parameter



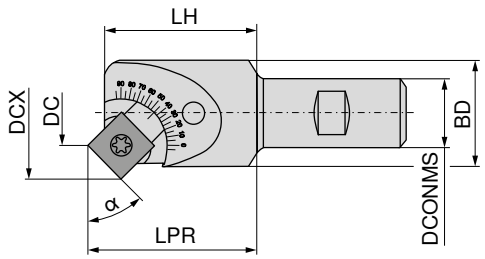
SDMT 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**SDMT1205ZZSN-29**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SDMT120512SR-33**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SDMT1205ZZSN-31**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SDMT120508ER-M31**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 146–148

MaxiMill 490-12 adjustable angle milling cutter – dimensions



Constant dimensions			Angle-dependent dimensions*			
BD	DCONMS	LH	α	DC*	DCX	LPR*
25	20	37	**0°**	**25,07/1,12****	**26,64**	**38,36**
			5°	3,72	27,61	38,79
			10°	4,84	28,48	39,21
			15°	**6,03**	**29,25**	**39,58**
			20°	7,27	29,92	39,90
			25°	8,57	30,48	40,16
			30°	**9,91**	**30,92**	**40,37**
			35°	11,28	31,25	40,51
			40°	12,67	31,45	40,60
			45°	**14,08**	**31,54**	**40,62**
			50°	15,48	31,50	40,58
			55°	16,86	31,34	40,48
			60°	**18,23**	**31,06**	**40,33**
			65°	19,56	30,66	40,11
			70°	20,85	30,15	39,83
			75°	**22,08**	**29,52**	**39,51**
			80°	23,26	28,79	39,12
			85°	24,35	27,95	38,69
			90°	**25,37/1,42****	**26,94**	**38,21**

* Tangential cutting point at deepest engagement point
** Smallest diameter in centre

HSC/HPC machining

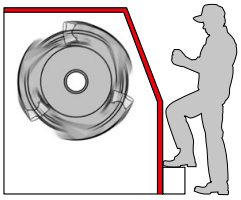
Safety advice

Suitability of the tool for HSC machining

HSC tools from CERATIZIT have been specially developed for this machining strategy and guarantee maximum operational reliability.

Observation of safety precautions of the machine manufacturer

Make sure that all safety precautions of the machine-manufacturer are observed (e.g.: closed machine guards).

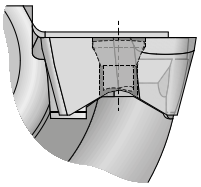


Suitability of the adapters for HSC machining

According to the milling situation, choose the optimum tool/clamping device combination. For high speed milling applications it is necessary to dynamically balance tool and tool adapter together (see ISO 1940 directives).

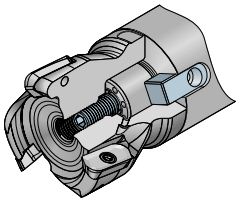
Mounting the indexable insert with centrifugal force protection

Insert clamping: EURO-patent EP 1083017A1
Make sure that the insert pocket is cleaned and the threading bore for the clamping screw is in good condition.
Check the axial and radial contact points of the insert in the pocket.
The clamping screws for positive insert clamping must be tightened with a torque of (XDHT11 = 1,8 Nm; XDH.19 = 6,0 Nm).



Optimum mounting of HSC milling cutters (DC = Ø 40–63) to milling arbors using power screw

The power screw guarantees a stable connection of tool and milling adapter and is easy to use.



Power Screw

Maximum admissible number of revolutions

Please note the maximum number of revolutions stated on the tool. This number is exclusively valid for the specific tool and must be adapted according to the selected tool adapter, total overhang length and the respective machining situation.



Optimum application range of the tool (a_e, a_p, f_z, n)

In order to guarantee productive milling, please observe the recommendations regarding the cutting parameters.

Failure to comply with these safety regulations automatically excludes CERATIZIT from any liability

System MaxiMill HSC-11

Cutting data standard values

Workpiece material		Treatment / alloy		VDI 3323 Group	Hardness HB	H216T (CTWN215) v_c in m/min (dry)	H216T (CTWN215) v_c in m/min (lubricated)
N	Aluminum alloys	non hardenable		21	60		660–9840
		hardenable		22	100		660–6560
	Cast aluminum alloy	non hardenable	< 12% Si	23	80		660–6560
		hardenable	< 12% Si	24	90		660–5900
		non hardenable	> 12% Si	25	130		660–3280
	Copper and copper alloys (Bronze, Brass)		Free-cutting steel alloy (1% Pb)	26			660–1970
			brass, red bronze	27	90	820–3280	820–3280
			bronze	28	100		490–1310
			lead-free copper and electrolytic copper	29	100		980–2620
O	Non metal materials		Duroplastics	29		260–3280	260–3280
			Fibre-reinforced plastics	29		230–1640	230–1640
			hard rubber	30		100–260	100–260

= full lubricant

= Minimum quantity lubrication

= dry machining

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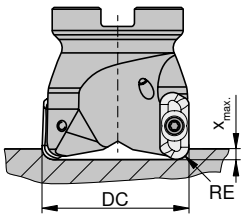
System MaxiMill HSC-11

Machining strategy

Axial ramping

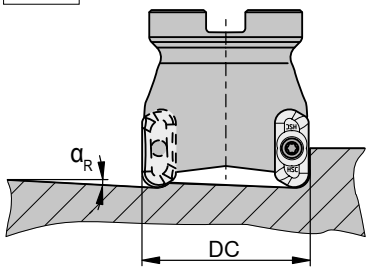




DC mm	11 RE 0,2–4,0 $x_{max.}$ mm
16	1,70
18	2,11
19	2,24
20	2,39
22	2,70
25	2,55
32	2,40
40	2,28
50	2,26
63	2,10
80	1,75
100	1,79

Angled ramping





DC mm	α_R °
16	18,8
18	16,3
19	15,3
20	14,8
22	13,8
25	10,3
32	6,8
40	4,8
50	3,5
63	2,5
80	1,8
100	1,3

Milling strategy for roughing and finishing

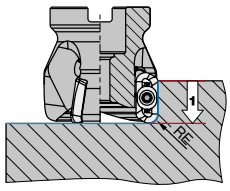
With maximum chip volume

Indexable Insert	RE mm	a_p mm	$a_{p\,max.}$ mm
XDHT 11T302FR-ALP	0,2	10	9,8
XDHT 11T304FR-ALP	0,4	10	9,6
XDHT 11T308FR-ALP	0,8	10	9,2
XDHT 11T312FR-ALP	1,2	10	8,8
XDHT 11T316FR-ALP	1,6	10	8,4
XDHT 11T320FR-ALP	2,0	10	8,0
XDHT 11T325FR-ALP	2,5	10	7,5
XDHT 11T332FR-ALP	3,2	10	6,8
XDHT 11T340FR-ALP	4,0	10	6,0
XDHT 11T350FR-ALP	5,0	10	5,0

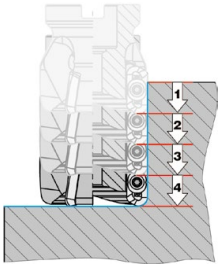
With maximum side wall quality

Indexable Insert	RE mm	$a_{p\,max.}$ mm
XDHT 11T302FR-ALP	0,2	7,8
XDHT 11T304FR-ALP	0,4	7,6
XDHT 11T308FR-ALP	0,8	7,2
XDHT 11T312FR-ALP	1,2	6,5
XDHT 11T316FR-ALP	1,6	6,8
XDHT 11T320FR-ALP	2,0	6,4
XDHT 11T325FR-ALP	2,5	5,5
XDHT 11T332FR-ALP	3,2	4,8
XDHT 11T340FR-ALP	4,0	4,0
XDHT 11T350FR-ALP	5,0	3,0

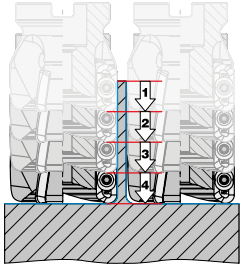
Shoulder milling



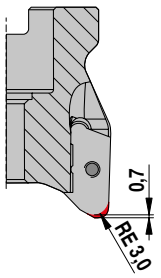
Pocket milling

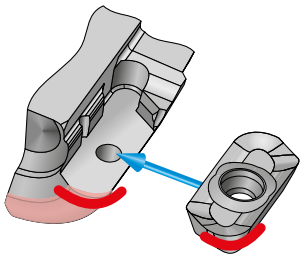


Pocket milling with thin walled components



Modification to front profile



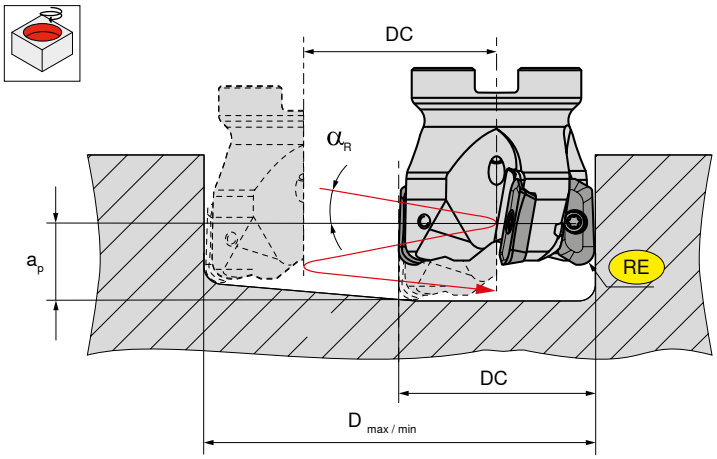


For inserts with a corner radius larger than 3.2 mm the basic body of the tool must be modified according to the drawing above.

System MaxiMill HSC-11

Machining strategy

Helical plunging



RE = Insert radius
α_R in mm = Maximum ramping angle (related to centre of tool)

a_p in mm = pitch → D x π x tan (α_R)

D in mm = → D_{max} – DC and/or D_{min} – DC

For flat bottom hole

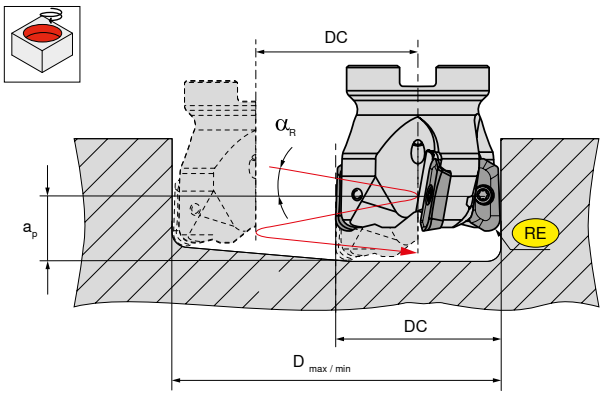
$D_{max.}$ in mm = largest drilling diameter
$D_{min.}$ in mm = smallest drilling diameter
$DN_{max.}$ in mm = Maximum hole diameter for non flat bottom

DC mm		XDHT-11 (HSC-11)								
(DN_{max})		RE = 0,2	RE = 0,4	RE = 0,8	RE = 1,2	RE = 1,6	RE = 2,0	RE = 2,5	RE = 3,2	RE = 4,0
16	α_R	9,7°	10,0°	9,9°	9,4°	8,9°	8,4°	7,9°	7,0°	6,1°
	$D_{max.}$	30	30	29	28	27	27	26	24	23
(31)	$D_{min.}$	18	18	18	18	18	18	18	18	18
18	α_R	9,4°	9,1°	8,7°	8,3°	7,9°	7,5°	6,9°	6,2°	5,3°
	$D_{max.}$	34	34	33	32	31	31	30	28	27
(35)	$D_{min.}$	22	22	22	22	22	22	22	22	22
19	α_R	8,8°	8,6°	8,3°	7,9°	7,5°	7,5°	6,5°	5,9°	5,1°
	$D_{max.}$	36	36	35	34	33	33	32	30	29
(37)	$D_{min.}$	24	24	24	24	24	24	24	24	24
20	α_R	8,4°	8,2°	7,8°	7,4°	7,7°	6,7°	6,2°	5,5°	4,8°
	$D_{max.}$	38	38	37	36	35	35	34	32	31
(39)	$D_{min.}$	26	26	26	26	26	26	26	26	26
22	α_R	7,6°	7,4°	7,8°	6,7°	6,4°	6,5°	5,6°	5,2°	4,3°
	$D_{max.}$	42	42	41	40	39	39	38	36	35
(43)	$D_{min.}$	30	30	30	30	30	30	30	30	30
25	α_R	6,7°	6,5°	6,2°	5,9°	5,6°	5,3°	4,9°	4,4°	3,8°
	$D_{max.}$	48	48	47	46	45	45	44	42	41
(49)	$D_{min.}$	36	36	36	36	36	36	36	36	36
32	α_R	4,7°	4,7°	4,8°	4,6°	4,3°	4,1°	3,8°	3,4°	2,9°
	$D_{max.}$	62	62	61	60	59	59	58	56	55
(63)	$D_{min.}$	50	50	50	50	50	50	50	50	50
40	α_R	3,3°	3,3°	3,4°	3,4°	3,5°	3,3°	3,0°	2,7°	2,3°
	$D_{max.}$	78	78	77	76	75	75	74	72	71
(79)	$D_{min.}$	66	66	66	66	66	66	66	66	66
50	α_R	2,4°	2,5°	2,5°	2,5°	2,6°	2,6°	2,4°	2,2°	1,9°
	$D_{max.}$	98	98	97	96	95	95	94	92	91
(99)	$D_{min.}$	86	86	86	86	86	86	86	86	86
63	α_R	1,7°	1,7°	1,7°	1,8°	1,8°	1,8°	1,8°	1,7°	1,5°
	$D_{max.}$	124	124	123	122	121	121	120	118	117
(125)	$D_{min.}$	112	112	112	112	112	112	112	112	112
80	α_R	1,1°	1,1°	1,1°	1,1°	1,1°	1,1°	1,1°	1,2°	1,2°
	$D_{max.}$	158	158	157	156	155	155	154	152	151
(159)	$D_{min.}$	146	146	146	146	146	146	146	146	146
100	α_R	0,8°	0,8°	0,9°	0,9°	0,9°	0,9°	0,9°	0,9°	0,9°
	D_{max}	198	198	197	196	195	195	194	192	191
(199)	$D_{min.}$	186	186	186	186	186	186	186	186	186

System MaxiMill HSC/HPC-19

Machining strategy

Helical plunging



RE = Insert radius
α_R in mm = Maximum ramping angle (related to centre of tool)

a_p in mm = pitch → D x π x tan (α_R)

D in mm = → D_{max} – DC and/or D_{min} – DC

For flat bottom hole

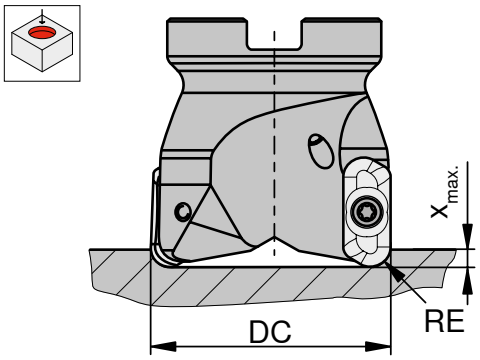
$D_{max.}$ in mm = largest drilling diameter
$D_{min.}$ in mm = smallest drilling diameter
$DN_{max.}$ in mm = Maximum hole diameter for non flat bottom

	DC mm	DN_{max} mm	α_R °	D_{max} mm	D_{min} mm
RE = 0,2 mm	**25**	49	7°02‘	48	32
	32	63	4°34‘	62	46
	40	79	3°47‘	78	62
	50	99	3°01‘	97	81
	63	125	2°17‘	124	107
	80	159		158	141
	100	199		198	181
RE = 0,4 mm	**25**	49	7°08‘	48	32
	32	63	4°37‘	62	46
	40	79	3°49‘	78	62
	50	99	3°02‘	98	81
	63	125	2°18‘	124	107
	80	159		158	141
	100	199		198	181
RE = 0,8 mm	**25**	49	7°21‘	47	32
	32	63	4°44‘	61	46
	40	79	3°53‘	77	62
	50	99	3°05‘	97	81
	63	125	2°20‘	123	107
	80	159		157	141
	100	199		197	181
RE = 2,0 mm	**25**	49	8°40‘	45	32
	32	63	5°04‘	59	46
	40	79	4°06‘	75	62
	50	99	3°13‘	95	81
	63	125	2°25‘	121	107
	80	159		155	141
	100	199		195	181
RE = 2,5 mm	**25**	49	8°24‘	44	32
	32	63	5°13‘	58	46
	40	79	4°12‘	74	62
	50	99	3°17‘	94	81
	63	125	2°27‘	120	107
	80	159		154	141
	100	199		194	181
RE = 3,2 mm	**25**	49	8°54‘	42	32
	32	63	5°26‘	56	46
	40	79	4°20‘	72	62
	50	99	3°21‘	92	81
	63	125	2°30‘	118	107
	80	159		152	141
	100	199		192	181
RE = 4,0 mm	**25**	49	9°32‘	41	32
	32	63	5°42‘	55	46
	40	79	4°30‘	71	62
	50	99	3°28‘	91	81
	63	125	2°33‘	117	107
	80	159		151	141
	100	199		191	181
RE = 5,0 mm	**25**	49	6°49‘	39	32
	32	63	3°59‘	53	46
	40	79	3°20‘	69	62
	50	99	2°13‘	89	81
	63	125	1°52‘	115	107
	80	159		149	141
	100	199		189	181

System MaxiMill HSC/HPC-19

Machining strategy

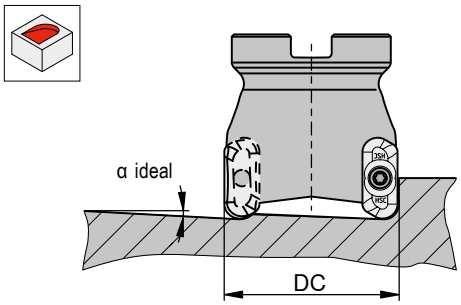
Axial ramping



HSC 19	DC mm	19 RE 0,2–4,0 $x_{max.}$ mm	19 RE 5,0 $x_{max.}$ mm
CHSC 19 / GHSC 19 / MHSC 19	25	5,0	4,0
CHSC 19 / GHSC 19 / MHSC 19	32–40	4,0	3,0
AHSC 19	40–100	4,0	3,0

HPC 19	DC mm	19 RE 0,2–4,0 $x_{max.}$ mm	19 RE 5,0 $x_{max.}$ mm
CHPC 19 / MHPC 19	22–25	5,0	4,0
CHPC 19 / MHPC 19	32–50	6,0	5,0
AHPC 19	40–63	6,0	5,0

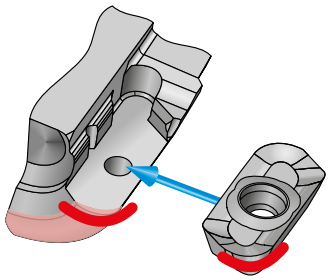
Angled ramping

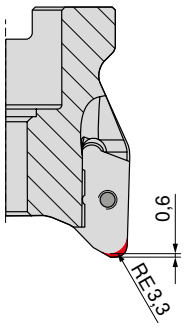


DC mm	α ideal HSC 19	α ideal HPC 19
25	11°	11°
32	7°	7°
40	5°	5°
50	4°	4°
63	3°	3°
80	2°	
100	2°	

Modification to basic body

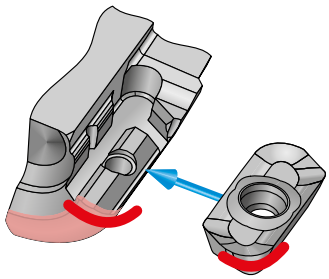
HSC 19





Modification to front profile

HPC 19



For inserts with a corner radius larger than 4.0 mm the basic body of the tool must be modified according to the drawing above.

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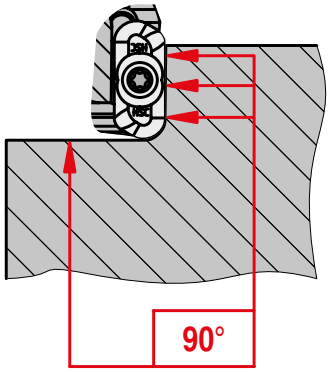
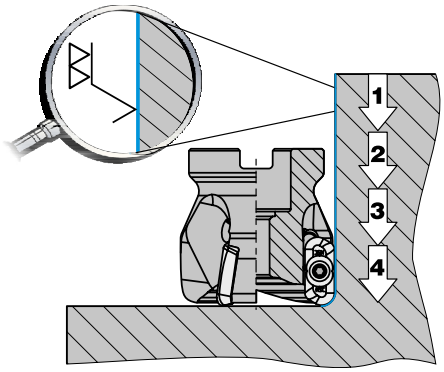
System MaxiMill HSC/HPC-19

Machining strategy

▽ + ▽▽ Excellent side wall quality after roughing operation.
Additional finishing operations minimized or no longer required.





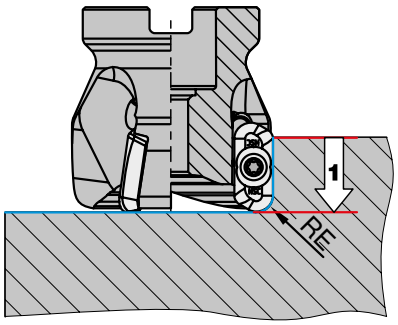
With maximum chip volume

Indexable Insert	RE mm	a_p mm	$a_{p\ max.}$ mm
XDH. 190402FR-ALP	0,2	18,0	17,8
XDH. 190404FR-ALP	0,4	18,0	17,6
XDH. 190408FR-ALP	0,8	18,0	17,2
XDH. 190420FR-ALP	2,0	18,0	16,0
XDH. 190425FR-ALP	2,5	18,0	15,0
XDH. 190432FR-ALP	3,2	18,0	14,8
XDH. 190440FR-ALP	4,0	18,0	14,0
XDH. 190450FR-ALP	5,0	17,0	13,0

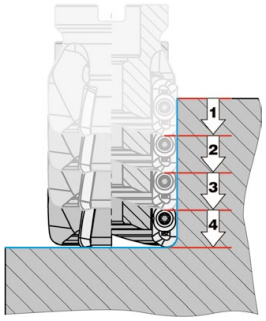
With maximum side wall quality

Indexable Insert	RE mm	$a_{p\ max.}$ mm
XDH. 190402FR-ALP	0,2	11,8
XDH. 190404FR-ALP	0,4	11,6
XDH. 190408FR-ALP	0,8	11,2
XDH. 190420FR-ALP	2,0	10,0
XDH. 190425FR-ALP	2,5	9,5
XDH. 190432FR-ALP	3,2	8,8
XDH. 190440FR-ALP	4,0	8,0
XDH. 190450FR-ALP	5,0	7,0

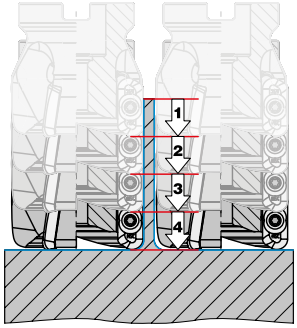
Shoulder milling



Pocket milling



Pocket milling with
thin walled components



This information applies to the inserts type XDHT 19 and XDHX 19.

System MaxiMill HPC-04/12

Machining strategy

What do you have to take into account?

- ▲ Machine stability.
- ▲ Stable work piece clamping and tool adapter.
- ▲ Use of coolant generally not necessary, however, this will facilitate the removal of the chips - also improved surface quality.
- ▲ Take into account thermal stress and critical temperature of 600°C! If required for material, work with coolant.
- ▲ Avoid vibration.
- ▲ Observe balancing quality class.
- ▲ Observe chemical reactions of diamond to carbide forming elements (Fe, Ti, Ta, Co, Ni)

Excellent suitability

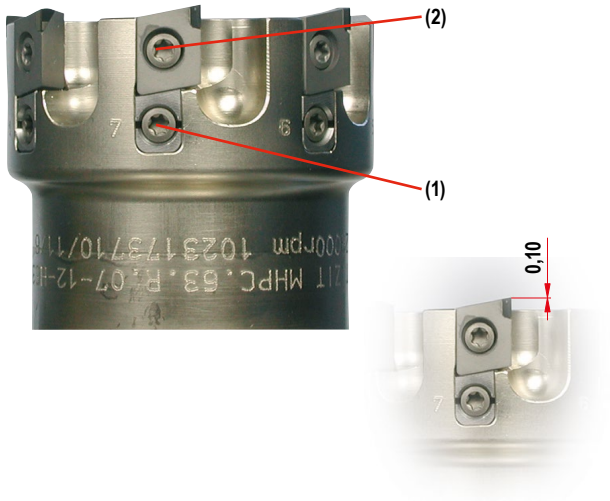
- ▲ for components made of light metals and non-ferrous metals, plastic, fibre composite materials, graphite ...
- ▲ when the simplest setting method saves cost for tool presetting.
- ▲ for high-volume production.
- ▲ for high surface quality of the work pieces.
- ▲ when long tool life is necessary to reduce tool changes and expensive machine downtime.
- ▲ when the tool is already on site (presetting, etc.)

Quality class check

After assembly, clamping of the inserts and adjustment of the axial run-out the balancing quality class of the tools should be checked. When applying shell milling cutters, after assembly with an adapter balancing is necessary.

Setting trailing edge inserts

As in the setting procedure described above the standard inserts are adjusted to a radial run-out of = 0.02 mm. The inserts with Masterfinish edge are then set to 0.02–0.03 mm above the highest cutting edge.



The adjustment procedure

1 Mount Adjustment wedgesin the tools (as delivered). Tighten adjustment screw (1) without deforming the wedges.

2 Mount the PCD inserts and tighten the clamping screws (2) with 1.0 Nm.

3 Mark " highest edge" with the help of pre-setting equipment.

4 Adjust the PCD insert by 0.02 mm turning the clamping screw (1) clockwise.

Pre-loading must be reached. Use the angled TORX screwdrivers

5 Set other cutting edges to this level, maximum deviation of 0.005 mm. Maximum length adjustment = 0.10 mm.

6 Tighten all insert tightening screws (2) to 5,0 Nm.

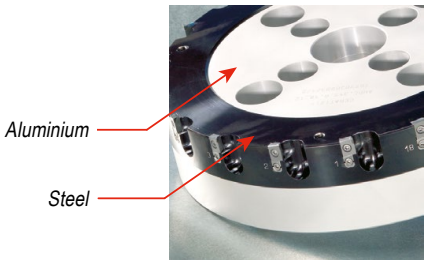
7 Check axial run-out of all inserts: Target = 0.005 mm.

Perfect precision – MaxiMill HPC-12

The adjustable high-performance tool for the finishing of aluminium components

Tool body made of steel

- For highest stability
- Maximum abrasion resistance
- Bimetallic version from diameter 160 mm easier handling and spindle protection with large tools



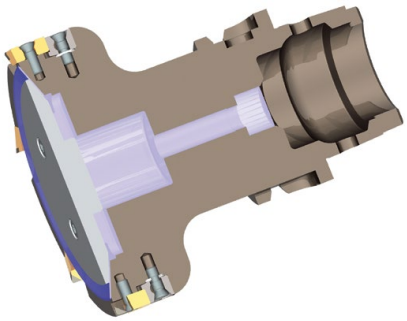
Picture shows bimetallic version

Available as shell milling cutters and monobloc type

- Direct HSK63 connection as monobloc type
- Monobloc tools balanced to G2.5 at n=20,000 min^{-1} (ISO1940)

Particularly for HSC applications with internal coolant supply

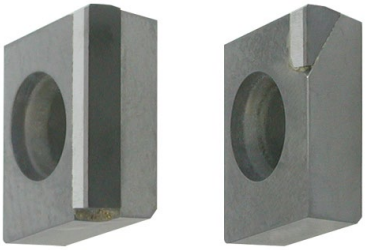
- Improved chip evacuation
- High surface quality
- Optimum application conditions
- Suitability for minimum quantity lubrication



Time is money – the system MaxiMill HPC-12 is simple and quick to adjust!

Highly positive rake angle of +25°

- Low cutting forces
- Increased parallelism of surfaces
- Minimised component deformation



Tangential concept

- Stable location for the PCD segment and maximum process security

Adapted PCD cutting edge

- High impact strength when milling!
- Maximum edge stability
- Reduced built-up edge on the work piece
- The machining of Al-Si alloys with over 12 % silicon is possible without problems

Inserts Selection

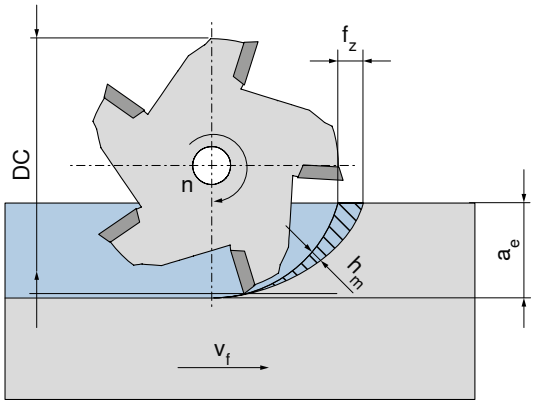
- Standard insert
- Insert with corner radius
- Insert with trailing edge

Average chip thickness [h_m] – the approach

Shoulder milling

1 Select appropriate average chip thickness [h_m] for the steel from the table.

Material	Tensile strength N/mm²	h_m mm
for steel	...–800	0,16
for steel	800–1000	0,14
for steel	1000–1200	0,12
for steel	1200–...	0,10
for stainless steel	...–750	0,15
for stainless steel	750–900	0,13
for stainless steel	900–1150	0,11
for stainless steel	1150–...	0,09 *

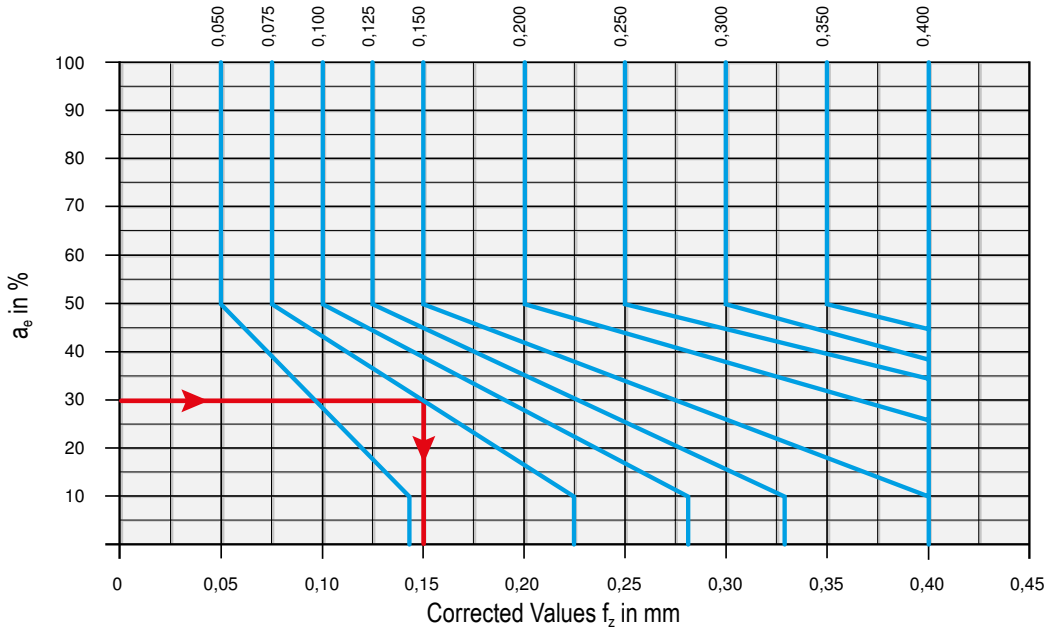


2 Select the corrected feed rate value from the table based on the appropriate chip thickness [h_m] and depth of cut [a_e].

h_m mm	Corrected feed value f_z for h_m				
0,16	0,36	0,29	0,25	0,18	0,16
0,14	0,31	0,26	0,22	0,16	0,14
0,12	0,27	0,22	0,19	0,14	0,12
0,10	0,22	0,18	0,16	0,12	0,10
0,15	0,34	0,27	0,24	0,17	0,15
0,13	0,29	0,24	0,21	0,15	0,13
0,11	0,25	0,20	0,17	0,13	0,11
0,09 *	0,20	0,16	0,14	0,10	0,09 *
a_e =	**0,2 x DC**	**0,3 x DC**	**0,4 x DC**	**0,75 x DC**	**1 x DC**

* f_z < 0,08 mm: Danger, as tool is not working and cutting

Start values f_z in mm from starting parameter diagram



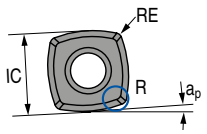
Example:
Start value (f_z) = 0.075 mm
a_e = 30 %
corrected value (f_z) = 0.15 mm

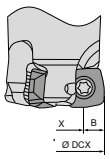
15

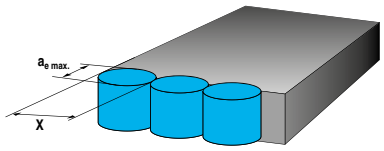
System MaxiMill HFC-06

Machining strategy

Programmed radius R = 1.2 mm







Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\ max.}$ in mm	DCX in mm	X in mm	B in mm	$a_{e\ max.}$ in mm	f_z in mm			X
							initial	min.	max.	
6,35	0,5	0,8	16–32	DCX–(2 x B)	4,3	5,3	0,10	0,08	0,15	<0,7 x DCX

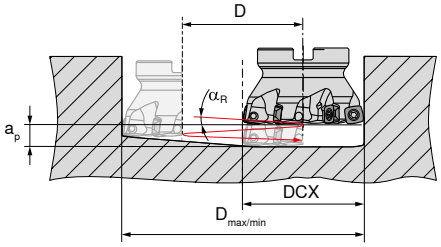


	circular		
	Helical plunging (helical plunging into solid material)		
DCX	$D_{min.}$	$D_{max.}$	$\alpha_{R\ max.}$
mm	mm	mm	°
16	22	31	4,5°
20	30	39	2,3°
25	40	49	1,3°
32	54	63	0,9°
42	74	83	0,6°





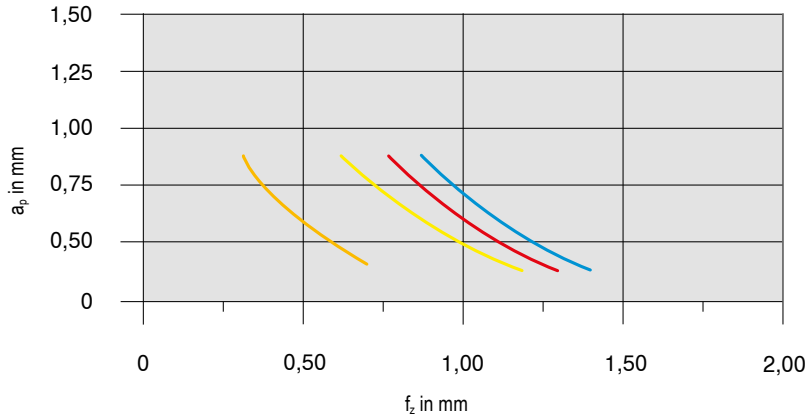
	axial	Angled
	Plunging	
DCX	$X_{max.}$	$\alpha_{R\ max.}$
mm	mm	°
16		5,9°
20		3,2°
25	0,5	2°
32		1,3°
42		0,7°



Starting Parameter



XPLX 06



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**XPLX 060305SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XPLX 060305ER-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XPLX 060305ER-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XPLX 060305SR-F40**	**CTC5240**	35	Emulsion

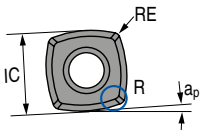
Detailed information on cutting speed for each grade can be found on → page 146–148

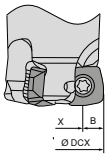
From v_c > 400 m/min, the tool must be balanced!

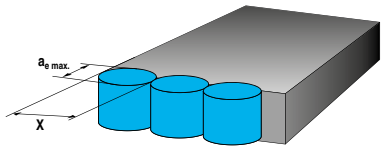
System MaxiMill HFC-09

Machining strategy

Programmed radius R = 2 mm







Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DCX in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
9	0,8	1	25–66	DCX–(2 x B)	5,9	7,5	0,10	0,08	0,15	<0,7 x DCX

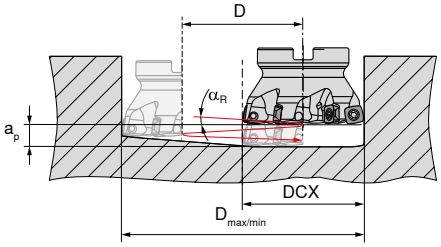






	circular		
	Helical plunging (helical plunging into solid material)		
DCX mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\,max.}$ °
25	35	48	3,1°
32	49	62	1,7°
35	55	68	1,4°
40	65	78	1,0°
42	69	82	0,9°
50	85	98	0,8°
52	89	102	0,7°
63	111	124	0,7°
66	117	130	0,6°

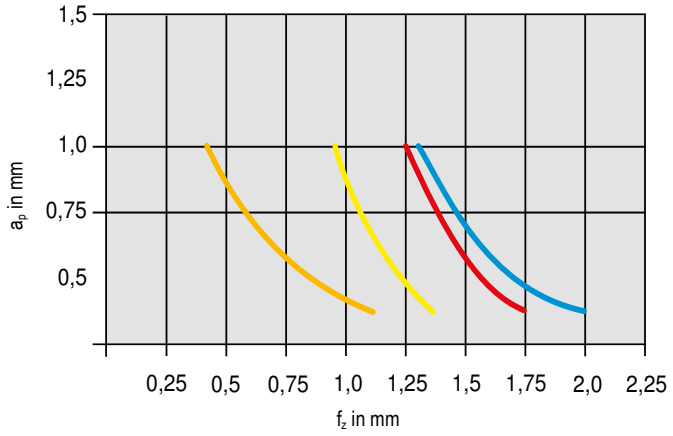
	axial	Angled
	Plunging	
DCX mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
25		3,6°
32		2,0°
35		1,6°
40		1,2°
42	0,75	1,1°
50		0,9°
52		0,8°
63		0,8°
66		0,7°



Starting Parameter



XDLX 09



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**XDLX09T308SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDLX09T308SR-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XDLX09T308SR-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XDLX09T308ER-F40**	**CTC5240**	35	Emulsion

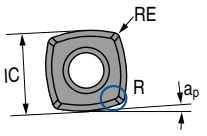
Detailed information on cutting speed for each grade can be found on → page 146–148

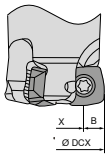
From v_c > 400 m/min, the tool must be balanced!

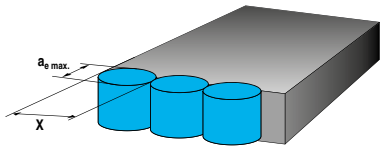
System MaxiMill HFC-12

Machining strategy

Programmed radius R = 3 mm







Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DCX in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
12	1,0	2	32–100	DCX–(2 x B)	8,3	10	0,15	0,10	0,20	<0,7 x DCX

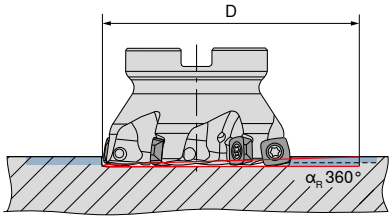


	circular		
	Helical plunging (helical plunging into solid material)		
DCX mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\,max.}$ °
32	44	62	6,1°
35	50	68	3,7°
40	60	78	2,5°
42	64	82	2,3°
50	80	98	1,3°
52	84	102	1,3°
63	106	124	0,9°
66	112	130	0,9°
80	140	158	1,1°
100	180	198	0,6°





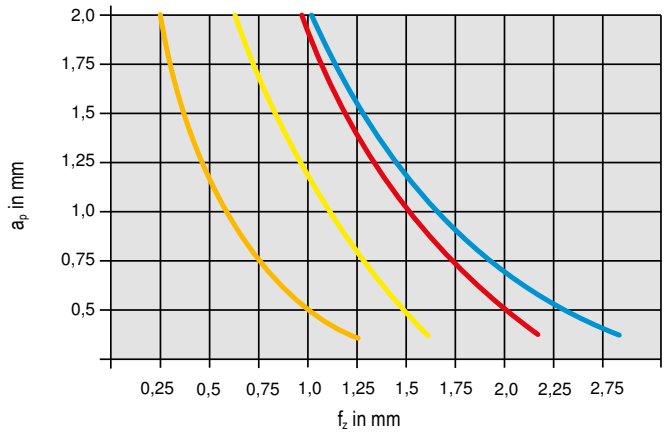
	axial	Angled
	Plunging	
DCX mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
32	1,15	7,2°
35		4,4°
40		2,9°
42		2,7°
50 + 52		1,5°
63 + 66		1,1°
80		1,3°
100		0,7°



Starting Parameter



XOLX 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**XOLX120410SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XOLX120410ER-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XOLX120410ER-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XOLX120410ER-F40**	**CTC5240**	35	Emulsion

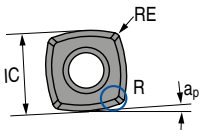
Detailed information on cutting speed for each grade can be found on → page 146–148

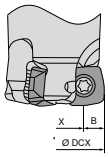
From v_c > 400 m/min, the tool must be balanced!

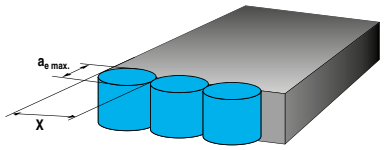
System MaxiMill HFC-19

Machining strategy

Programmed radius R = 5 mm







Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DCX in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
19,14	1,5	3,3	63–160	DCX–(2 x B)	13,1	12	0,2	0,10	0,25	<0,65 x DCX

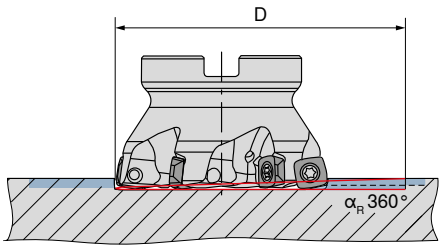


DCX	circular		
	Helical plunging (helical plunging into solid material)		
	$D_{min.}$	$D_{max.}$	$\alpha_{R\,max.}$
mm	mm	mm	°
63	97	123	2,5°
80	131	157	1,4°
100	171	197	1,0°
125	221	247	0,7°
160	291	317	0,5°





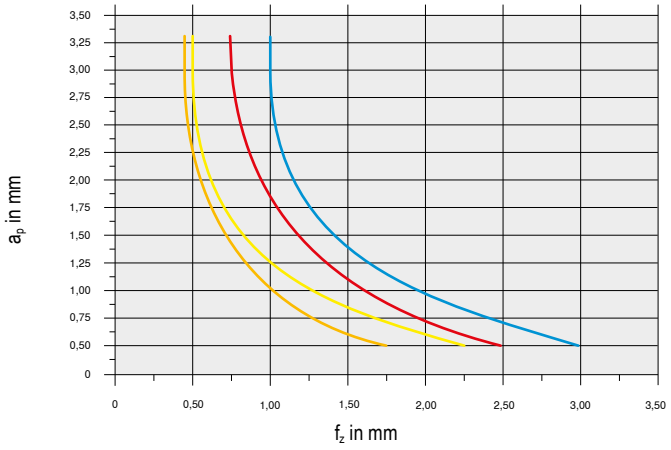
DCX	axial	Angled	
		Plunging	
	$X_{max.}$	$\alpha_{R\,max.}$	$a_{p\,max}$
mm	mm	°	mm
63		2,9°	
80		1,8°	
100	1,7	1,3°	3,3
125		1,0°	
160		0,7°	



Starting Parameter



XOLX 19



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**XOLX190615SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XOLX190615SR-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XOLX190615SR-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XOLX190615ER-F40**	**CTC5240**	35	Emulsion

15

Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill DHFC

Cutting data standard values

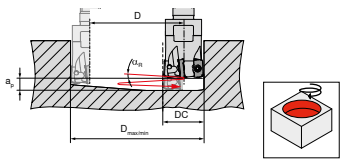
for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	130–300	0,25–1,0	0,7	130–300	0,25–1,0	0,75			
Stainless steel				90–210	0,25–1,0	0,60			
Cast iron				120–270	0,2–1,1	0,70	120–270	0,2–1,2	0,75
Non-ferrous metals									
Heat-resistant				40–80	0,15–0,75	0,6			
Tempered steel									
Non-metal materials									

Machining strategy

Programmed Radius R = 1,4 mm

Helical plunging



DC mm	D_{min} mm	D_{max} mm	α°
16	23	31	2,5
20	31	39	1,9
25	41	49	1,5
32	55	63	1,2
35	61	69	1,0
42	75	83	0,9

Axial plunging into solid material



DC mm	X_{max} mm
16	0,35
20	0,40
25	0,45
32–35	0,50
40	0,55

Angled ramping



DC mm	α°	y mm
16	<2,5	7
20	<1,9	11
25	<1,5	16
32	<1,2	23
35	<1,0	26
42	<0,9	33

Detailed information on cutting speed for each grade can be found on → page 146–148

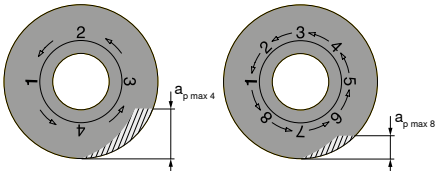
MaxiMill 251/251 RS system

Technical data

Recommended cutting depth

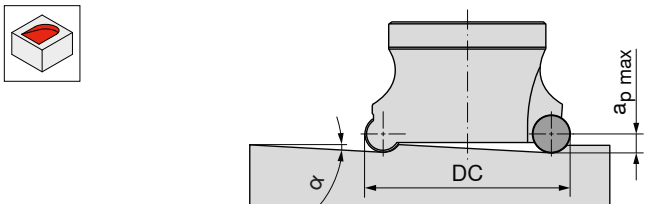
Ø mm	4-position $a_{p\,max.}$ mm	4-position $a_{p\,max}$ theoretical mm	8-face $a_{p\,max.}$ mm
5	1,0	2,0	0,7
8	1,5	3,5	1,1
10	2,5	4,5	1,4
12	3,0	5,5	1,7
16	4,0	7,5	2,3
20	4,0	9,5	2,9

Average depth for the 4/8 index use of the insert



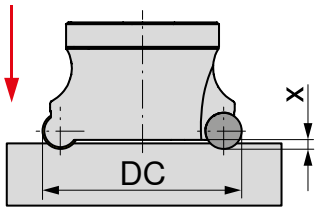
Detailed information on cutting speed for each grade can be found on → page 146–148

Angled ramping



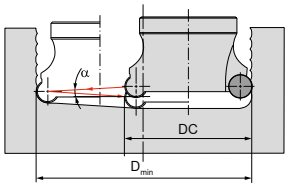
Ø DC mm	05 α °	08 α °	10 α °	12 α °	16 α °	20 α °
10	3,4					
12	16,0					
16	8,0	5,0				
20	5,5	20,0	1,3			
25	4,0	13,0	2,0	6,0		
32	3,0	8,0	3,0	4,0		
40			3,3	2,8		
42			3,1			
50			2,4	2,6	4,0	
52			2,2	2,3		
63				1,9	2,8	
66				1,6		
80				1,3	2,0	3,2
100				1,0	1,5	2,3
125						1,7

Axial ramping

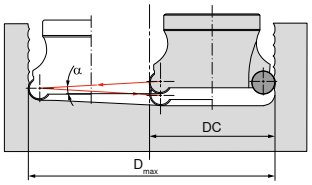


Ø DC mm	05 $X_{max.}$ mm	08 $X_{max.}$ mm	10 $X_{max.}$ mm	12 $X_{max.}$ mm	16 $X_{max.}$ mm	20 $X_{max.}$ mm
10	0,5					
12	1,3					
16	1,3	0,5				
20	1,3	2,7	0,2			
25	1,3	2,7	0,4	1,0		
32	1,3	2,7	0,8	1,1		
40			1,5	1,2		
42			1,5	1,5		
50			1,5	1,5	2,0	
52			1,5	1,5	2,0	
63				1,5	2,0	
66				1,5	2,0	
80				1,5	2,0	3,0
100				1,5	2,0	3,0
125						3,0

Helical plunging



$D_{min.}$ = smallest drilling diameter depending on the tool diameter



$D_{max.}$ = Maximum hole diameter Depending on the tool diameter

maximum possible hole diameter = 2 x DC – 1 mm

Ø DC mm	05 D_{min} mm	05 D_{max} mm	05 α_R °	08 D_{min} mm	08 D_{max} mm	08 α_R °	10 D_{min} mm	10 D_{max} mm	10 α_R °	12 D_{min} mm	12 D_{max} mm	12 α_R °	16 D_{min} mm	16 D_{max} mm	16 α_R °	20 D_{min} mm	20 D_{max} mm	20 α_R °
10	12	15	2,5															
12	16	19	2,1															
16	24	27	1,5	21	24	2,4												
20	32	35	1,2	27	32	1,9	26	30	1,3									
25	42	45	1,0	37	42	1,5	37	40	1,8	31	38	2,2						
32	56	59	0,7	51	56	1,2	50	54	1,5	46	52	1,7						
40							64	70	1,1	62	68	1,4						
42							68	74	1,1									
50							84	90	0,9	81	88	1,1	75	84	1,5			
52							88	94	0,9	86	92	1,0						
63										107	114	0,9	101	110	1,1			
66										113	120	0,8						
80										142	148	0,7	135	144	0,9	128	140	1,1
100										181	188	0,5	175	184	0,7	168	180	0,9
125																218	230	0,7

R100. system

Cutting data standard values

Index	WTN1205	WTN1205	WAN2225	WAN2225	WAN1240	WAN1240	WAX1240	WAX1240	WUN4210	WUN4210
										
	v_c (m/min)									
P.1.1	**275**	150			**300**	180	**200**	100		
P.1.2	**230**	130			**270**	160	**170**	90		
P.1.3	**190**	100			**225**	130	**140**	80		
P.1.4	**230**	130			**270**	160	**170**	90		
P.1.5	**210**	110			**240**	140	**160**	90		
P.2.1	**230**	130			**270**	160	**170**	90		
P.2.2	**170**	100			**200**	120	**130**	70		
P.2.3	**230**	130			**270**	160	**170**	90		
P.2.4	**160**	90			**180**	110	**120**	60		
P.3.1	**230**	130			**270**	160	**170**	90		
P.3.2	**150**	110			**180**	140	**140**	80		
P.3.3	**130**	90			**150**	120	**120**	70		
P.4.1	**150**	110			**180**	140	**140**	80		
P.4.2	**150**	100			**170**	130	**130**	70		
M.1.1	**230**	130	**230**	**140**	270	160	170	90		
M.2.1			**200**	**120**						
M.3.1										
K.1.1	**275**	200			360	90	150	110	200	150
K.1.2	**150**	100			360	90	150	110	150	120
K.2.1	**180**	100			230	170	150	110	200	150
K.2.2	**150**	100			160	110	150	110	160	130
K.3.1	**180**	100			210	160			200	150
K.3.2	**180**	100			210	160			150	120
N.1.1										**1200**
N.1.2										**800**
N.2.1										**880**
N.2.2										**800**
N.2.3										**230**
N.3.1										**280**
N.3.2										**280**
N.3.3										**160**
N.4.1										**260**
S.1.1				**50**						
S.1.2				**45**						
S.2.1				**24**						
S.2.2				**16**						
S.2.3				**20**						
S.3.1				**50**						
S.3.2				**32**						
S.3.3				**25**						
H.1.1	**140**	80								
H.1.2	**120**	70								
H.1.3	80	40								
H.1.4										
H.2.1										
H.3.1										
O.1.1									180	150
O.1.2										
O.2.1									260	230
O.2.2										
O.3.1									450	

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

System R 1000, 1002, 1007

Cutting data standard values

		f_z / a_p mm	WTN1205	WAN2225	WAN1240	WAX1240	WUN4210
Steel							
	0702	f_z	**0,1–0,7**			**0,2–0,5**	0,1–0,2
		a_p	**0,1–0,7**			**0,1–0,75**	0,1–0,2
	1003	f_z	**0,1–0,3**		**0,2–0,9**	**0,2–0,7**	0,15–0,3
		a_p	**0,1–1,0**		**0,2–1,5**	**0,2–1,5**	0,1–0,3
	12T3	f_z	**0,1–0,3**		**0,25–1,0**	**0,–0,8**	0,15–0,3
		a_p	**0,1–1,5**		**0,2–2,0**	**0,2–2,0**	0,1–0,3
	1604	f_z	**0,2–0,3**		**0,3–1,2**	**0,25–1,0**	0,15–0,3
		a_p	**0,2–1,5**		**0,25–3,0**	**0,2–3,0**	0,1–0,4
Stainless steel							
	0702	f_z	0,1–0,2			0,2–0,5	0,1–0,2
		a_p	0,1–0,2			0,1–0,75	0,1–0,2
	1003	f_z	0,15–0,3	**0,15–0,6**		0,2–0,7	0,15–0,3
		a_p	0,1–0,3	**0,4–1,0**		0,2–1,5	0,1–0,3
	12T3	f_z	0,15–0,3	**0,2–0,8**		0,–0,8	0,15–0,3
		a_p	0,1–0,3	**0,5–2,0**		0,2–2,0	0,1–0,3
	1604	f_z	0,15–0,3	**0,3–1,0**		0,25–1,0	0,15–0,3
		a_p	0,1–0,3	**0,6–3,0**		0,2–3,0	0,1–0,3
Cast iron							
	**0702**	f_z	**0,1–0,3**			0,1–0,3	0,1–0,3
		a_p	**0,1–0,7**			0,1–0,7	0,1–0,7
	**1003**	f_z	**0,15–0,3**		0,1–0,3	0,1–0,3	0,15–0,3
		a_p	**0,1–1,0**		0,1–1,0	0,1–1,0	0,1–1,0
	**12T3**	f_z	**0,15–0,4**		0,1–0,4	0,1–0,4	0,15–0,4
		a_p	**0,1–1,5**		0,1–1,15	0,1–1,5	0,1–1,5
	**1604**	f_z	**0,2–0,5**		0,2–0,05	0,2–0,5	0,2–0,5
		a_p	**0,2–3,0**		0,2–2,0	0,2–3,0	0,2–3,0

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System R 1000, 1002, 1007

Cutting data standard values

		f_z / a_p mm	WTN1205	WAN2225	WAN1240	WAX1240	WUN4210
Non-ferrous metals							
	0702	f_z					**0,1–0,3**
		a_p					**0,1–1,0**
	1003	f_z					**0,1–0,3**
		a_p					**0,1–1,5**
	12T3	f_z					**0,1–0,4**
		a_p					**0,1–2,0**
	1604	f_z					**0,2–0,5**
		a_p					**0,2–4,0**
Heat-resistant							
	1003	f_z		**0,1–0,4**			
		a_p		**0,2–1,0**			
	12T3	f_z		**0,15–0,5**			
		a_p		**0,3–1,5**			
	1604	f_z		**0,15–0,5**			
		a_p		**0,3–2,0**			
Tempered steel							
	0702	f_z	**01–0,2**				
		a_p	**0,1–0,3**				
	1003	f_z	**0,1–0,2**				
		a_p	**0,1–0,5**				
	12T3	f_z	**0,1–0,25**				
		a_p	**0,1–0,7**				
	1604	f_z	**0,15–0,3**				
		a_p	**0,2–1,0**				
Non-metal materials							
	0702	f_z					0,1–0,3
		a_p					0,1–1,0
	1003	f_z					0,1–0,3
		a_p					0,1–1,5
	12T3	f_z					0,1–0,4
		a_p					0,1–2,0
	1604	f_z					0,2–0,5
		a_p					0,2–4,0

WTN 1205

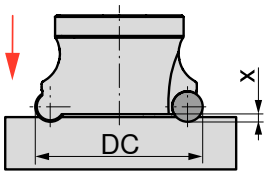
Up to 48 HRC: a_p-range as indicated in the table
Up to 55 HRC: maximum value a_p x 0,7
Up to 65 HRC: maximum value a_p x 0,5

System R 1000, 1002, 1007

Machining strategy

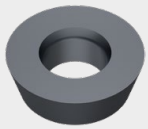
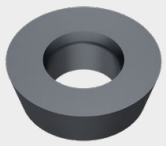
Axial ramping





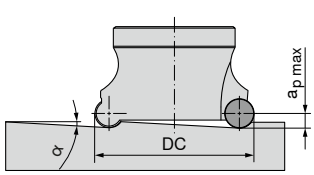
reduce f_z to 30% according to application table

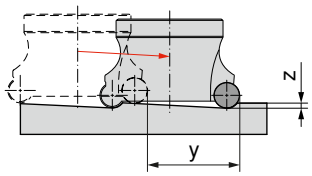
→ v_c Page 182–184

	07 	10 	12 	16 
Ø DC mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm
8–160	1,2	2,5	3,0	4,0

Angled ramping

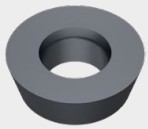
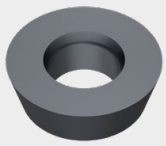






y = minimum cutter movement
z = minimum cutter movement
a_p / f_z application table

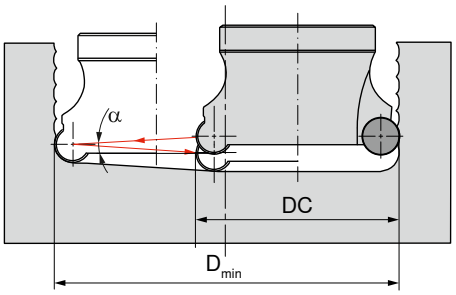
→ v_c Page 182–184

	07 			10 			12 			16 		
Ø DC mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm
8												
10												
12												
14												
15	26,5	2	< 1,2									
16	14,0	4	< 1,2									
18	11,3	6	< 1,2									
20	8,5	8	< 1,2									
22												
24												
25	5,3	13	< 1,2	19,7	7	< 2,5						
30	3,8	18	< 1,2	11,7	12	< 2,5						
32												
35	3,0	23	< 1,2	8,4	17	< 2,5	13,0	13	< 3,0	38,7	5	< 4,0
40												
42	2,3	30	< 1,2	5,9	24	< 2,5	8,5	20	< 3,0			
50												
52				4,2	34	< 2,5	5,7	30	< 3,0	10,3	22	< 4,0
66							3,9	44	< 3,0	6,4	36	< 4,0
80							3,0	58	< 3,0	4,6	50	< 4,0
100										3,3	70	< 4,0
125										2,4	95	< 4,0
160										1,8	130	< 4,0

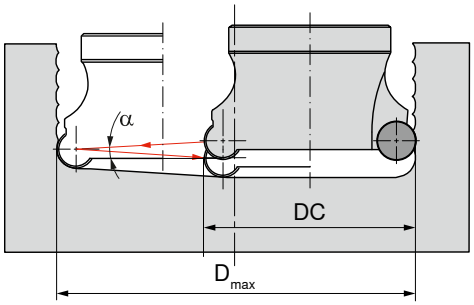
System R 1000, 1002, 1007

Machining strategy

Helical plunging



D_{min} = smallest drilling diameter depending on the tool diameter



D_{max} = largest drilling diameter depending on the tool diameter

a_p / f_z according to table
→ v_c Page 182–184

	07			10			12			16		
ØDC mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm
8												
10												
12	24											
14	28											
15	30											
16	32											
18	36	20	36									
20	40	22	40									
22				24	44							
24				26	48							
25	50	32	50									
30	60	42	60									
32						34	64					
35	80	72	70	48	70	40	70			38,7	5	< 4,0
40								42	80			
42	84	66	84	62	84							
50								62	100			
52		86	104	82	104	74	104			10,3	22	< 4,0
66				110	132	102	132	94	132	6,4	36	< 4,0
80				138	160	130	160	122	160	4,6	50	< 4,0
100						170	200	162	200	3,3	70	< 4,0
125						220	250	212	250	2,4	95	< 4,0
160						290	320	282	320	1,8	130	< 4,0

System MaxiMill 252

Machining strategy

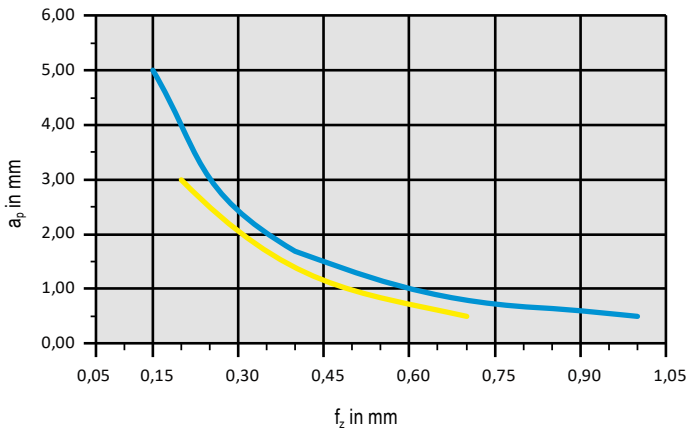
Recommended cutting depth

Ø mm	4-position $a_{p\,max}$ mm	mm
10	2,5	4,5
12	3,0	5,5

Starting Parameter



RNHU 10

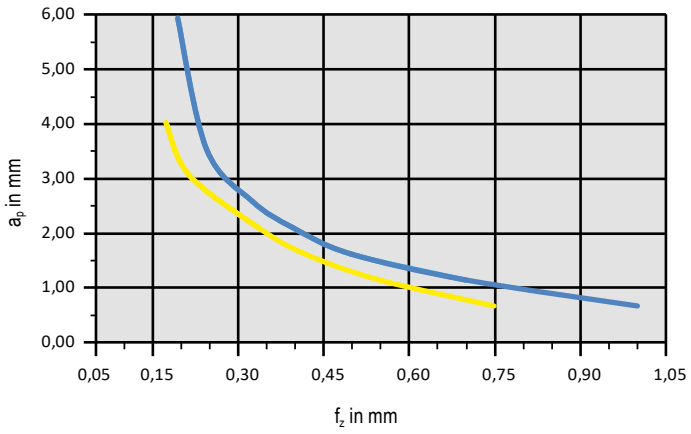


Material			Inserts		v_c in m/min	Cooling
Steel	P.2.2	40CrMnMoS 8-6	XOLX120410SR-M50	CTPP235	180	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XOLX120410ER-M50	CTPM240	180	Dry

Starting Parameter



RNHU 12



Material			Inserts		v_c in m/min	Cooling
Steel	P.2.2	40CrMnMoS 8-6	XOLX120410SR-M50	CTPP235	180	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XOLX120410ER-M50	CTPM240	180	Dry

Detailed information on cutting speed for each grade can be found on → page 146–148

From v_c > 400 m/min, the tool must be balanced!

Cutting data standard values for copy milling cutter K200.

Index	CTPK226		CTPP211		CTPK231		CTCN211		CTPP216		● 1st choice ○ suitable		
	R	F	R	F	R	F	R	F	R	F	Emulsion	Compressed air	MMS
	v_c (m/min)												
P.1.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	●
P.1.2		220–240	180–220	220–280	160–200				220–300	280–300	○	●	●
P.1.3		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.1.4		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.1.5		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.2.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	●
P.2.2		280–300	180–220	220–300	160–200				220–300	280–300	○	●	●
P.2.3		280–300	180–220	240–320	160–200				250–360	240–320	○	●	
P.2.4		280–300	180–220	240–320	160–200				250–360	240–320	○	●	
P.3.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	
P.3.2		280–320	180 – 220	240–320	160–200				250–360	240–320	○	●	●
P.3.3		280–320	180 – 220	240–320	160–200				250–360	240–320	○	●	●
P.4.1		220–220	140–180	200–240	120–180				140–180	200–240	○	●	
P.4.2		220–220	140–180	200–240	120–180				140–180	200–240	○	●	
M.1.1		180–200	140–160	180–200	120–160				220–250	220–240	●	○	
M.2.1		180–200	140–160	180–240	120–160				220–250	220–240	●		
M.3.1		220–220	140–180	200–240	120–180				140–180	200–240	●		
K.1.1		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.1.2		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.2.1		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.2.2		300–350	180–220	240–350	180–200				340–400	240–360		●	○
K.3.1		300–350	180–220	240–350	180–200				340–400	240–360		●	○
K.3.2		240–260	160–200	220–260	160–200				280–340	220–300		●	○
N.1.1			240–280	300–600	300–600					400–450	●		
N.1.2			240–280	300–600	300–600					400–450	●		
N.2.1			240–280	300–600	300–600					400–450	●		
N.2.2			240–280	300–600	300–600					400–450	●		
N.2.3										300–400	●		
N.3.1			240–280	280–320	240–280					300–400	●		
N.3.2			240–280	280–320	240–280					300–400	●		
N.3.3			240–280	280–320	240–280					300–400	●		
N.4.1			300–400	300–400				300–400			●		
S.1.1				80–120	80–120					60–80	●		
S.1.2				80–120	80–120					60–80	●		
S.2.1				80–120	80–120					60–80	●		
S.2.2				80–120	80–120					60–80	●		
S.2.3				80–120	80–120					60–80	●		
S.3.1				60–80	80–120					60–80	●		
S.3.2				60–80	60–80					60–80	●	○	
S.3.3				60–80	60–80					60–80	●	○	
H.1.1		240–260		280–300	140–160				240–260	240–260		●	
H.1.2		240–260		280–300	80–100				220–240	160–240		●	○
H.1.3		200–220		240–260					120–140	100–140		●	○
H.1.4		120–140		160–200								●	○
H.2.1		240–260		280–300	80–100				220–240	160–240		●	○
H.3.1		240–260		280–300	80–100				220–240	160–240		●	
O.1.1			300–400	300–400						300–350		●	
O.1.2			500–600	500–600						600–800		●	
O.2.1			300–400	300–400								●	
O.2.2			300–400	300–400								●	
O.3.1							400–600	600–800				●	

Cutting data standard values for copy milling cutter K200.

Index	Roughing (R)		Finishing (F)		only for -MR3 Roughing (R)		● 1st choice ○ suitable		
	Ø 6-16	Ø 20-32	Ø 6-16	Ø 20-32	Ø 6-16	Ø 20-32	Emulsion	Compressed air	MMS
	f_z (mm/tooth)								
P.1.1	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○	●	●
P.1.2	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○	●	●
P.1.3	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
P.1.4	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.1.5	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.2.1	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○	●	●
P.2.2	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○	●	●
P.2.3	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.2.4	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○		●
P.3.1	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
P.3.2	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○	●	●
P.3.3	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,6**	**0,8–1,25**	○	●	●
P.4.1	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
P.4.2	0,08–0,4	**0,25–0,5**	**0,08–0,3**	**0,2–0,8**	**0,3–0,8**	**1,2–1,5**	○		●
M.1.1	0,08–0,4	**0,25–0,5**	0,08–0,3	0,2–0,5	**0,3–0,6**	0,8–1,5	●	○	
M.2.1	0,08–0,4	**0,25–0,5**	0,08–0,4	0,2–0,6	**0,3–0,6**	0,8–1,25	●		
M.3.1	0,08–0,4	**0,25–0,5**	0,08–0,5	0,2–0,7	**0,3–0,6**	0,8–1,25	●		
K.1.1	0,08–0,4	**0,25–0,5**	0,08–0,3	0,2–0,5	**0,3–0,8**	1,0–1,5		●	○
K.1.2	0,08–0,5	**0,25–0,6**	0,08–0,4	0,2–0,6	**0,3–0,8**	1,0–1,5		●	○
K.2.1	0,08–0,6	**0,25–0,7**	0,08–0,5	0,2–0,7	**0,3–0,8**	1,0–1,5		●	○
K.2.2	0,08–0,7	**0,25–0,8**	0,08–0,6	0,2–0,8	**0,3–0,6**	0,8–1,25		●	○
K.3.1	0,08–0,8	**0,25–0,9**	0,08–0,7	0,2–0,9	**0,3–0,6**	0,8–1,25		●	○
K.3.2	0,08–0,9	**0,25–0,10**	0,08–0,8	0,2–0,10	**0,3–0,6**	0,8–1,25		●	○
N.1.1	0,08–0,35	0,25–0,45	0,06–0,25	0,025–0,45			●		
N.1.2	0,08–0,36	0,25–0,46	0,06–0,26	0,025–0,46			●		
N.2.1	0,08–0,37	0,25–0,47	0,06–0,27	0,025–0,47			●		
N.2.2	0,08–0,38	0,25–0,48	0,06–0,28	0,025–0,48			●		
N.2.3	0,08–0,39	0,25–0,49	0,06–0,29	0,025–0,49			●		
N.3.1	0,08–0,40	0,25–0,50	0,06–0,30	0,025–0,50			●		
N.3.2	0,08–0,41	0,25–0,51	0,06–0,31	0,025–0,51			●		
N.3.3	0,08–0,42	0,25–0,52	0,06–0,32	0,025–0,52			●		
N.4.1	0,08–0,43	0,25–0,53	0,06–0,33	0,025–0,53			●		
S.1.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.1.2	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.2	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.3	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.3.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.3.2	0,08–0,35	0,4–0,5	0,08–0,3	0,25–0,5	0,25–0,5	0,6–1,0	●	○	
S.3.3	0,08–0,35	0,4–0,5	0,08–0,3	0,25–0,5	0,25–0,5	0,6–1,0	●	○	
H.1.1								●	
H.1.2								●	○
H.1.3								●	○
H.1.4								●	○
H.2.1								●	○
H.3.1								●	
O.1.1								●	
O.1.2								●	
O.2.1								●	
O.2.2								●	
O.3.1								●	

Maximum axial depths of cut a_p for copy milling cutter K200.



Ball nose insert									
Insert Ø in mm		6	8	10	12	16	20	25	32
		$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$
ROHX-FM3	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROHX-FM4	**R**	0,8	1,0	2,0	3,0	4,0	5,0	6,0	8,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROHX-FM6	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROGX-MR4	**R***				4,0	6,0	8,0	12,0	16,0
	F				2,0	3,0	4,0	5,0	6,0
ROHX-MR5	**R**		1,5	2,0					
	F		0,8	1,0					

*a_p with full interference 25 % of Ø DC maximum!



Torus inserts									
Insert Ø in mm		6	8	10	12	16	20	25	32
		$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$	$a_{p\ max.}$
XOHX-FM5	**R**		2,0	3,0	3,0	4,0	5,0	6,0	8,0
	F		0,6	2,0	2,4	3,2	4,0	5,0	6,4
XOHX-MR6	**R**		2,0	3,0	3,0	4,0	5,0	6,0	8,0
	F		0,6	2,0	2,4	3,2	4,0	5,0	6,4
XOHX-FM1	**R**			1,5	2,0	3,0	4,0		
	F			0,8	0,8	1,0	1,0		
XOHX-FM2	**R**		1,0	1,5	2,0	3,0	4,0	5,0	
	F		0,5	0,7	0,8	1,0	1,0	1,5	
XOHX-MR2	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	
	F	0,5	0,5	0,7	0,8	1,0	1,0	1,5	
XOGX-MF4	**R**			1,5	2,0	3,0	4,0		
	F			0,7	0,8	1,0	1,0		
XOHX-MR3	**R**			0,5	0,6	0,8	1,0		
	F								

Ranges of application of geometry

Inserts	F	M	R	Main Application
XOHX-FM1	●	●		Steel, steel casting, heat resistant steel, hardened steel to 63 HRc
XOHX-FM2	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRc
ROHX-FM3	●	●		Steel, steel casting, heat resistant steel
ROHX-FM4	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRc
XOHX-FM5	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRc
ROHX-FM6	●	●	●	Non ferrous metals, plastics, graphite
XOHX-MR2		●	●	long-chipping ferrous metals
XOHX-MR3		●	●	Steel, steel casting, heat resistant steel
ROGX-MR4		●	●	Steel, steel casting, heat resistant steel
XOGX-MF4	●	●		Steel, steel casting, heat resistant steel
ROHX-MR5		●	●	long-chipping ferrous metals
XOHX-MR6		●	●	long-chipping ferrous metals

Cutting data standard values for MaxiMill Slot-SX saws

Index	CTCP335	CTP1340	H216T
	v_c in m/min.		
P.1.1	240	190	
P.1.2	210	160	
P.1.3	180	140	
P.1.4	160	130	
P.1.5	140	120	
P.2.1	220	170	
P.2.2	160	130	
P.2.3	140	120	
P.2.4	100	80	
P.3.1	130	120	
P.3.2	110	100	
P.3.3	90	80	
P.4.1	140	120	
P.4.2	120	110	
M.1.1	110	130	
M.2.1	100	120	
M.3.1	80	100	
K.1.1	300	200	140
K.1.2	240	180	115
K.2.1	200	120	150
K.2.2	160	100	110
K.3.1	190	120	170
K.3.2	160	100	140
N.1.1		300	500
N.1.2		200	330
N.2.1		250	370
N.2.2		220	330
N.2.3		200	280
N.3.1		300	350
N.3.2		300	350
N.3.3		200	320
N.4.1		200	320
S.1.1		70	
S.1.2		60	
S.2.1		35	
S.2.2		25	
S.2.3		30	
S.3.1		60	
S.3.2		50	
S.3.3		40	
H.1.1			
H.1.2			
H.1.3			
H.1.4			
H.2.1			
H.3.1			
O.1.1			160
O.1.2			
O.2.1			240
O.2.2			
O.3.1			

average chip thickness

h_m in mm

$$h_m = f_z \sqrt{\frac{a_e}{DC}}$$

Feed per tooth

f_z in mm

$$f_z = h_m \sqrt{\frac{DC}{a_e}}$$

Feed rate

v_f in mm/min

$$v_f = f_z \times ZNF \times n$$

DC = Ø of the disc cutters

ZNF = Number of teeth of the cutter

	Reference tool 50 386 12504 – ASLOT.125.R.8.32.DC-SX4											
	SX4 -F2				SX4 -M1				SX4 -M7			
	a_e	10	20	30	a_e	10	20	30	a_e	10	20	30
	hm	f_z in mm			hm	f_z in mm			hm	f_z in mm		
P	**0,08**	0,28	0,20	0,16	**0,1**	0,30	0,25	0,20	**0,09**	0,30	0,23	0,18
M	**0,05**	0,18	0,13	0,10					**0,06**	0,21	0,15	0,12
K					**0,12**	0,30	0,30	0,24	**0,09**	0,30	0,23	0,18
N	**0,08**	0,28	0,20	0,16								
S	**0,04**	0,14	0,10	0,08								
H												
O												

	Reference tool 50 386 12504 – ASLOT.125.R.8.32.DC-SX4							
	SX4 -M8				SX4 -27P			
	a_e	10	20	30	a_e	10	20	30
	hm	f_z in mm			hm	f_z in mm		
P	**0,08**	0,28	0,20	0,16				
M	**0,05**	0,18	0,13	0,10				
K					**0,06**	0,21	0,15	0,12
N	**0,08**	0,28	0,20	0,16	**0,09**	0,30	0,23	0,18
S	**0,04**	0,14	0,10	0,08				
H								
O					**0,05**	0,18	0,13	0,10

Caution: For narrower and wider indexable inserts, reduce or increase the feed per tooth accordingly!

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data for side and face milling cutters TX

Index	CWX500		CWK10
	v_c (m/min)	hm (mm)	v_c (m/min)
P.1.1	160	0,10	
P.1.2	140	0,10	
P.1.3	110	0,08	
P.1.4	110	0,10	
P.1.5	90	0,08	
P.2.1	110	0,10	
P.2.2	90	0,08	
P.2.3	90	0,10	
P.2.4	80	0,08	
P.3.1	80	0,05	
P.3.2	60	0,10	
P.3.3	50	0,08	
P.4.1	100	0,05	
P.4.2	90	0,08	
M.1.1	110	0,08	
M.2.1	90	0,08	
M.3.1	70	0,08	
K.1.1	140	0,10	
K.1.2	100	0,10	
K.2.1	90	0,08	
K.2.2	80	0,05	
K.3.1	140	0,10	
K.3.2	120	0,10	
N.1.1	600	0,12	250
N.1.2	400	0,12	230
N.2.1	220	0,10	210
N.2.2	180	0,10	190
N.2.3	140	0,10	120
N.3.1	240	0,12	200
N.3.2	200	0,12	180
N.3.3	180	0,12	160
N.4.1	180	0,12	160
S.1.1	60	0,05	
S.1.2	50	0,05	
S.2.1	60	0,05	
S.2.2	50	0,05	
S.2.3	40	0,05	
S.3.1	60	0,06	
S.3.2	40	0,06	
S.3.3	30	0,06	
H.1.1			
H.1.2			
H.1.3			
H.1.4			
H.2.1			
H.3.1			
O.1.1	180	0,10	160
O.1.2	180	0,10	160
O.2.1	150	0,10	120
O.2.2	110	0,10	100
O.3.1	170	0,10	160

average chip thickness

h_m in mm

$$h_m = f_z \sqrt{\frac{a_e}{DC}}$$

Feed per tooth

f_z in mm

$$f_z = h_m \sqrt{\frac{DC}{a_e}}$$

Feed rate

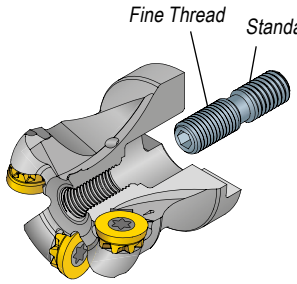
v_f in mm/min

$$v_f = f_z \times ZNF \times n$$

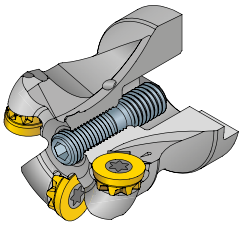
DC = Ø of the disc cutters

ZNF = Number of teeth of the cutter

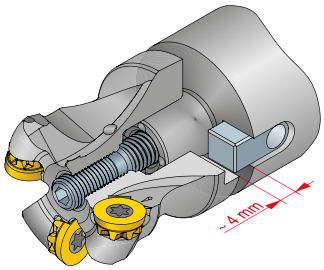
Easy and safe clamping – with the CERATIZIT power screw



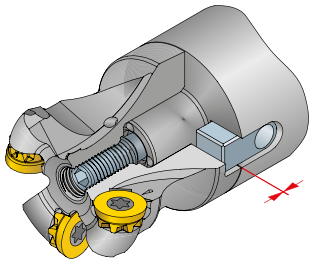
The fine-pitch part of the power screw is threaded into the milling cutter.



The power screw is turned carefully until the stop (as screw was delivered).



In order to guarantee an optimum connection of tool and shank, a gap of 4 mm is required between cutter body and adapter prior to final clamping. Using standardised adpaters this is automatically guaranteed. If necessary, you can read just by means of the power screw with 0.5 mm/rev.



Turn clamping screw to tighten

Torque moments for clamping screws for mounting the milling cutter to the shell mill adapter

	10				12				16			
Cutter Ø mm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm
40			70 950 151	15			70 950 151	15				
42			70 950 151	15			70 950 151	15				
50	M10x25	80			M10x25	80					70 950 154	20
52					M10x25	80					70 950 154	20
63					M10x25	80			M10x25	80		
66					M10x25	80			M10x25	80		

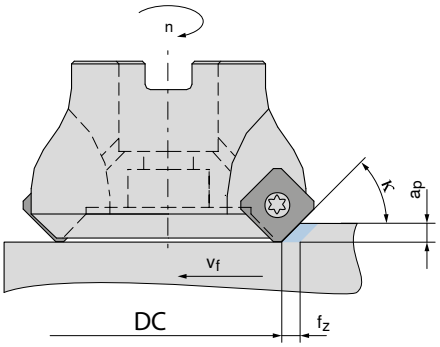
	12				16				20			
Cutter Ø mm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm
80	M12x30	140			M12x30	140			M12x30	140		
100	M16x35	180			M16x35	180			M16x35	180		
125					M16x35	180			M16x35	180		

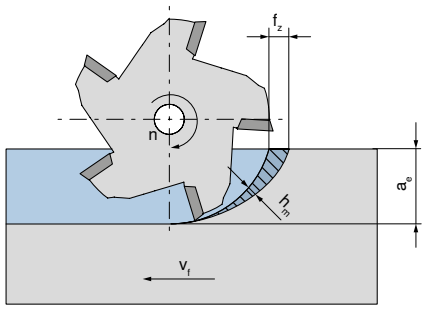
15

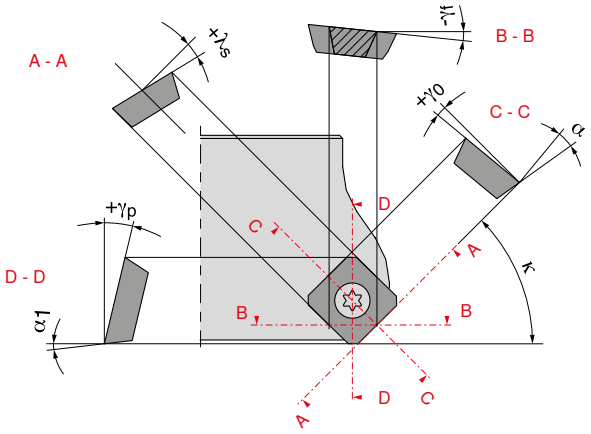
Abbreviations & dimensions

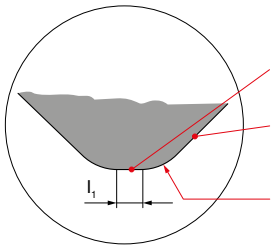
a_e	cutting width	mm
a_p	Cutting depth	mm
DC	Tool diameter	mm
D_w	Workpiece diameter	mm
f_z	Feed per tooth	mm
h_m	Average Chip Thickness	mm
k	Number of teeth	
k_c	Specific cutting force	N/mm²
$k_{c1.1}$	Specific cutting force for 1 mm ² chip area	N/mm²
BS	Length of trailing edge land	mm
m_c	Increase of specific cutting force	
n	rpm	rpm
Q	Chip volume	cm³/min
v_c	Cutting speed	m/min
v_f	Feed rate	mm/min.
ZNF	Number of Effective Teeth	

γ_0	Effective cutting angle	degree
γ_f	Side clearance angle	degree
γ_p	Axial cutting angle	degree
κ	Cutting edge angle	degree
λ_s	Angle of inclination	degree
α	Clearance angle	degree
α_1	Side clearance angle	degree









Trailing edge land

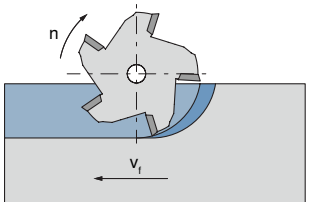
Main cutting edge

Corner radius

Engagement conditions

Recommended

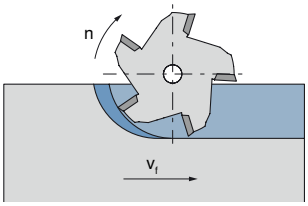
Climb milling



The feed direction of the workpiece is the same as the direction of rotation of the milling cutter in the cutting zone. The chips have maximum thickness at the beginning, chip thickness then decreases until it becomes zero at the end of the cut.

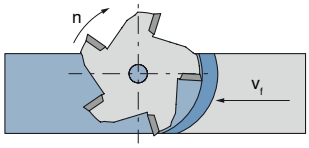
Unsuitable

Conventional milling

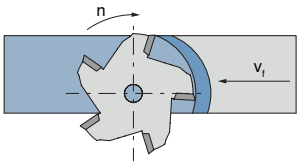


The feed direction of the workpiece is opposite to the direction of rotation of the milling cutter in the cutting zone. Chip thickness is zero at the beginning and increases until it reaches its maximum at the end of the cut.

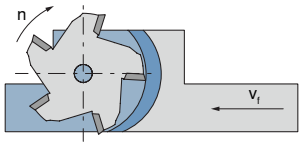
Cutter positioning



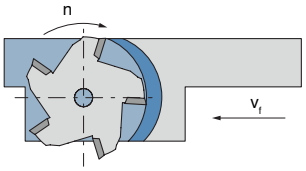
If possible the cutter should exit tangentially of the workpiece.



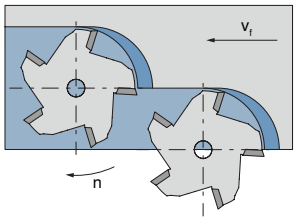
Workpiece situation



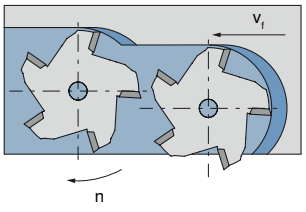
The workpiece should be clamped in such a way as to allow the cutter to emerge tangentially of the workpiece along the whole machining length.



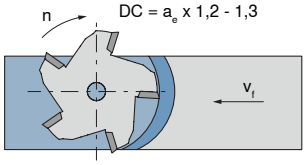
Overlapping



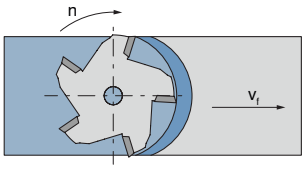
Either employ climb milling or ensure that the cutter comes out of the workpiece tangentially, as in the illustration on the left.



Cutter size



When face milling the diameter of the cutter should be 20–30 % larger than that of the workpiece.



15

ISO designation indexable milling inserts

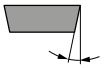
X	D	K	T	11	T3	08	S	R	-	F50
1	2	3	4	5	6	7	8	9		10

Z	N	H	W	12	05	PO	S	R	-	15	06	-	R
1	2	3	4	5	6	7	8	9		11	12		13

1 Insert shape

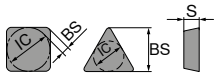
A	85°	
B	82°	
K	55°	
H	120°	
L	90°	
O	135°	
P	108°	
C	80°	
D	55°	
E	75°	
M	86°	
V	35°	
R		
S	90°	
T	60°	
W	80°	
X Z	Special version	

2 Clearance angle

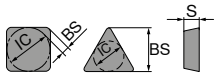


	α
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Special version

3 Tolerances

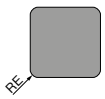


	IC ±mm	BS ±mm	S ±mm	IC = 6,35 / 9,52	IC = 12,7	IC = 15,8 / 19,05
A	0,025	0,005	0,025	●	●	●
C	0,025	0,013	0,025	●	●	●
E	0,025	0,025	0,025	●	●	●
F	0,013	0,005	0,025	●	●	●
G	0,025	0,025	0,13	●	●	●
H	0,013	0,013	0,025	●	●	●
J	0,05	0,005	0,025	●		
	0,08	0,005	0,025		●	
	0,10	0,005	0,025			●
K	0,05	0,013	0,025	●		
	0,08	0,013	0,02		●	
	0,10	0,013	0,02			●



	IC ±mm	BS ±mm	S ±mm	IC = 6,35 / 9,52	IC = 12,7	IC = 15,8 / 19,05
M	0,05	0,08	0,13	●		
	0,08	0,13	0,13		●	
	0,10	0,15	0,13			●
N	0,05	0,08	0,025	●		
	0,08	0,13	0,025		●	
	0,10	0,15	0,025			●
U	0,08	0,13	0,13	●		
	0,13	0,20	0,13		●	
	0,18	0,27	0,13			●

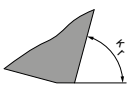
7 Trailing edge land / corner radius



Radius

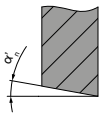
	RE in mm
M0*	
02	0,2
04	0,4
08	0,8
12	1,2

* Only with insert type "R"



1. Designation

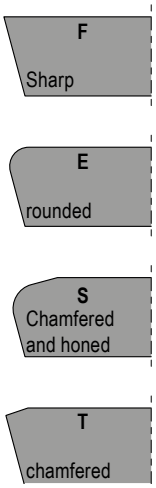
	K_r
A	45°
D	60°
E	75°
F	85°
P	90°
Z	Alternative



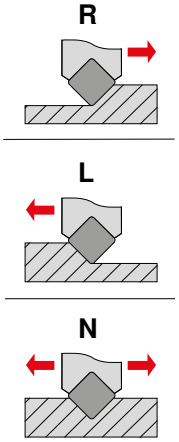
2. Designation

	α'_n
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
Z O	Alternative

8 Cutting edge



9 Direction of cut



4

Characteristics

A	
F	
G	
M	
N	
Q	
R	
T	
U	
W	
X	Special version

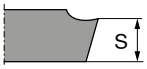
5

Cutting length

IC mm	A	T	C/S	H	L	R	V	W	O	X	Z
4,90										07	
5,00						05					
5,56			05		08			03			
6,00											
6,35		11	06		10			04		06	
6,65	10										
6,80										11	
7,00											04
7,94			07								
8,00						08					
9,00					12						
9,30										15	
9,52	16	16	09		15			06	04		
9,57	15										
9,60										09	
10,00			10		11	10					12
12,00						12					
12,50										20	
12,70		12/22	12		20		22	08		12	
15,81			15		22			10			
16,00						16					
16,20				09							
16,74			16								
17,00			17								
17,18									06		
18,18									07		
19,05			19					13			
20,00						20					

6

Insert thickness



	S mm
01	1,59
T1	1,98
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
09	9,52

10

Chip groove

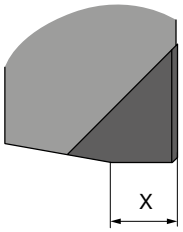
Chip breaker designation
F.. = fine
M.. = medium
R.. = roughing

Additional characteristics:
R = transition radius main/ secondary cutting edge
Q = Smoothing edge

11

Manufacturer specification

Length of the finishing cutting edge

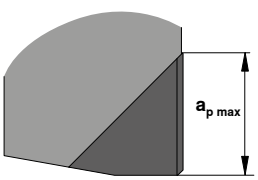


00 = 0,0 mm
10 = 1,0 mm
12 = 1,2 mm
15 = 1,5 mm
30 = 3,0 mm
50 = 5,0 mm

12

Manufacturer specification

$a_{p\,max}$



02 = 2,0 mm
03 = 3,0 mm
04 = 4,0 mm
06 = 6,0 mm
07 = 7,0 mm
11 = 11,0 mm

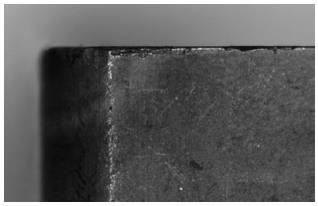
13

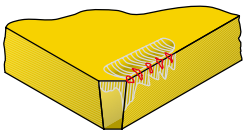
Manufacturer specification

F = Fine
M = Medium
R = Rough

15

Cutting demands when milling

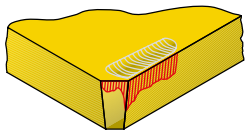




Edge chipping

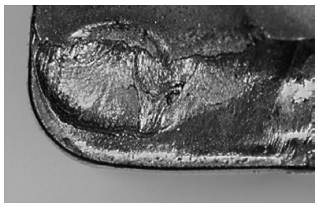
Cutting speed ↑
Feed per tooth ↓
Toughness of grade ↑
Cutting edge chamfer ↑

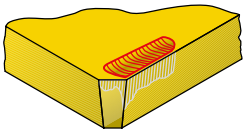




Wear on clearance face

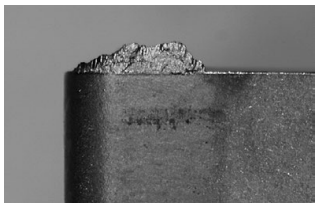
Cutting speed ↓
Feed per tooth ↑
Abrasion resistant grade ↑

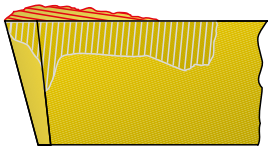




Cratering

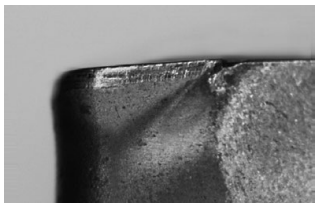
Cutting speed ↓
Feed per tooth ↓
Abrasion resistant grade ↑

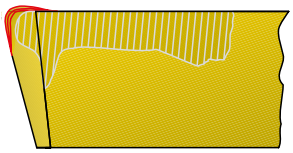




Built-up edge

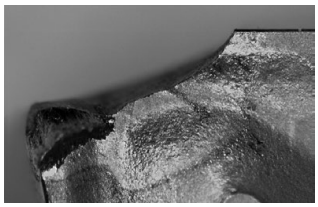
Cutting speed ↑
Feed per tooth ↑
Wear resistance ↑

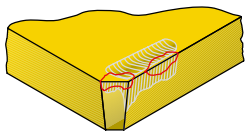




Cutting-edge deformation

Cutting speed ↓
Feed per tooth ↓
Abrasion resistant grade ↑

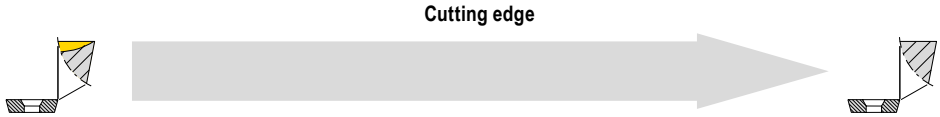




Cutting Edge Breakage

Cutting speed ↓
Toughness of grade ↑

Chip Breakers Overview



			Sharp ●		medium ● ●		stable ● ● ●	
			10	20	30	40	50	60
increasing wedge angle	fine	F	-F10 -27 -27P	-F20		-F40	-F50	-ER -FN -33P -33
	medium	M			-M31 -M30 -M32		-M50 -31	-EN -29
	rough	R			-R30		-R50	-SN -R60 -SR

Chip breaker code

			Cutting edge		
			Sharp	medium	stable
			10–20	30–40	50–60
Application type	light	F	●	● ●	● ● ●
	universal	M	●	● ●	● ● ●
	difficult	R	●	● ●	● ● ●

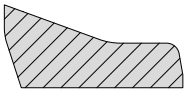
Example: Chip breaker -M50



Chip breaker description

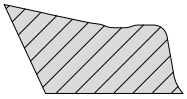
-27P

- Highly positive geometry
- Ground, sharp cutting edge
- Low adhesion
- Recommendation for non-ferrous metals



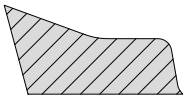
-F10

- Highly positive geometry
- Ground, sharp cutting edge
- Low adhesion
- Recommendation for non-ferrous metals



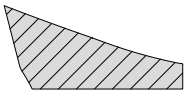
-27

- Highly positive geometry
- Sharp cutting edges
- First choice for non-ferrous metals



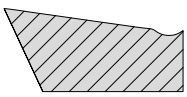
-F20

- Highly positive geometry
- Lightly rounded cutting edge
- Recommendation for non-ferrous metals



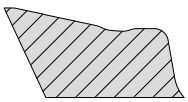
-F40

- Positive geometry
- Rounded cutting edge
- Finish and rough machining
- For unstable clamping situations
- Recommendation for heat-resistant materials, titanium and super alloys



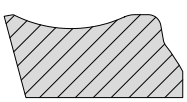
-F50

- Streamlined geometry with protective chamfer
- Rounded cutting edge
- Light rough machining
- For unstable clamping situations
- Recommendation for stainless steel materials



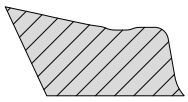
-33P

- Positive geometry with small neutral protective chamfer
- Low adhesion
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



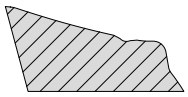
-M30

- Positive geometry
- Rounded cutting edge
- Medium rough machining
- For unstable clamping situations
- Recommendation for martensitic stainless steels (blade machining only with MaxiMill 251)



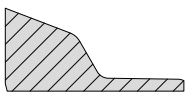
-M31

- Positive geometry
- Rounded cutting edge
- Finish and rough machining
- For unstable clamping situations
- For heat-resistant materials, titanium and super alloys



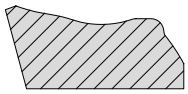
-M32

- Positive geometry
- Rounded cutting edge
- Low cutting force and good stability
- Medium rough machining
- First choice for martensitic stainless steels



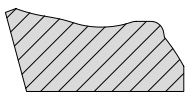
-M50

- Universal geometry with protective chamfer
- Rounded cutting edge
- Light to medium rough machining
- Recommendation for general steel materials



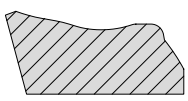
-31

- Positive geometry with neutral protective chamfer
- Rounded cutting edge
- Heavy rough machining
- Strongly interrupted cuts
- First choice for cast iron materials



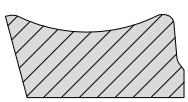
-29

- Positive geometry with slightly negative protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



-33

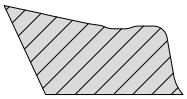
- Positive geometry with small neutral protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



Chip breaker description

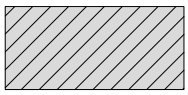
-29R

- Positive geometry with slightly negative protective chamfer
- Heavily rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



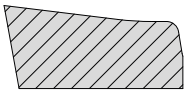
-ER

- Neutral Geometry
- Rounded cutting edge
- Universal application
- High surface quality due to face chamfer
- First choice for machining cast iron and non-ferrous metals



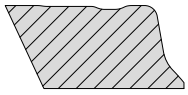
-R30

- Slightly positive geometry
- Rounded cutting edge
- Medium rough machining
- Strongly interrupted cuts
- First choice for cast iron materials



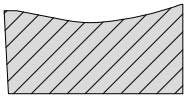
-EN

- Neutral geometry
- Rounded cutting edge
- High surface quality due to face chamfer (radial protective chamfer on indexable insert)
- First choice for machining cast iron and non-ferrous metals



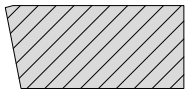
-R50

- Rugged geometry with protective chamfer
- Rounded cutting edge
- Rough machining
- Interrupted cuts
- Recommendation for cast iron materials



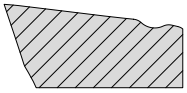
-SN

- Neutral geometry
- Rounded cutting edge
- High surface quality due to face chamfer (radial protective chamfer on indexable insert)
- Low cutting forces
- First choice for good flatness



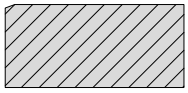
-R60

- Rugged geometry with protective chamfer
- Rounded cutting edge
- Rough machining
- For stable clamping situations
- Recommendation for high-strength steel materials



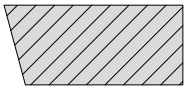
-SR

- Neutral geometry with negative protective chamfer
- Rounded cutting edge
- Robust indexable insert
- For poor machining conditions
- First choice for machining cast iron and steels



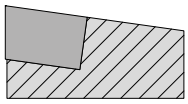
-FN

- Neutral and highly stable geometry
- Heavily rounded cutting edge
- For stable machining conditions
- First choice for hard machining up to approx. 50 HRC



-FR

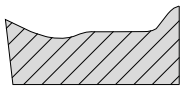
- Neutral Geometry
- Slightly rounded and stable cutting edge
- Associated with Ceramic and CBN cutting materials.
- For stable machining situations
- First choice for machining cast irons



Chip breaker description for MaxiMill Slot-SX

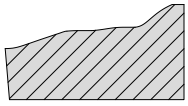
-27P

- Positive geometry
- Ground, sharp cutting edge
- Polished chip breaker
- Low cutting forces
- Fine to medium machining
- First choice for non-ferrous metals



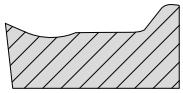
-M8

- Extremely positive geometry
- Ground cutting edge
- Low cutting forces
- Fine to medium machining
- First choice for difficult-to-machine and stainless materials
- Alternatively, can also be used for non-ferrous metals



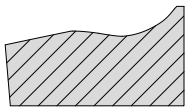
-F2

- Positive geometry
- Ground cutting edge
- Low cutting forces
- Fine to medium machining
- For stainless and steel materials



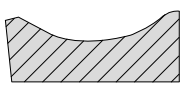
-M7

- Positive geometry
- Medium machining
- Universal application



-M1

- Stable cutting edge
- Medium to rough machining
- Best suited to steel materials



Grades Overview

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O
CTEP210	HE-P10	01 10 20 30 40 50 / 05 15 25 35 45	●		●				
	HE-K05								
TCM10	HT-P15		●		○				
	HT-K10								
WTN1205	HC-P10		●	○	●			●	
	HC-M15								
	HC-K05								
	HC-H10								
CTPP211	HC-P10		●	○	○	○	○	○	○
	HC-M15								
	HC-K10								
	HC-N10								
	HC-S15								
	HC-H10								
	HC-O10								
CTPP216	HC-P10		●	○	●	○	○	●	○
	HC-M20								
	HC-K15								
	HC-N15								
	HC-S20								
	HC-H15								
	HC-O15								
CTCP220	HC-P20		●		●				
	HC-K20								
CTPP225	HC-P25		●		●				
	HC-K25								
CTCP230	HC-P30		●		●				
	HC-K25								
CTPP231	HC-P30		●		○				
	HC-K25								
CTPP235	HC-P35		●	○	○				
	HC-M30								
	HC-K30								
CTPP236	HC-P35		●	○	○				
	HC-M35								
	HC-K30								
WAN1240	HC-P40		●	○	○				
	HC-M35								
	HC-K30								
WAX1240	HC-P30		●	○	○				
	HC-M25								
	HC-K25								
CTPM225	HC-P25		●	●					
	HC-M25								
WAN2225	HC-M25			●			●		
	HC-S30								
CTCM235	HC-P40		●	●					
	HC-M35								
CTPM240	HC-P40		○	●					
	HC-M40								
CWK10	HC-N10					●			○
	HC-O10								

● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

Grades Overview

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O
CTPM241	HC-P40	01 05 10 15 20 25 30 35 40 45 50	●	●			○		
	HC-M40								
	HC-S40								
CTPM245	HC-P45		●	●					
	HC-M50								
CTCM245	HC-P45		●	●			○		
	HC-M50								
	HC-S35								
CTN3105	CN-K05				●				
CTL3215	BC-K10				●			○	
	BC-H10								
CTCK215	HC-K15				●				
CTPK220	HC-K20				●				
CTPK221	HC-P15		○		●				
	HC-K10								
CTPK226	HC-P15		●	●	●			○	
	HC-M20								
	HC-K15								
	HC-H15								
CTPK231	HC-P30		●	●	●	○	○	○	
	HC-M35								
	HC-K30								
	HC-N30								
	HC-S35								
	HC-H30								
CTD4205	DP-N05					●			○
	DP-O05								
CTPX715	HC-P15		○	○	●	●	○		○
	HC-M15								
	HC-K15								
	HC-N15								
	HC-S20								
	HC-O10								
WUN4210	HT-K10				○	●			
	HT-N15								
CTCN211	HC-N10					○			●
	HC-O10								
CTWN215	HC-K15				○	●			○
	HC-N10								
	HC-O10								
H216T	HW-K15				○	●			○
	HW-N15								
	HW-O15								
CTC5240	HC-S35						●		
CTCS245	HC-S45						●		
CTP6215	HC-K15				●			●	
	HC-H15								
CWX500	HC-P15		●	●	○	●	○		○
	HC-M15								
	HC-K15								
	HC-N15								
	HC-S15								
	HC-O15								

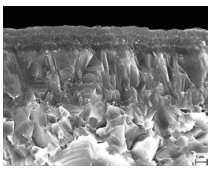
● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c− tough

15

Grade description

CTEP210



P10 | **K05**

Specification:
Composition: Cermet Co/Ni 12.2%; mixed carbide 71.4%; others; WC balance | Fine grain size | Hardness: HV_{30} 1620 |
Layer system: CVD TiCN-Al_3O_3
Application:
Coated Cermet grade with reserves of toughness for finish machining at high cutting speeds

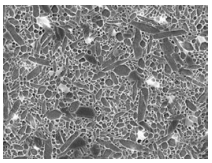
TCM10



P15 | K10

Specification:
Composition: Co/Ni 12.2%; WC 15; TaNbC10.0%; TiCn balance | Hardness: HV_{30} 1620 | Layer system: uncoated
Application:
Uncoated Cermet grade for the finishing of hardened steel

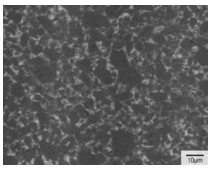
CTN3105



CN-K05

Specification:
Composition: ß – Si_3N_4 | Fine grain size | Hardness: HV_{30} 1620 | Layer system: uncoated
Application:
Universal silicon nitride for the machining of cast iron materials

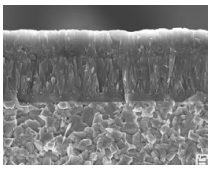
CTL3215



BC-K10 | BC-H10

Specification:
Composition: Cubic boron nitride (CBN) | 85 vol. + metallic binder phase | Cutting system: PVD
Application:
Coated cubic boron nitride with very good cutting toughness and good wear resistance for the machining of cast iron materials

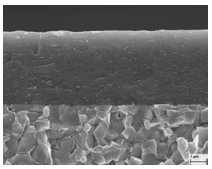
CTCP220



HC-P20 | **HC-K20**

Specification:
Composition: Co 8.0%; mixed carbide 2.0%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1500 |
Layer system: CVD TiCN-Al_3O_2
Application:
Dry machining, high cutting speed + more wear resistant grades to CTCP230
Material example:
Low material strength up to approx. 250 HB / 840 N/mm²

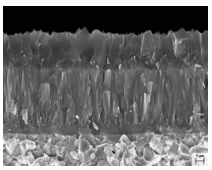
CTPP225



HC-P25 | **HC-K25**

Specification:
Composition: Co 8.0%; mixed carbide 2.0%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1500 | Layer system: PVD TiAlTaN
Application:
Dry or wet machining, face milling of steel materials, higher cutting speeds + more wear resistant grades to CTPP235
Material example:
Medium material strength up to approx. 300 HB / 1000 N/mm²

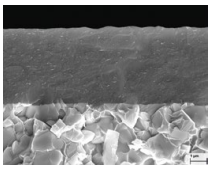
CTCP230



HC-P30 | HC-M25 | **HC-K25**

Specification:
Composition: Co 10.5%; mixed carbide 2.0%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1400 |
Layer system: CVD TiCN-Al_2O_3
Application:
Dry machining, universal grade for higher cutting speeds

CTPP235

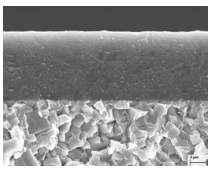


HC-P35 | HC-M30

Specification:
Composition: Co 10.5%; mixed carbide 2.0%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1400 | Layer system: PVD TiAlTaN
Application:
Wet machining, universal grade for medium cutting speeds

Grade description

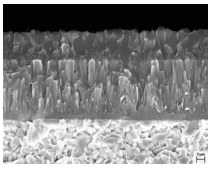
CTPM225



HC-P25 | **HC-M25**

Specification:
Composition: Co 9.0%; mixed carbide 0.75%; WC balance | Fine grain size 0.7-1µm | Hardness: HV_{30} 1590 | Layer system: PVD TiAlTaN
Application:
Dry or wet machining at medium cutting speeds
Material example:
Austenitic stainless steels

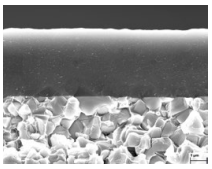
CTCM235



HC-P40 | **HC-M35**

Specification:
Composition: Co 12.5%; mixed carbide 2.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1380 | Layer system: CVD TiCN-Al_2O_3
Application:
Dry machining for medium cutting speeds
Material example:
Martensitic stainless steels

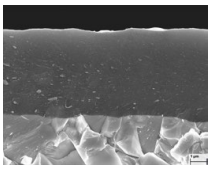
CTPM240



HC-P40 | **HC-M40**

Specification:
Composition: Co 12.0%; mixed carbide 2.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1380 | Layer system: PVD TiAlTaN
Application:
Wet machining, universal grade for higher cutting speeds
Material example:
Austenitic stainless steels

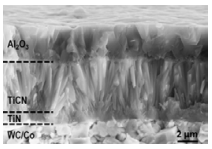
CTPM245



HC-P45 | **HC-M45**

Specification:
Composition: Co 10.0%; others 1.5%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1330 | Layer system: PVD TiAlTaN
Application:
Dry or wet machining
Material example:
High-alloy martensitic and austenitic stainless steel

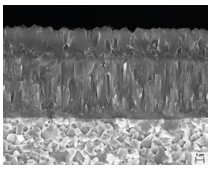
CTCM245



HC-P45 | **HC-M50** | HC-S35

Specification:
Composition: Co 10.0%; others 1.5%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1330 | Layer system: CVD TiCN-Al_2O_3
Application:
Dry machining
Material example:
High-alloy martensitic and austenitic stainless steel

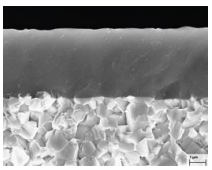
CTCK215



HC-K15

Specification:
Composition: Co 6.0%; mixed carbide 2.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1630 | Layer system: CVD TiCN-Al_2O_3
Application:
Special grade for the dry machining of cast iron materials at high cutting speeds
Material example:
Cast iron materials such as GG25 and GGG40

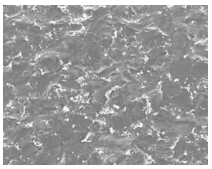
CTPK220



HC-K20

Specification:
Composition: Co 6.0%; mixed carbide 2.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1630 | Layer system: PVD TiAlTaN
Application:
Special grade for the wet machining of cast iron materials in demanding application ranges
Material example:
High-strength cast iron materials such as GGG50 and GGG70

CTD4205

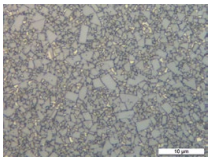


DP-N05

Specification:
Composition: Polycrystalline diamond (PKD) | grain size 2-5µm | Layer system: uncoated
Application:
For the machining of aluminium and non-ferrous metals
Material example:
Non-ferrous metals such as AlMgSi1

Grade description

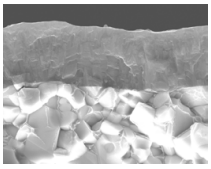
CTWN215 (H216T)



K15 | **N15** | O15

Specification:
Composition: Co 6.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1650 | Layer system: uncoated
Application:
Uncoated carbide for the machining of aluminium and non-ferrous metals
Material example:
Non-ferrous metals such as AlMgSi1

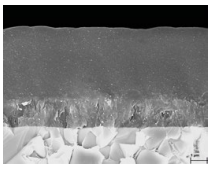
CTPX715



ISO | **P15** | **M15** | K15 | **N15** | **S20** | O10

Specification:
Composition: Co 6.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1650 | Layer system: PVD AlTiN
Application:
For the machining of aluminium and non-ferrous metals
Material example:
Non-ferrous metals such as AlMgSi1 or GGG30 cast iron

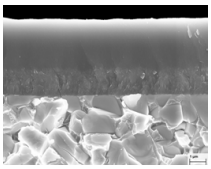
CTC5240



HC-S40

Specification:
Composition: Co 10.0%; WC balance | Medium grain size 2µm | Hardness: HV_{30} 1330 | Layer system: CVD TiN-TiB_2
Application:
Special wet machining grade for the machining of titanium materials
Material example:
Titanium Ti6Al4V

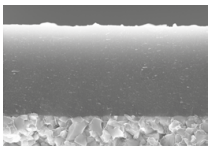
CTCS245



HC-S45

Specification:
Composition: Co 12.0%; mixed carbide 1.8%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1260 | Layer system: CVD TiN-TiB_2
Application:
Wet machining special grade for the machining of nickel-based alloys or the dry machining of austenitic stainless steels
Material example:
Heat-resistant materials such as Inconel, Rene, Nimonic, etc.

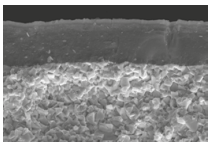
CTP6215



HC-H15 | **HC-K15**

Specification:
Composition: Co 12.0%; WC balance | Ultra-fine grain size 0.4µm | Hardness: HV_{30} 1630 | Layer system: PVD TiAlN
Application:
For the machining of high-strength martensitic tool steels 400HB / 1300 N/mm^2
Material example:
Tool steel 1.2379, 1.2312

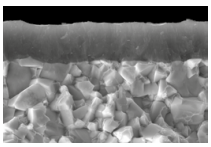
CTPK231



P30 | **M35** | **K30** | N30 | S35 | H30

Specification:
Composition: Co 9.8%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1612 | Layer system: PVD TiN / TiAlN / ZS / TiAlN / Al_2O_3 / TiN
Application:
Dry machining, tough carbide grade for the medium and rough machining of steel and cast iron metals

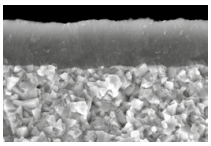
CTPP216



P10 | M20 | **K15** | N15 | S20 | **H15** | O15

Specification:
Composition: Co 9.6%; WC balance | Fine grain size 0,7-1µm | Hardness: HV_{30} 1824 | Layer system: PVD TiN / TiAlN / DS
Application:
Highly wear-resistant carbide grade with high cutting edge stability for the machining of high-strength materials, non-alloyed tool steels, cast iron and hardened steel up to 54 HRC

CTPK226

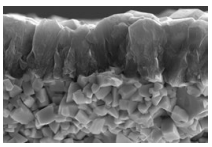


P10 | M20 | **K15** | H15

Specification:
Composition: Co 11.6%; WC balance | Fine grain size 0.7-1µm | Hardness: HV_{30} 1711 | Layer system: PVD TiN / AlTiN / DS
Application:
Highly wear-resistant ultra-fine grain carbide grade for the machining of cast iron metals and hardened steels up to 62 HRC

Grade description

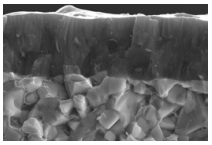
CTCN211



N10 | **O15**

Specification:
Composition: Co 6.5%; WC balance | Fine grain size 0.7-1µm | Hardness: HV_{30} 1827 | Layer system: PVD diamond
Application:
Diamond-coated carbide grade for the machining of graphite and non-ferrous metals

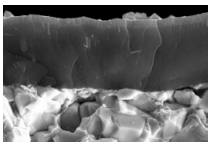
WAN1240



P40 | M35 | K30

Specification:
Composition: Co 9%; mixed carbide 3.8%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1449 | Layer system: PVD TiAlN / TiN
Application:
Tough special grade for the machining of steel at medium to high cutting speeds. Also suitable for the machining of cast iron in secondary applications

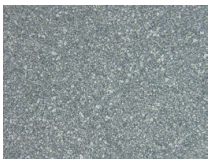
WAN2225



M25 | **S25**

Specification:
Composition: Co 11.3%; WC balance | Medium grain size 2µm | Hardness: HV_{30} 1307 | Layer system: PVD TiAlN / TiN
Application:
Dry and wet machining, fine grain grade with high toughness and temperature resistance. For rough and finish machining of rust and acid-resistant steels

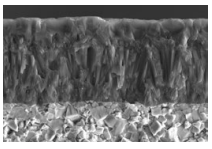
WUN4210



K15 | **N10** | O10

Specification:
Composition: Co 8.1%; WC balance | Fine grain size 0.7-1µm | Hardness: HV_{30} 1715 | Layer system: uncoated
Application:
Uncoated carbide for the machining of aluminium and non-ferrous metals
Material example:
Non-ferrous metals such as AlMgSi1

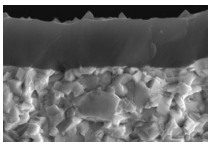
WAX1240



P40 | M25 | K30

Specification:
Composition: Co 10.5%; mixed carbide 2.1%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1345 |
Layer system: CVD TiN / TiCN / TiN / Al_2O_3
Application:
High-strength special grade for medium and rough machining at medium cutting speeds and extreme feed rates per tooth

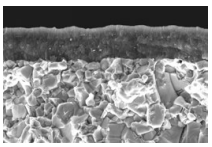
WTN1205



P10 | M15 | **K05** | **H10**

Specification:
Composition: Co 7.3%; WC balance | Fine grain size 0.7-1µm | Hardness: HV_{30} 1801 | Layer system: PVD TiN / TiAlN
Application:
Special grade for the machining of steel, hardened steel, cast iron, and non-ferrous metals and graphite

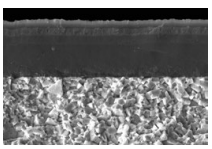
CTPP231



P30 | K25

Specification:
Composition: Co 9.5%; mixed carbide 2%; WC balance | Medium grain size 2-3µm | Hardness: HV_{30} 1400 | Layer system: PVD TiAlN
Application:
A very tough special grade for the medium and rough machining of steel at medium cutting speeds and extremely high feed rates

CTPP211

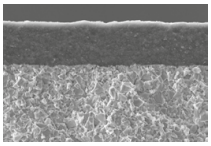


P10 | M15 | K10 | N10 | S15 | H10 | O10

Specification:
Co 6.3%; WC balance | Fine grain size 0.7-1µm | Hardness: HV_{30} 1843 | Layer system: PVD TiN / TiAlN / ZS / TiAN / Al_2O_3 / ZS / TiN
Application:
universal grade for medium cutting speeds

Grade description

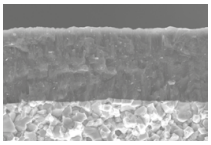
CTPP236



P35 | M35 | K30

Specification:
Composition: Co 9.5%; mixed carbide 2%; WC balance | Medium grain size 2-3µm | Hardness: HV_{30} 1370 | Layer system: PVD TiAlN
Application:
Tough special grade for the medium and rough machining of steel at high cutting speeds. Also suitable for the machining of cast iron and stainless steels in secondary applications

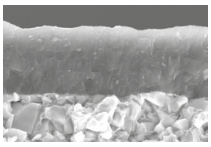
CTPK221



P15 | **K10**

Specification:
Composition: Co 6%; WC balance | Medium grain size 1µm | Hardness: HV_{30} 1600 | Layer system: PVD TiAlN
Application:
Standard grade for the fine machining of cast iron and non-ferrous metals at medium cutting speeds

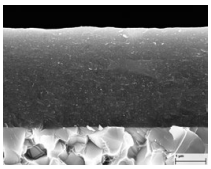
CTPM241



P40 | **M40** | S40

Specification:
Composition: Co 12%; WC balance | Medium grain size 1-2µm | Hardness: HV_{30} 1450 | Layer system: PVD TiAlN
Application:
Tough special grade for the machining of stainless and heat-resistant steels

CTP1340

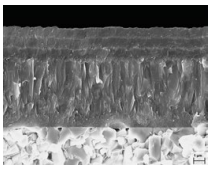


ISO | **P30** | **K30** | N30 | **S30** | O30

Specifications:
Composition: Co 9.0%; mixed carbide 0.75%; WC balance | grain size: 0.7–1 µm | Hardness: HV_{30} 1590 | Layer system: PVD TiAlTaN

Recommended use:
The universal high-performance grade for steels, austenitic steel, cast iron materials and heat-resistant alloys

CTCP335

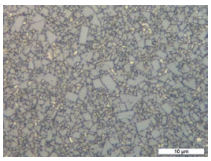


ISO | **P35** | M30 | **K35**

Specifications:
Composition: Co 10.5%; mixed carbide 1.9%; WC balance | grain size: 1 µm | Hardness: HV_{30} 1370 |
Layer system: CVD TiCN-Al_2O_3 Multilayer

Recommended use:
The reliable choice for machining steel and cast iron materials.

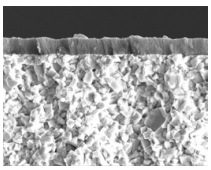
CWK10



N10 | O10

Specification:
Composition: Co 6.0%; WC balance | Fine grain size 1µm | Hardness: HV_{30} 1650 | Layer system: uncoated
Application:
Uncoated carbide for the machining of aluminium and non-ferrous metals
Material example:
Non-ferrous metals such as AlMgSi1

CWX500

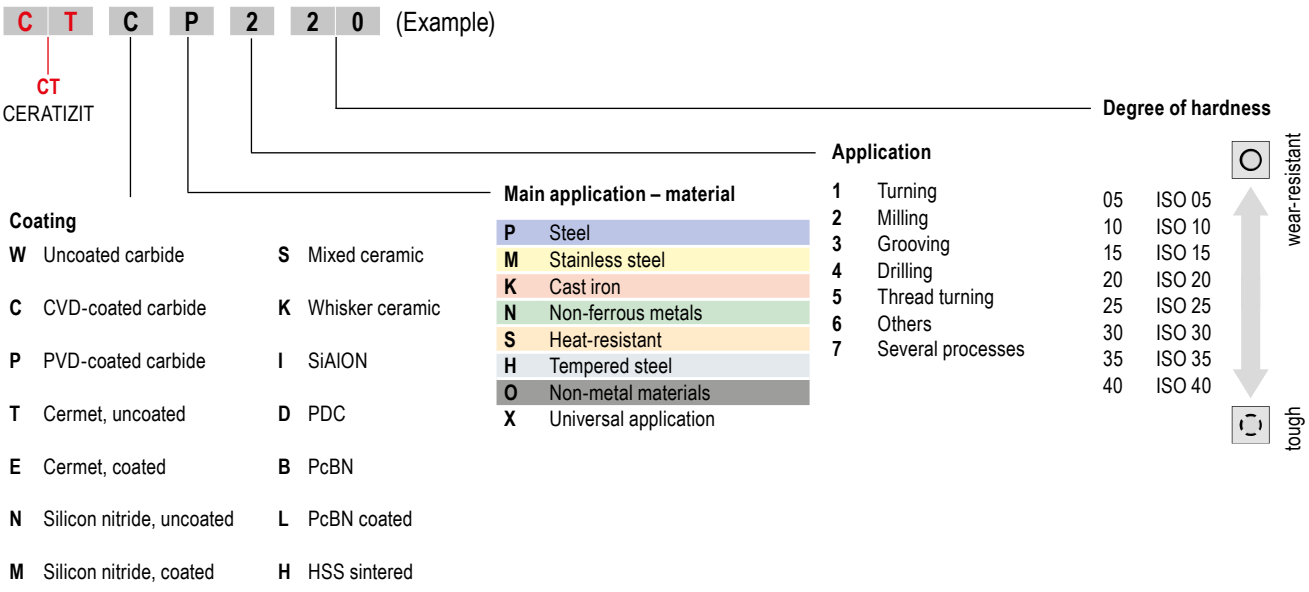


ISO | **P30** | **M30** | **K35** | **N35** | **S15** | H05 | **O10**

Specification:
Composition: Co 10.0%; Others 0.7 %, WC balance | Grain size: 1 µm | Hardness: HV_{30} 1660

Recommended application:
The universal carbide grade for almost all materials

Grade description



New products for machining technicians

NEW High pressure chuck



HyPower – Rough

- For highly dynamic milling operations
- Best results when using tools with a HA shank
- Maximum process security, even for high-quality components
- Developed for the requirements of a wide range of markets (including tool and die production, aerospace and the automotive sector)



HyPower – Access 4,5°

- For reaming and drilling applications as well as finishing during milling operations
- Maximum flexibility when machining components critical to contours
- Developed for the requirements of a wide range of markets (including tool and die production, aerospace and the automotive sector)

NEW PSC parting blade holders and square shank holders with DirectCooling



Our new DirectCooling turning and grooving tool holders in specially tailored PSC adapters. The DirectCooling interface is perfectly adapted and the holders have been specially developed for these tools.

NEW VDI holders with DirectCooling



The VDI holder with DirectCooling is incredibly versatile owing to its 4-in-1 functionality. Thanks to its double tooth profile, only one holder is needed. The clamping rails can be attached at the top or bottom, as an optional extra.

NEW Shell mill adapter



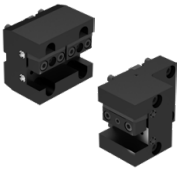
These shell mill adapters, which were developed specially for the MaxiMill 211-KN porcupine cutters, are being added to our product range. Now the porcupine cutters can be securely clamped thanks to the adapted flange diameters.

NEW Torsional vibration dampers with ABS connection



The popular and very useful torsional vibration damper with ABS connection has been supplemented with the PSC interface. This extension is enhancing our complete range and we can now also clamp without an adapter directly on machines with the PSC interface.

NEW BMT holders with DirectCooling



We have expanded our portfolio to include various BMT systems with DirectCooling.



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories **16**

17 Workpiece clamping

18 Material examples and article no. Index

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– VDI adapters for star turrets 10
– VDI adapters for disc turrets 11
– BMT tool holders 12
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Static clamping moments / Centro-P and HDC ER precision collet chucks 313
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Compensation holder DAH 315

WNT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

WNT \ Standard

Quality tools for standard applications.

The quality tools of the **WNT Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Symbol explanation

Coolant supply version


without coolant supply (Form A)


Coolant supply central
Steep taper Form AD


Coolant supply either via the flange, or central (Form AD/B)


with eroded cooling ducts

Direct Cooling
DC = DirectCooling

TG
specially matched adapter for ThermoGrip® shrinking process


Coolant supply centrally or via the collar
with eroded cooling channels


Adapter with two additional coolant holes

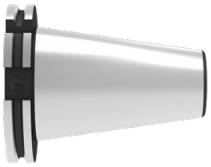

Coolant supply centrally or via the collar
also additional coolant holes


Central coolant supply or via a coolant nozzle

ER-B
2 µm
Collet description
▲ Type version
▲ Radial run-out accuracy

Toolfinder – Machine interface

ISO 7388-1 – SK steep taper holders

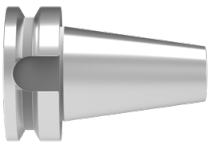


- ▲ SK 30
- ▲ SK 40
- ▲ SK 50
- ▲ SK-FC 50

Toolfinder – Adapters, rotating 6+7
Product programme 14–60

ISO 7388-2 – MAS-BT taper shank

MAS-BT / MAS-BT-FC with face contact

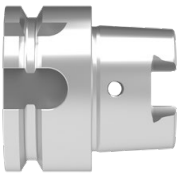


- ▲ BT 30
- ▲ BT 40
- ▲ BT 50
- ▲ BT-FC 30
- ▲ BT-FC 40
- ▲ BT-FC 50

Toolfinder – Adapters, rotating 6+7
MAS-BT product range 61–101 / 110+111
MAS-BT-FC product range 102–109

HSK hollow taper adapters with face contact

ISO 12164 – HSK-A / HSK-E



- ▲ HSK-A 40
- ▲ HSK-A 50
- ▲ HSK-A 63
- ▲ HSK-A 100
- ▲ HSK-E 25
- ▲ HSK-E 32
- ▲ HSK-E 40
- ▲ HSK-E 50

Toolfinder – Adapters, rotating 6+7
HSK-A product range 112–152 / 156
HSK-E product range 153–155

ISO 12164-3 – HSK-T

- ▲ HSK-T 63
- ▲ HSK-T 100

Toolfinder – Adapters, stationary 37+9
Product programme 193–195

ISO 26623-1 – PSC polygon hollow adapters with face contact

PSC, rotating



- ▲ PSC 32
- ▲ PSC 40
- ▲ PSC 50
- ▲ PSC 63
- ▲ PSC 80

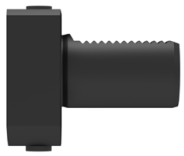
Toolfinder – Adapters, rotating 6+7
Product programme 157–176

PSC, stationary

- ▲ PSC 32
- ▲ PSC 40
- ▲ PSC 50
- ▲ PSC 63
- ▲ PSC 80
- ▲ PSC 80X

Toolfinder – Adapters, stationary 37+9
Product programme 198–204

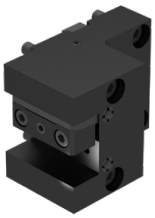
ISO 10889 – VDI tool holders with cylindrical shank



- ▲ VDI 16
- ▲ VDI 20
- ▲ VDI 25
- ▲ VDI 30
- ▲ VDI 40
- ▲ VDI 50

Toolfinder – Adapters, stationary 10+11
Product programme 205–226
Driven Tools 303+304

BMT tool holders



- ▲ Doosan/Spinner – BMT 45
- ▲ Doosan – BMT 55
- ▲ EMAG – BMT 55
- ▲ HAAS/Doosan – BMT 65
- ▲ Mori/Seiki – BMT 40
- ▲ Mori/Seiki – BMT 60
- ▲ Mazak – BMT 68

Toolfinder – Adapters, stationary – BMT tool holders 12
Product programme 227–240

Toolfinder – Adapters, rotating

Holder Type		ISO 7388-1 SK	ISO 7388-1 SK-FC	ISO 7388-2 MAS-BT	ISO 7388-2 MAS-BT-FC	ISO 12164 HSK-A	ISO 12164 HSK-E	ISO 26623-1 PSC	ABS	Morse taper	Cylindrical shank
Accuracy											
Maximum											
ER Precision Collet chuck											
▲ Centro-P		14–16		61–63	102	112–114	153+154	157			252
▲ HDC		17		64	103	115					
HyPower – High Pressure Milling Chuck		18–21		65–68	105	116–119		158			
HyTens – Hydraulic chuck		22+23		69+70	120–122	120+122			177		248+249
Heat Shrink Adapter		30–29		71–75	104	123–130	155	159–161	178		247
Micro-Precision Collet Chuck											250
High											
Cylindrical shank adapter											
▲ Weldon		30–32		76+78	106	131+132		162	179		251
▲ Whistle Notch		33+34		79+80		133		163	180+181		
Indexable insert drill adapter		42		81		134		164			
Collet Chuck											
▲ Precision Collet chuck – PCC		36		82		135					
▲ ER Collet chuck		37+38		83	107	136+137		165+166	182		253+254
Short drill chuck		39		84		138		167	183	243	243
Quick change tapping chuck											
▲ With minimum length compensation		40+41		85+86		139		168	184		244
▲ with length compensation		42		87		140		169	183	245	245
ABS adapters		43+44	45	88–90	108	141+142		170+171	187–191		84 232 ...
Compensation holder DAH		The DAH length compensation chucks are available in our online shop. Technical information on the products can be found on **page 315**.									

Main Application	Finishing	Roughing - Finishing	Roughing
Extended application			

Toolfinder – Adapters, rotating

Holder Type	ISO 7388-1 SK	ISO 7388-1 SK-FC	ISO 7388-2 MAS-BT	ISO 7388-2 MAS-BT-FC	ISO 12164 HSK-A	ISO 12164 HSK-E	ISO 26623-1 PSC	ABS	Morse taper	Cylindrical shank
Accuracy										
Medium										
Adapter for milling cutters with threaded end	46+47		91		143+144		172			255+256
Face mill adapter										
▲ Combination shell mill adapter	48		92		145			186		
▲ Shell mill adapter	49–51		93–95	109	146–148		173	185		
▲ Large diameter facemill adapter	52		96							
Drill chuck adapter									242	
Taper adapter for Morse taper	53		97		149		174		242	
Adapter										
▲ SK	54									
▲ MAS-BT			98							
▲ HSK-A	55		99		150					
▲ PSC	56		100		151		202+203			
Blank	57		101		152		175	192		
Test bar	57		101		152		176			

Main Application		Finishing		Roughing - Finishing		Roughing
Extended application						

16

Toolfinder – Stationary adapters – HSK-T and PSC tool holders

Toolholders for negative turning inserts

	Type Machining	Article no.	Illustration
CN..	DCLN 95° Internal + External	74 503 + 74 504	
	DCMN 95° External	74 506	
	DCMN+ DDMN External	74 600	

All tool holders for negative rotary indexable inserts CN..
can be found in → **Section 9, Turning Tools**

DN..	DCMN+ DDMN External	74 600	
	DDUN 93° Internal + External	74 515 + 74 516	
	DDJN 93° Internal + External	74 511 + 74 512	
	DDHN 107,5° Internal + External	74 507 + 74 508	
	DDMN 48° External	74 519	

All tool holders for negative rotary indexable inserts DN..
can be found in → **Section 9, Turning Tools**

SN..	DSDN 45° External	74 522	
VN..	DVMN 50° External	74 525	
WN..	DWLN 95° Internal + External	74 528 + 74 529	

All tool holders for negative rotary indexable inserts SN.., VN.. and WN..
can be found in → **Section 9, Turning Tools**

Toolholders for positive turning inserts

	Type Machining	Article no.	Illustration
CC..	SCLC 95° Internal + External	74 540 + 74 541	
	SCMC 50° External	74 542	

All tool holders for positive rotary indexable inserts CC..
can be found in → **Section 9, Turning Tools**

DC..	SDJC 93° Internal + External	74 543 + 74 544	
	SDNC 62,5° Internal + External	74 677	
	SDMC 48° External	74 546	

All tool holders for positive rotary indexable inserts DC..
can be found in → **Section 9, Turning Tools**

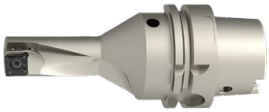
RC..	PRDC 0° External	74 548	
	PRSC Internal + External	74 551 + 74 552	

All tool holders for positive rotary indexable inserts RC..
can be found in → **Section 9, Turning Tools**

VC..	SVUC 93° Internal + External	74 557 + 74 558	
	SVJC 93° Internal + External	74 555 + 74 556	
	SVHC 107,5° Internal + External	74 553 + 74 554	
	SVMC 50° External	74 560	

All tool holders for positive rotary indexable inserts VC..
can be found in → **Section 9, Turning Tools**

You can find more information on the multifunction tool EcoCut in
→ **Section 10, Multifunctional Tools – EcoCut and FreeTurn**



2,25xD

Toolfinder – Stationary adapters – HSK-T and PSC tool holders

Holders for grooving and threading inserts

Type	Article no.	Illustration
0°	74 580 + 74 581	

All tool holders for grooving and threading inserts can be found in
→ **Section 11, Grooving tools**

Toolholders for threading inserts

Type	Article no.	Illustration
Internal thread	84 196 + 84 197	
External thread	84 190 + 84 191	

All tool holders for threading inserts can be found in
→ **Section 8, Thread turning**

Boring bars for negative inserts

	Type	Article no.	Illustration
 CN..	DCLN 95°	74 528 + 74 529	
 DN..	DDUN 93°	74 532 + 74 533	
 WN..	DWLN 95°	74 536 + 74 537	

All boring bars for negative indexable inserts can be found in
→ **Section 9, Turning Tools**

Boring bars for positive inserts

	Type	Article no.	Illustration
 CC..	SCLC 95°	74 563 + 74 564	
 DC..	SDUC 93°	74 565 + 74 566	
 VC..	SVUC 93°	74 567 + 74 568	
	SVQC 107,5°	70 748 + 70 749	

All boring bars for positive indexable inserts can be found in
→ **Section 9, Turning Tools**

Basic holder

Type	Illustration		HSK-T ISO 12164	PSC ISO 26623
Square shank holder 0°		Direct Cooling	194+195	196
				198
Square shank holder 45°		Direct Cooling	194+195	197
				199
Square shank holder 90°		Direct Cooling	194+195	197
				198
Square shank holder 2 face 0°				199
Square shank holder 3 face 0°			195	199
Boring bar holder			195	200

Parting blade holders

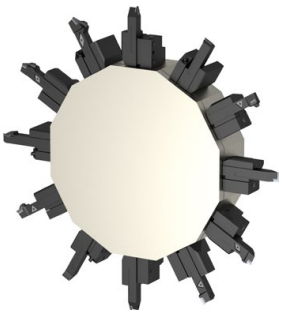
Type	Illustration		HSK-T ISO 12164	PSC ISO 26623
Parting blade holder 0°		Direct Cooling	193	196
Parting blade holder 90°		Direct Cooling	193	196
				198

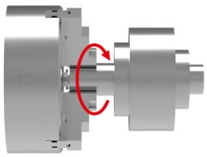
Accessories

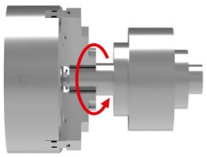
Protection plug		204
Hollow nose keys		204

16

Toolfinder – Stationary adapters – VDI adapters for star turrets







Toolholders above

Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	**Square Shank Adapters / DirectCooling**	B2/B3/B6/B7/C1/C2/D1/D2	205–207 209–212	B2/B3/B6/B7/C3/C4/D1/D2	205–207 209–212
	**Parting blade holders / DirectCooling**	double	208 216+217	double – overhead	208 216+217
	**Adapter VDI to VDI**	Left-hand	222	Left-hand	222
	**Boring bar holder**	Left-hand	222	Left-hand	222

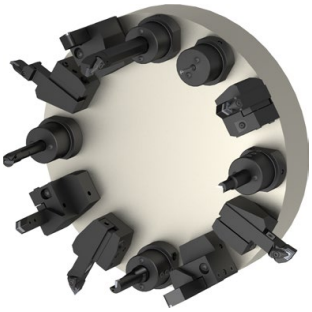
Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	**Square Shank Adapters / DirectCooling**	B2/B3/B6/B7/C3/C4/D1/D2	205–207 209–212	B2/B3/B6/B7/C1/C2/D1/D2	205–207 209–212
	**Parting blade holders / DirectCooling**	double – overhead	208 216+217	double	208 216+217
	**Adapter VDI to VDI**	Right-hand	222	Right-hand	222
	**Boring bar holder**	Right-hand	222	Right-hand	222

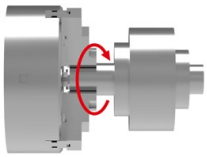
Toolholders below

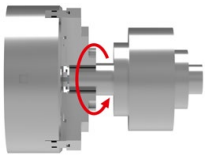
Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	**Square Shank Adapters / DirectCooling**	B2/B3/B6/B7/C3/C4/D1/D2	205–207 209–212	B2/B3/B6/B7/C1/C2/D1/D2	205–207 209–212
	**Parting blade holders / DirectCooling**	double	208 216+217	double – overhead	208 216+217
	**Adapter VDI to VDI**	Right-hand	222	Right-hand	222
	**Boring bar holder**	Right-hand	222	Right-hand	222

Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	**Square Shank Adapters / DirectCooling**	B2/B3/B6/B7/C1/C2/D1/D2	205–207 209–212	B2/B3/B6/B7/C3/C4/D1/D2	205–207 209–212
	**Parting blade holders / DirectCooling**	double – overhead	208 216+217	double	208 216+217
	**Adapter VDI to VDI**	Left-hand	222	Left-hand	222
	**Boring bar holder**	Left-hand	222	Left-hand	222

Toolfinder – Stationary adapters – VDI adapters for disc turrets







Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters / DirectCooling	B1/B5/C1/C2/D1	205–207 209–212	B3/B7/C3/C4/D2	205–207 209–212
	Part Off Holder	Right-hand	208 216+217	Overhead right	208 216+217

Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	Square Shank Adapters / DirectCooling	B4/B8/C3/C4/D2	205–207 209–212	B2/B6/C1/C2/D1	205–207 209–212
	Part Off Holder	Overhead left	208 216+217	Left-hand	208 216+217

General VDI adapters			
	Cylindrical Shank Adapters	E/E1/E2/E3/E4	212–214
	Taper Adapters	F1	215
	Short drill chuck	NC 2010	218
	ER Collet chuck		215
	Hydraulic chuck		219
	VDI to PSC adapter		223
	VDI to HSK-T adapter		224
	VDI adapter with ABS-N connection	This article can be found in our online shop at cuttingtools.ceratizit.com	84 231 ...

Accessories		
	Test arbors	220
	Tool holders	220
	Bar pullers	225
	Gripper accessories	226
	Protection plug	226

16

Toolfinder – Adapters, stationary – BMT tool holders

Doosan/Spinner – BMT 45

	**Axial square section tool holder**	Left-hand	Direct Cooling	227
	**Square section adapter**	Left-hand	Direct Cooling	227
	**Square multiple tool holder**		Direct Cooling	228
	**Combi tool holder**	with thro' coolant		228

Mori/Seiki – BMT 40

	**Axial square section tool holder**	Left-hand	Direct Cooling	235
	**Square section adapter**	Left-hand	Direct Cooling	235
	**Square multiple tool holder**		Direct Cooling	236
	**Combi tool holder**	with thro' coolant		236

Doosan – BMT 55

	**Axial square section tool holder**	Left-hand	Direct Cooling	229
	**Square section adapter**	Left-hand	Direct Cooling	229
	**Square multiple tool holder**		Direct Cooling	230
	**Boring bar holder**	with thro' coolant		230

Mori/Seiki – BMT 60

	**Axial square section tool holder**	Left-hand	Direct Cooling	237
	**Square section adapter**	Left-hand	Direct Cooling	237
	**Square multiple tool holder**		Direct Cooling	238
	**Combi tool holder**	with thro' coolant		238

EMAG – BMT 55

	**Axial square section tool holder**	Left-hand	Direct Cooling	231
	**Square section adapter**	Left-hand	Direct Cooling	231
	**Boring bar holder**	with thro' coolant		232

HAAS/Doosan – BMT 65

	**Axial square section tool holder**	Left-hand	Direct Cooling	233
	**Square section adapter**	Left-hand	Direct Cooling	233
	**Square multiple tool holder**		Direct Cooling	234
	**Combi tool holder**	with thro' coolant		234

Mazak – BMT 68

	**Axial square section tool holder**	Left-hand	Direct Cooling	239
	**Square section adapter**	Left-hand	Direct Cooling	239
	**Square multiple tool holder**		Direct Cooling	240
	**Combi tool holder**	with thro' coolant		240

Toolfinder – accessories

Type			Page No.
Pull stud	SK		58–60
	MAS-BT		110+111
	PSC		176
Coolant pipe/key	HSK-A		156
	PSC		176
Drill chuck with internal taper			241
Tap clamping sleeve for Weldon adapters			246
Extension for Shell mill arbors			262
Milling adapter ring			263
Lock nuts ER-Standard and ER-Mini			287
Y clamping key and ER-Mini clamping key			287
Spare parts Centro-P			285
Roll key			286
ER collets			268–278
Sealing discs			280+281

Type		Page No.
Spare parts for VDI		264–266
Spare parts driven tools		267
Quick change applications		288–292
Reduction sleeve and reducing bushings		282+283
3D tester and zero setting device		299+300
Cleaning propeller		302
TORX® screwdrivers, TORX® interchangeable blades, TORX® bit holders and adapters		294–298
Assembly device for SK, HSK and PSC adapters		284
MultiChange – Holder		259–261
MultiChange key		293
Cool-jet		301
Taper wiper		284

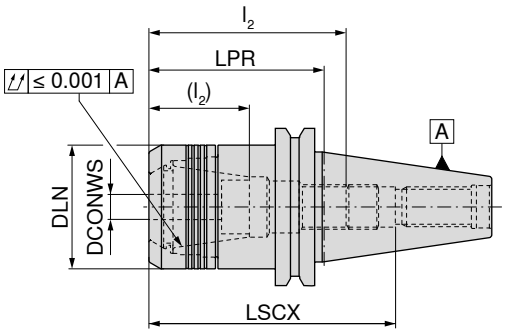
16

ER Precision Collet chuck – Centro-P

- ▲ for standard or sealed nuts
- ▲ maximum size collet to ISO tolerance field H10
- ▲ for clamping a roll key is required
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Holder **without** nut, **without** backstop







AD
G 2,5 n_{max} 25000



AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	84 424 ... £ Y8		84 414 ... £ Y8	
SK 30	2 - 16	70	40	66	35 - 49 (18 - 31)	430E (ER25)	296.33	**016**		
SK 40	1 - 10	70	30	110	28 - 45 (16 - 31)	426E (ER16)	244.82	**102**		
SK 40	1 - 10	100	30	140	28 - 45 (16 - 31)	426E (ER16)	301.49	**103**		
SK 40	1 - 10	130	30	140	28 - 50 (14 - 34)	426E (ER16)			304.86	**510**
SK 40	1 - 10	160	30	200	28 - 45 (16 - 31)	426E (ER16)			336.47	**910**
SK 40	2 - 16	45	40	85	35 - 60 (20 - 42)	430E (ER25)			276.86	**816**
SK 40	2 - 16	70	40	110	35 - 60 (20 - 42)	430E (ER25)	226.23	**162**		
SK 40	2 - 16	100	40	113	35 - 60 (20 - 42)	430E (ER25)	301.49	**163**		
SK 40	2 - 16	130	40	140	38 - 67 (21 - 49)	430E (ER25)			331.33	**516**
SK 40	2 - 16	160	40	118	35 - 60 (20 - 42)	430E (ER25)			349.05	**916**
SK 40	2 - 20	50	50	85	52 - 70 (26 - 52)	470E (ER32)	297.62	**201**		
SK 40	2 - 20	70	50	111	55 - 75 (42 - 62)	470E (ER32)	211.13	**202**		
SK 40	2 - 20	100	50	114	52 - 70 (32 - 52)	470E (ER32)	301.49	**203**		
SK 40	2 - 20	130	50	114	50 - 74 (36 - 55)	470E (ER32)			331.33	**620**
SK 40	2 - 20	160	50	119	52 - 70 (32 - 52)	470E (ER32)			349.05	**920**
SK 40	3 - 26	70	63	105	48 - 55	472E (ER40)	339.04	**261** [1)]		
SK 50	2 - 16	100	40	150	35 - 64 (20 - 48)	430E (ER25)	565.05	**167**		
SK 50	2 - 20	70	50	120	59 - 85 (40 - 70)	470E (ER32)			502.64	**320**
SK 50	2 - 20	100	50	150	53 - 81 (35 - 63)	470E (ER32)			567.09	**520**
SK 50	2 - 20	130	50	150	53 - 81 (35 - 63)	470E (ER32)			498.22	**52100**
SK 50	2 - 20	160	50	200	53 - 83 (35 - 65)	470E (ER32)			923.71	**720**
SK 50	3 - 26	70	63	120	48 - 60	472E (ER40)			508.54	**26600**
SK 50	3 - 26	100	63	90	48 - 70	472E (ER40)			421.56	**26700**
SK 50	3 - 26	130	63	90	47 - 57	472E (ER40)			518.38	**26800**
SK 50	3 - 26	160	63	90	47 - 57	472E (ER40)			595.06	**26900**

1) Non standard groove before tool change collar not according to DIN, not suitable for automatic tool change

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 3 mm longer

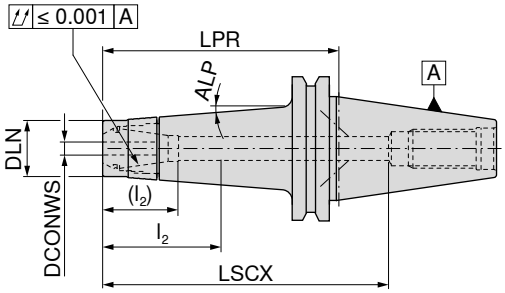
Spare parts
ER precision collet chuck – Centro-P

Spare parts for collet	Lock nut IK 84 950 ... £ Y8		Lock nut 84 950 ... £ Y8			Stop screw 2 83 950 ... £ Y8			Stop screw 1 83 950 ... £ Y8	
426E (ER16)	96.95	011	72.00	001	M11x1 - SW6	60.14	341	M11x1 - SW6	40.28	337
430E (ER25)	108.06	013	80.00	003	M18x1,5 - SW6	42.31	432	M18x1,5 - SW6	30.17	431
470E (ER32)	115.55	015	88.00	005	M22x1,5 - SW6	35.73	402	M22x1,5 - SW6	26.03	401
472E (ER40)	158.03	017	128.02	007				M28x1,5 - SW6	36.47	400

ER Precision tapered collet chuck – Centro-P

- ▲ for special tapered nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** nut, **without** backstop







AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	ALP	84 417 ... £ Y8	
SK 40	1 - 10	100	24	140	28 - 48 (20 - 35)	426E (ER16)	4.5°	329.91	410
SK 40	1 - 10	130	24	105	28 - 48 (20 - 35)	426E (ER16)	3.5°	290.47	61000
SK 40	1 - 10	160	24	200	28 - 48 (20 - 35)	426E (ER16)	2.5°	395.83	910

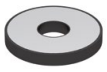
→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

Spare parts for collet	Tapered lock nut IK 84 950 ... £ Y8		Tapered lock nut 84 950 ... £ Y8			Stop screw 2 83 950 ... £ Y8			Stop screw 1 83 950 ... £ Y8	
426E (ER16)	119.03	033	100.56	031	M11x1 - SW6	60.14	341	M11x1 - SW6	40.28	337

Accessories


ER collet
→ 268–276, 279


Sealing ring
→ 280


Roll key
→ 286


Roll key device
→ 286


Pull studs
→ 58, 60

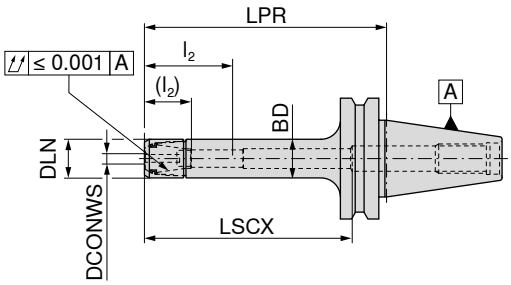

Others
→ 284

16

ER Precision collet chuck, slim version – Centro-P

- ▲ for Mini Clamping Nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** nut, **without** backstop







AD/B
G 2,5 n_{max} 25000

84 412 ...

Adapter	DCONWS mm	LPR mm	DLN mm	BD mm	LSCX mm	l_2 (l_2) mm	for collet	£ Y8	
SK 40	1 - 7	70	16	16	60	15 - 32 (7 - 22)	4008E (ER11)	308.86	**207**
SK 40	1 - 7	100	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	318.75	**407**
SK 40	1 - 7	130	16	16	110	15 - 32 (7 - 22)	4008E (ER11)	411.70	**607**
SK 40	1 - 7	160	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	429.90	**907**
SK 40	1 - 10	70	22	22	90	28 - 50 (14 - 36)	426E (ER16)	308.86	**210**
SK 40	1 - 10	100	22	22	110	28 - 50 (14 - 36)	426E (ER16)	308.86	**310**
SK 40	1 - 10	130	22	22	140	28 - 50 (14 - 36)	426E (ER16)	411.70	**410**
SK 40	1 - 10	160	22	22	170	28 - 50 (14 - 36)	426E (ER16)	411.70	**510**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer


Mini lock nut IK


Mini lock nut

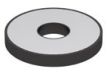

Stop screw 2


Stop screw 1

	84 950 ...		**84 950 ...**			**83 950 ...**			**83 950 ...**	
Spare parts for collet	£ Y8		£ Y8			£ Y8			£ Y8	
4008E (ER11)			100.56	**041**	M8x1 - SW4	57.32	**340**	M8x1 - SW4	38.17	**336**
426E (ER16)	97.92	**035**	80.34	**034**	M11x1 - SW6	60.14	**341**	M11x1 - SW6	40.28	**337**

Accessories


ER collet
→ 268–276, 279


Sealing ring
→ 280


Device
→ 285


Roll key
→ 286


Roll key device
→ 286


Pull studs
→ 58, 60

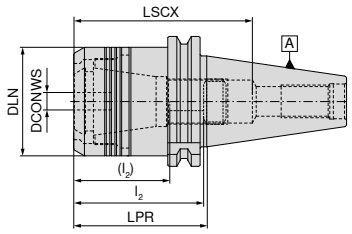

Others
→ 284

ER precision collet chuck – HDC

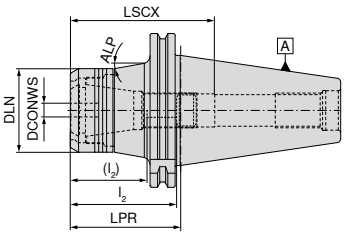
- ▲ HDC = Heavy Duty Chuck, an adapter specially designed for rough machining
- ▲ For heavy duty lock nut
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body **including** lock nut, **without** backstop screw



cylindrical



Conical





AD
G 6,3 n_{max} 18000
cylindrical



AD
G 6,3 n_{max} 18000
conical

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	ALP °	for collet	84 400 ... £ Y8		84 400 ... £ Y8	
SK 40	2 - 20	65	53	85	41 - 65 (27 - 47)		470E (ER32)	412.55	**12079**		
SK 50	2 - 20	70	53	91	41 - 71 (27 - 53)	10	470E (ER32)			663.10	**12078**
SK 50	2 - 20	100	53	121	41 - 74 (27 - 56)	10	470E (ER32)			774.48	**22078**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without backstop screw
l_2 = Clamping depth backstop screw 1, dimension in brackets (l_2) = Clamping depth backstop screw 2



Lock nut



Stop screw 2



Stop screw 1

Spare parts DCONWS	84 950 ... £ Y8		83 950 ... £ Y8		83 950 ... £ Y8	
2 - 20	134.15	**30100**	M22x1,5 - SW6	35.73	**402**	M22x1,5 - SW6	26.03	**401**

Accessories



ER collet
→ 268–276, 278–279



Roll key
→ 286



Roll key device
→ 286



Pull studs
→ 58, 60



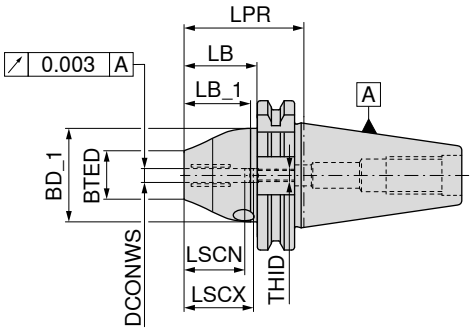
Others
→ 284

16

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw





NEW



AD/B
G 2,5 n_{max} 25000

84 254 ...

Adapter	DCONWS	LPR	BTED	BD_1	LB_1	LB	LSCX	LSCN	THID	£	
	mm	mm	mm	mm	mm	mm	mm	mm		Y8	
SK 40	6	50.0	26	42	27.1	30.9	37	27	M5	691.08	**10679**
SK 40	8	50.0	28	42	27.1	30.9	37	27	M6	691.08	**10879**
SK 40	10	50.0	30	42	27.1	30.9	41	31	M8x1	691.08	**11079**
SK 40	12	50.0	32	49	27.1	30.9	46	36	M10x1	691.08	**11279**
SK 40	16	64.5	38	49	41.6	45.4	49	39	M12x1	691.08	**11679**
SK 40	20	64.5	38	49	41.6	45.4	51	41	M16x1	691.08	**12079**

→ Min. clamping depth, Page 312


Clamping key – T

80 397 ...


Pressure screw

83 950 ...


Stop screw IK

83 950 ...

Spare parts DCONWS		£ Y7			£ Y8			£ Y7	
6	SW5	8.11	**050**	M10x12	13.60	**55000**	M5x12,5 - SW2,5	25.16	**418**
8	SW5	8.11	**050**	M10x12	13.60	**55000**	M6x12,5 - SW3	25.16	**419**
10	SW5	8.11	**050**	M10x12	13.60	**55000**	M8x1x13,5 - SW3	25.16	**420**
12	SW5	8.11	**050**	M10x12	13.60	**55000**	M10x1x13,5 - SW5	25.16	**421**
16	SW5	8.11	**050**	M10x12	13.60	**55000**	M12x1x13,5 - SW5	25.16	**422**
20	SW5	8.11	**050**	M10x12	13.60	**55000**	M16x1x13,5 - SW8	29.02	**424**

Accessories


Reduction sleeve
→ 282

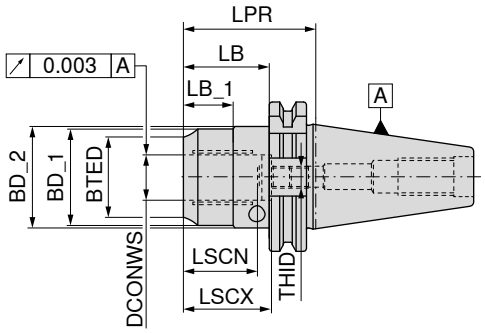

Pull studs
→ 58, 60


Others
→ 284

HyPower – Complus

▲ High pressure chuck, short and stable version
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw





NEW



AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB mm	LB_1 mm	LSCX mm	LSCN mm	THID	83 427 ... £ Y8	
SK 40	20	64.5	38					51	40	M16x1x13,5	450.95	**120**
SK 40	32	81.0	57	63	70	61.9	26	61	51	M16x1x13,5	544.37	**13279**
SK 50	20	64.5	38	49		45.4		51	41	M16x1x13,5	646.71	**12078**
SK 50	32	81.0	57	68	72	61.9	35	61	51	M16x1x13,5	646.71	**13278**

→ Min. clamping depth, Page 312


Cylindrical screw


Clamping key – T


Pressure screw


Stop screw IK

Spare parts for Article no.		83 950 ... £ Y7			80 397 ... £ Y7			83 950 ... £ Y7			83 950 ... £ Y7	
83 427 13279	M5x5 - SW2,5	3.85	**157**	SW5	8.11	**050**	M10x1x14	11.52	**429**	M16x1x13,5 - SW8	29.02	**424**
83 427 12078	M5x5 - SW2,5	3.85	**157**	SW5	8.11	**050**	M10x1x14	11.52	**429**	M16x1x13,5 - SW8	29.02	**424**
83 427 13278	M5x5 - SW2,5	3.85	**157**	SW5	8.11	**050**	M10x1x14	11.52	**429**	M16x1x13,5 - SW8	29.02	**424**

Accessories


Reduction sleeve
→ 282

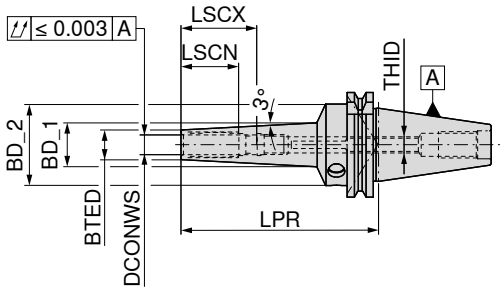

Pull studs
→ 58, 60


Others
→ 284

HyPower – Access 3°

▲ High pressure chuck, slim 3°
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw, pressure screw and screw plug







AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	THID	83 421 ... £ Y8	
medium length	SK 40	3	120	9	17.40	49.5	28	12	M3	860.56	103
	SK 40	4	120	10	18.40	49.5	28	16	M3	860.56	104
	SK 40	5	120	11	19.40	49.5	28	20	M3	860.56	105
	SK 40	6	120	12	20.40	49.5	37	27	M5	734.05	106
	SK 40	8	120	14	22.40	49.5	37	27	M6	734.05	108
	SK 40	10	120	16	24.50	49.5	41	31	M8x1	734.05	110
	SK 40	12	120	18	26.60	49.5	46	36	M10x1	734.05	112
	SK 40	16	120	24	32.30	49.5	49	39	M12x1	1,062.45	116
	SK 40	20	120	28	36.40	49.5	51	41	M16x1	1,062.45	120
	SK 40	6	160	16	34.37	49.5	37	27	M5	1,056.80	206
	SK 40	8	160	18	35.45	49.5	37	27	M6	1,056.80	208
	SK 40	10	160	20	37.10	49.5	41	31	M8x1	1,056.80	210
	SK 40	12	160	22	38.72	49.5	46	36	M10x1	1,056.80	212
	SK 40	6	200	16	38.72	49.5	37	27	M5	1,250.89	306
	SK 40	8	200	18	39.74	49.5	37	27	M6	1,250.89	308
	SK 40	10	200	20	41.40	49.5	41	31	M8x1	1,250.89	310
	SK 40	12	200	22	43.02	49.5	46	36	M10x1	1,250.89	312

→ Min. clamping depth, Page 312


Cylindrical screw


Clamping key – T


Pressure screw

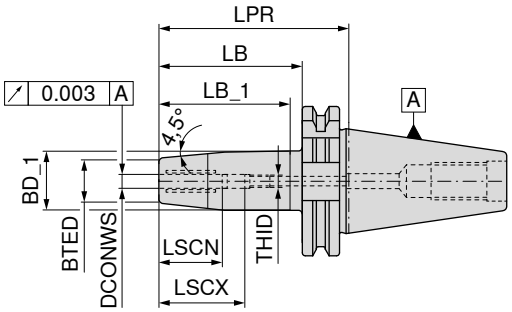

Stop screw IK

Spare parts for Article no.	83 950 ...	£ Y7		80 397 ...	£ Y7		83 950 ...	£ Y7		83 950 ...	£ Y7	
83 421 103	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M3x20 - SW1,5	17.47	172
83 421 104	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M3x20 - SW1,5	17.47	172
83 421 105	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M3x20 - SW1,5	17.47	172
83 421 106	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M5x12,5 - SW2,5	25.16	418
83 421 108	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M6x12,5 - SW3	25.16	419
83 421 110	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M8x1x13,5 - SW3	25.16	420
83 421 112	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M10x1x13,5 - SW5	25.16	421
83 421 116	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M12x1x13,5 - SW5	25.16	422
83 421 120	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M16x1x13,5 - SW8	29.02	424
83 421 206	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M5x12,5 - SW2,5	25.16	418
83 421 208	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M6x12,5 - SW3	25.16	419
83 421 210	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M8x1x13,5 - SW3	25.16	420
83 421 212	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M8x1x13,5 - SW3	25.16	420
83 421 306	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M5x12,5 - SW2,5	25.16	418
83 421 308	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M6x12,5 - SW3	25.16	419
83 421 310	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M8x1x13,5 - SW3	25.16	420
83 421 312	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M8x1x13,5 - SW3	25.16	420

HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw





NEW



AD/B
G 2,5 n_{max} 25000

84 255 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	£ Y8	
SK 40	6	80	21	27	55.7	60.9	37	27	M5	827.03	**10679**
SK 40	8	80	21	27	55.7	60.9	37	27	M6	827.03	**10879**
SK 40	10	80	24	32	55.7	60.9	41	31	M8x1	827.03	**11079**
SK 40	12	80	24	32	55.7	60.9	46	36	M10x1	827.03	**11279**
SK 40	16	80	27	34	55.8	60.9	49	39	M12x1	827.03	**11679**
SK 40	20	80	33	42	57.2	60.9	51	41	M16x1	827.03	**12079**

→ Min. clamping depth, Page 312


Clamping key – T

80 397 ...


Pressure screw

83 950 ...


Stop screw IK

83 950 ...

Spare parts DCONWS		£ Y7			£ Y8			£ Y7	
6	SW5	8.11	**050**	M10x12	13.60	**55000**	M5x12,5 - SW2,5	25.16	**418**
8	SW5	8.11	**050**	M10x12	13.60	**55000**	M6x12,5 - SW3	25.16	**419**
10	SW5	8.11	**050**	M10x12	13.60	**55000**	M8x1x13,5 - SW3	25.16	**420**
12	SW5	8.11	**050**	M10x12	13.60	**55000**	M10x1x13,5 - SW5	25.16	**421**
16	SW5	8.11	**050**	M10x12	13.60	**55000**	M12x1x13,5 - SW5	25.16	**422**
20	SW5	8.11	**050**	M10x12	13.60	**55000**	M16x1x13,5 - SW8	29.02	**424**

Accessories


Reduction sleeve
→ 282

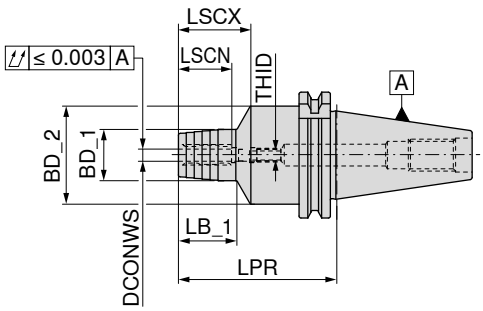

Pull studs
→ 58, 60


Others
→ 284

HyTens – Fit

▲ Hydraulic chuck, short and slim version
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw





AD/B
G 2,5 n_{max} 25000

83 402 ...

Adapter	DCONWS mm	LPR mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	LB_1 mm	THID	£ Y8	
SK 40	6	80.5	26	49.5	37	27	29.5	M5	876.59	**106**
SK 40	8	80.5	28	49.5	37	27	30.0	M6	876.59	**108**
SK 40	10	80.5	30	49.5	41	31	35.0	M8x1	876.59	**110**
SK 40	12	80.5	32	49.5	46	36	40.0	M10x1	766.28	**112**
SK 40	16	80.5	38	49.5	49	39	45.0	M12x1	876.59	**116**
SK 40	20	80.5	42	49.5	51	41	47.0	M16x1	766.28	**120**
SK 40	25	80.5	55	63.0	57	47	28.0	M16x1	876.59	**125**
SK 40	32	80.5	63	70.0	61	51	25.5	M16x1	876.59	**132**
SK 50	6	80.5	26	49.5	37	27	29.5	M5	1,226.81	**306**
SK 50	8	80.5	28	49.5	37	27	30.0	M6	1,226.81	**308**
SK 50	10	80.5	30	49.5	41	31	35.0	M8x1	1,226.81	**310**
SK 50	12	80.5	32	49.5	46	36	40.0	M10x1	1,114.58	**312**
SK 50	16	80.5	38	49.5	49	39	45.0	M12x1	1,226.81	**316**
SK 50	20	80.5	42	49.5	51	41	42.0	M16x1	1,114.58	**320**
SK 50	25	100.0	55	63.0	57	47	48.0	M16x1	1,226.81	**325**
SK 50	32	100.0	63	70.0	61	51	51.0	M16x1	1,226.81	**332**

→ Min. clamping depth, Page 312


Pressure screw


Stop screw IK


Stop screw IK

Spare parts DCONWS		83 950 ... £ Y7			83 950 ... £ Y7			83 950 ... £ Y7	
6	M8x1x10	17.42	**439**				M5x12,5 - SW2,5	25.16	**418**
8	M8x1x10	17.42	**439**	M6x14 - SW2	25.16	**417**	M6x12,5 - SW3	25.16	**419**
10	M10x1x12	17.42	**440**				M8x1x13,5 - SW3	25.16	**420**
12	M10x1x12	17.42	**440**				M10x1x13,5 - SW5	25.16	**421**
16	M10x1x12	17.42	**440**				M12x1x13,5 - SW5	25.16	**422**
20 - 32	M10x1x12	17.42	**440**				M16x1x13,5 - SW8	29.02	**424**

Accessories


Reduction sleeve
→ 282

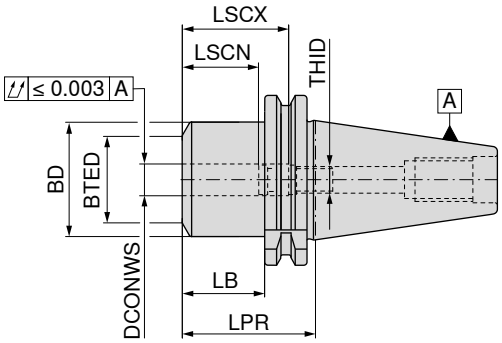

Pull studs
→ 58, 60

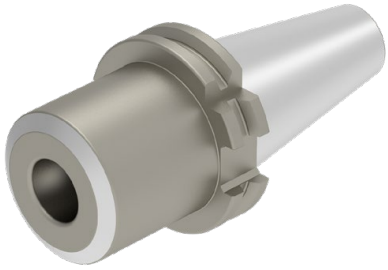

Others
→ 284

HyTens – Compact

▲ Hydraulic chuck, short and stable version
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw







AD
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BD mm	BTED mm	LB mm	LSCN mm	LSCX mm	THID		83 430 ... £ Y8	
SK 40	12	50.0	42	32	31.0	46	56	M8x1		395.61	**01279**
SK 40	20	64.5	49	38	45.5	41	51	M16x1		395.61	**02079**
SK 50	20	64.5	49	38	45.5	41	51	M16x1		707.06	**02078**

→ Min. clamping depth, Page 312


Clamping key – T


Pressure screw

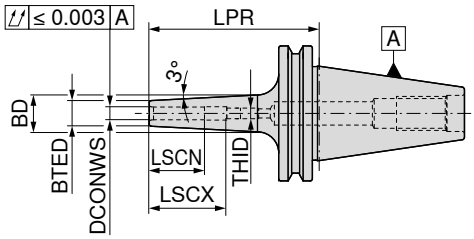

Stop screw IK

Spare parts DCONWS		80 397 ... £ Y7		83 950 ... £ Y7		83 950 ... £ Y7	
12	SW5	8.11	**050**	M10x1x12	17.42	**440**	M8x1x13,5 - SW3	25.16	**420**
20	SW5	8.11	**050**	M10x1x12	17.42	**440**	M16x1x13,5 - SW8	29.02	**424**

Heat shrink adapter, slim 3°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG







AD/B
G 2,5 n_{max} 25000

84 320 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	£ Y8	
short	SK 40	3	80	9	14	28	12	M6	672.01	**103**
	SK 40	4	80	10	15	28	16	M6	652.80	**104**
	SK 40	5	80	11	16	30	20	M6	652.80	**105**
	SK 40	6	80	12	17	36	26	M5	571.19	**106**
	SK 40	8	80	14	19	36	26	M6	571.19	**108**
	SK 40	10	80	16	21	41	31	M8x1	571.19	**110**
	SK 40	12	80	18	23	47	37	M10x1	571.19	**112**
	SK 40	14	80	20	26	47	37	M10x1	571.19	**114**
	SK 40	16	80	22	28	50	40	M12x1	571.19	**116**
	SK 40	18	80	24	30	50	40	M12x1	571.19	**118**
	SK 40	20	80	26	32	52	42	M16x1	571.19	**120**
medium length	SK 40	3	120	9	16	12	12		753.61	**203**
	SK 40	4	120	10	17	16	16		734.40	**204**
	SK 40	5	120	11	18	20	20		734.40	**205**
	SK 40	6	120	12	22	36	26	M5	657.61	**206**
	SK 40	8	120	14	24	36	26	M6	657.61	**208**
	SK 40	10	120	16	26	41	31	M8x1	657.61	**210**
	SK 40	12	120	18	28	47	37	M10x1	657.61	**212**
	SK 40	14	120	20	30	47	37	M10x1	657.61	**214**
	SK 40	16	120	22	32	50	40	M12x1	657.61	**216**
	SK 40	18	120	24	34	50	40	M12x1	657.61	**218**
	SK 40	20	120	26	36	52	42	M16x1	657.61	**220**
extra-long	SK 40	3	160	9	19	12	12		854.41	**303**
	SK 40	4	160	10	20	16	16		835.20	**304**
	SK 40	5	160	11	21	20	20		835.20	**305**
	SK 40	6	160	12	24	36	26	M5	758.43	**306**
	SK 40	8	160	14	26	36	26	M6	758.43	**308**
	SK 40	10	160	16	28	41	31	M8x1	758.43	**310**
	SK 40	12	160	18	30	47	37	M10x1	758.43	**312**
	SK 40	14	160	20	32	47	37	M10x1	758.43	**314**
	SK 40	16	160	22	34	50	40	M12x1	758.43	**316**
	SK 40	18	160	24	36	50	40	M12x1	758.43	**318**
	SK 40	20	160	26	38	52	42	M16x1	758.43	**320**

→ Min. clamping depth, Page 312



Stop screw IK



Stop screw IK

83 950 ...

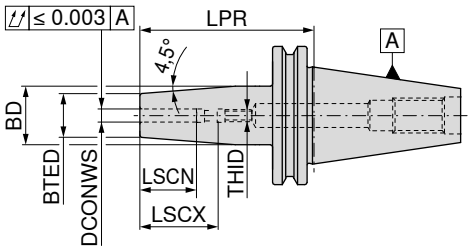
83 950 ...

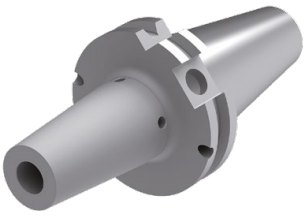
Spare parts DCONWS		£ Y7			£ Y7	
3 - 5	M6x14 - SW2	25.16	**417**			
6				M5x12,5 - SW2,5	25.16	**418**
8				M6x12,5 - SW3	25.16	**419**
10				M8x1x13,5 - SW3	25.16	**420**
12 - 14				M10x1x13,5 - SW5	25.16	**421**
16 - 18				M12x1x13,5 - SW5	25.16	**422**
20				M16x1x13,5 - SW8	29.02	**424**

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG







AD/B
G 2,5 n_{max} 25000

84 300 ...

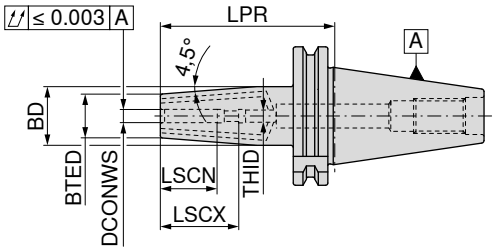
	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	£ Y8	
short	SK 40	3	80	10	17	22	12	M6	257.42	103
	SK 40	4	80	15	22	26	16	M6	257.42	104
	SK 40	5	80	15	22	30	20	M6	257.42	105
	SK 40	6	80	21	27	36	26	M5	246.81	106
	SK 40	8	80	21	27	26	26	M6	246.81	108
	SK 40	10	80	24	32	41	31	M8x1	246.81	110
	SK 40	12	80	24	32	47	37	M10x1	246.81	112
	SK 40	14	80	27	34	47	37	M10x1	246.81	114
	SK 40	16	80	27	34	50	40	M12x1	246.81	116
	SK 40	18	80	33	42	50	40	M12x1	246.81	118
	SK 40	20	80	33	42	52	42	M16x1	246.81	120
	SK 40	25	100	44	53	58	48	M16x1	246.81	125
medium length	SK 40	3	120	10	20	12	12		317.58	203
	SK 40	4	120	15	22	16	16		319.12	204
	SK 40	5	120	15	22	20	20		319.12	205
	SK 40	6	120	21	27	36	26	M5	318.70	206
	SK 40	8	120	21	27	36	26	M6	318.70	208
	SK 40	10	120	24	32	41	31	M8x1	318.70	210
	SK 40	12	120	24	32	47	37	M10x1	318.70	212
	SK 40	14	120	27	34	47	37	M10x1	318.70	214
	SK 40	16	120	27	34	50	40	M12x1	318.70	216
	SK 40	18	120	33	42	50	40	M12x1	318.70	218
	SK 40	20	120	33	42	52	42	M16x1	318.70	220
	SK 40	25	120	44	53	58	48	M16x1	595.20	225
extra-long	SK 40	3	160	10	20	12	12		432.57	303
	SK 40	4	160	15	22	16	16		422.62	304
	SK 40	5	160	15	22	20	20		422.62	305
	SK 40	6	160	21	27	36	26	M5	381.05	306
	SK 40	8	160	21	27	36	26	M6	381.05	308
	SK 40	10	160	24	32	41	31	M8x1	381.05	310
	SK 40	12	160	24	32	47	37	M10x1	381.05	312
	SK 40	14	160	27	34	47	37	M10x1	381.05	314
	SK 40	16	160	27	34	50	40	M12x1	381.05	316
	SK 40	18	160	33	42	50	40	M12x1	381.05	318
	SK 40	20	160	33	42	52	42	M16x1	381.05	320
	SK 40	25	160	44	53	58	48	M16x1	381.05	325

→ Min. clamping depth, Page 312

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG







AD/B – 2KMB
G 2,5 n_{max} 25000

84 317 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	£ Y8	
short	SK 40	3	80	10	17	28	12	M6	682.74	**103**
	SK 40	4	80	15	22	28	16	M6	660.69	**104**
	SK 40	5	80	15	22	30	20	M6	660.69	**105**
	SK 40	6	80	21	27	36	26	M5	581.21	**106**
	SK 40	8	80	21	27	36	26	M6	581.21	**108**
	SK 40	10	80	24	32	41	31	M8x1	581.21	**110**
	SK 40	12	80	24	32	47	37	M10x1	581.21	**112**
	SK 40	14	80	27	34	47	37	M10x1	581.21	**114**
	SK 40	16	80	27	34	50	40	M12x1	581.21	**116**
	SK 40	18	80	33	42	50	40	M12x1	581.21	**118**
	SK 40	20	80	33	42	52	42	M16x1	581.21	**120**
	SK 40	25	100	44	53	58	48	M16x1	581.21	**125**
	SK 40	32	100	44	53	62	52	M16x1	581.21	**132**

→ Min. clamping depth, Page 312



Stop screw IK

83 950 ...

Spare parts DCONWS		£ Y7	
3 - 5	M6x14 - SW2	25.16	**417**
6			
8			
10			
12 - 14			
16 - 18			
20 - 25			
32	M16x1 - SW5	20.19	**511**



Stop screw IK

83 950 ...

	£ Y7	
M5x12,5 - SW2,5	25.16	**418**
M6x12,5 - SW3	25.16	**419**
M8x1x13,5 - SW3	25.16	**420**
M10x1x13,5 - SW5	25.16	**421**
M12x1x13,5 - SW5	25.16	**422**
M16x1x13,5 - SW8	29.02	**424**



Sealing screw

83 950 ...

	£ Y7	
M2x6	2.02	**512**
M2x6	2.02	**512**
M2x6	2.02	**512**
M2x6	2.02	**512**
M2x6	2.02	**512**
M2x6	2.02	**512**
M2x6	2.02	**512**
M2x6	2.02	**512**

Accessories



Shrink fit extension
→ 247



Pull studs
→ 58, 60

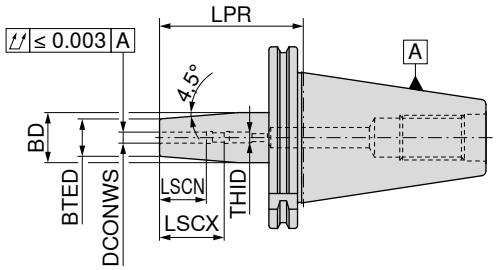


Others
→ 284

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG





AD/B
G 2,5 n_{max} 25000

84 301 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	£ Y8	
short	SK 50	6	80	21	27	36	26	M5	424.60	**106**
	SK 50	8	80	21	27	36	26	M6	424.60	**108**
	SK 50	10	80	24	32	41	31	M8x1	424.60	**110**
	SK 50	12	80	24	32	47	37	M10x1	424.60	**112**
	SK 50	14	80	27	34	47	37	M10x1	424.60	**114**
	SK 50	16	80	27	34	50	40	M12x1	424.60	**116**
	SK 50	18	80	33	42	50	40	M12x1	424.60	**118**
	SK 50	20	80	33	42	52	42	M16x1	424.60	**120**
	SK 50	25	100	44	53	58	48	M16x1	424.60	**125**
	SK 50	32	100	44	53	62	52	M16x1	424.60	**132**
medium length	SK 50	6	120	21	27	36	26	M5	468.40	**206**
	SK 50	8	120	21	27	36	26	M6	468.40	**208**
	SK 50	10	120	24	32	41	31	M8x1	468.40	**210**
	SK 50	12	120	24	32	47	37	M10x1	468.40	**212**
	SK 50	14	120	27	34	47	37	M10x1	468.40	**214**
	SK 50	16	120	27	34	50	40	M12x1	468.40	**216**
	SK 50	18	120	33	42	50	40	M12x1	468.40	**218**
	SK 50	20	120	33	42	52	42	M16x1	468.40	**220**
	SK 50	25	120	44	53	58	48	M16x1	468.40	**225**
	SK 50	32	120	44	53	62	52	M16x1	468.40	**232**
extra-long	SK 50	6	160	21	27	36	26	M5	521.92	**306**
	SK 50	8	160	21	27	36	26	M6	521.92	**308**
	SK 50	10	160	24	32	41	31	M8x1	521.92	**310**
	SK 50	12	160	24	32	47	37	M10x1	521.92	**312**
	SK 50	14	160	27	34	47	37	M10x1	521.92	**314**
	SK 50	16	160	27	34	50	40	M12x1	521.92	**316**
	SK 50	18	160	33	42	50	40	M12x1	521.92	**318**
	SK 50	20	160	33	42	52	42	M16x1	521.92	**320**
	SK 50	25	160	44	53	58	48	M16x1	521.92	**325**
	SK 50	32	160	44	53	62	52	M16x1	521.92	**332**

→ Min. clamping depth, Page 312



Stop screw IK

83 950 ...

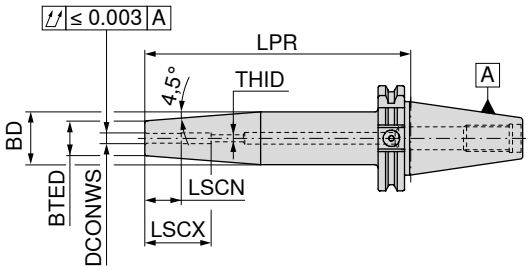
Spare parts DCONWS		£ Y7	
6	M5x12,5 - SW2,5	25.16	**418**
8	M6x12,5 - SW3	25.16	**419**
10	M8x1x13,5 - SW3	25.16	**420**
12 - 14	M10x1x13,5 - SW5	25.16	**421**
16 - 18	M12x1x13,5 - SW5	25.16	**422**
20 - 32	M16x1x13,5 - SW8	29.02	**424**

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** backstop screw

TG







AD/B
G 2,5 n_{max} 25000

82 310 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	£ Y8/3B	
short	SK 40	3	70	12	17.0				237.86	**10379**
	SK 40	4	70	12	17.0				237.86	**10479**
	SK 40	5	70	12	17.0				237.86	**10579**
	SK 40	6	80	21	30.5	36	26	M5	227.29	**10679**
	SK 40	8	80	21	30.5	36	26	M6	227.29	**10879**
	SK 40	10	80	24	33.5	41	31	M8x1	227.29	**11079**
	SK 40	12	80	24	33.5	47	37	M10x1	227.29	**11279**
	SK 40	14	80	27	36.5	47	37	M10x1	227.29	**11479**
	SK 40	16	80	27	36.5	50	40	M12x1	227.29	**11679**
	SK 40	18	80	33	42.5	50	40	M12x1	227.29	**11879**
	SK 40	20	80	33	42.5	52	42	M16x1	227.29	**12079**
	SK 40	25	100	44	50.0	58	48	M16x1	227.29	**12579**
	SK 50	6	80	21	27.0	36	26	M5	280.93	**10678**
	SK 50	8	80	21	27.0	36	26	M6	280.93	**10878**
	SK 50	10	80	24	32.0	41	31	M8x1	280.93	**11078**
	SK 50	12	80	24	32.0	47	37	M10x1	280.93	**11278**
	SK 50	14	80	27	34.0	47	37	M10x1	280.93	**11478**
	SK 50	16	80	27	34.0	50	40	M12x1	280.93	**11678**
	SK 50	18	80	33	42.0	50	40	M12x1	280.93	**11878**
	SK 50	20	80	33	42.0	52	42	M12x1	280.93	**12078**
	SK 50	25	100	44	53.0	58	48	M16x1	280.93	**12578**
	SK 50	32	100	44	53.0	62	52	M16x1	280.93	**13278**
medium length	SK 40	3	120	12	17.0				286.77	**20379**
	SK 40	4	120	12	17.0				286.77	**20479**
	SK 40	5	120	12	17.0				286.77	**20579**
	SK 40	6	120	21	31.0	36	26	M5	286.77	**20679**
	SK 40	8	120	21	32.0	36	26	M6	286.77	**20879**
	SK 40	10	120	24	34.0	41	31	M8x1	286.77	**21079**
	SK 40	12	120	24	34.0	47	37	M10x1	286.77	**21279**
	SK 40	16	120	27	36.0	50	40	M12x1	286.77	**21679**
	SK 40	20	120	33	44.0	52	42	M16x1	286.77	**22079**
	SK 50	6	120	21	27.0	36	26	M5	308.51	**20678**
	SK 50	8	120	21	27.0	36	26	M6	308.51	**20878**
	SK 50	10	120	24	32.0	41	31	M8x1	308.51	**21078**
	SK 50	12	120	24	32.0	47	37	M10x1	308.51	**21278**
	SK 50	14	120	27	34.0	47	37	M10x1	308.51	**21478**
	SK 50	16	120	27	34.0	50	40	M12x1	308.51	**21678**
	SK 50	18	120	33	42.0	50	40	M12x1	308.51	**21878**
	SK 50	20	120	33	42.0	52	42	M16x1	308.51	**22078**
	SK 50	25	120	44	53.0	58	48	M16x1	308.51	**22578**
	SK 50	32	120	44	53.0	62	52	M16x1	308.51	**23278**

→ Min. clamping depth, Page 312

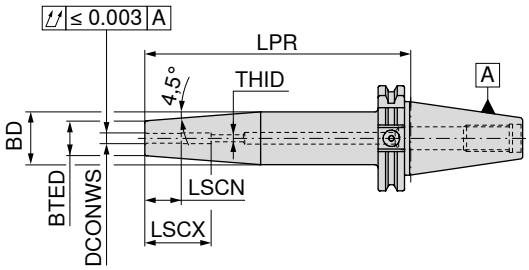
Continued on next page

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** backstop screw

TG







AD/B
G 2,5 n_{max} 25000

82 310 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	£ Y8/3B	
extra-long	SK 40	6	160	21	31.0	36	26	M5	341.92	**30679**
	SK 40	8	160	21	32.0	36	26	M6	341.92	**30879**
	SK 40	10	160	24	34.0	41	31	M8x1	341.92	**31079**
	SK 40	12	160	24	34.0	47	37	M10x1	341.92	**31279**
	SK 40	14	160	27	36.0	47	37	M10x1	341.92	**31479**
	SK 40	16	160	27	36.0	50	40	M12x1	341.92	**31679**
	SK 40	18	160	33	44.0	50	40	M12x1	341.92	**31879**
	SK 40	20	160	33	44.0	52	42	M16x1	341.92	**32079**
	SK 40	25	160	44	50.0	58	48	M16x1	341.92	**32579**
	SK 50	6	160	21	27.0	36	26	M5	342.69	**30678**
	SK 50	8	160	21	27.0	36	26	M6	342.69	**30878**
	SK 50	10	160	24	32.0	41	31	M8x1	342.69	**31078**
	SK 50	12	160	24	32.0	47	37	M10x1	342.69	**31278**
	SK 50	14	160	27	34.0	47	37	M10x1	342.69	**31478**
	SK 50	16	160	27	34.0	50	40	M12x1	342.69	**31678**
	SK 50	18	160	33	42.0	50	40	M12x1	342.69	**31878**
	SK 50	20	160	33	42.0	52	42	M16x1	342.69	**32078**
	SK 50	25	160	44	53.0	58	48	M16x1	342.69	**32578**
	SK 50	32	160	44	53.0	62	52	M16x1	342.69	**33278**

→ Min. clamping depth, Page 312



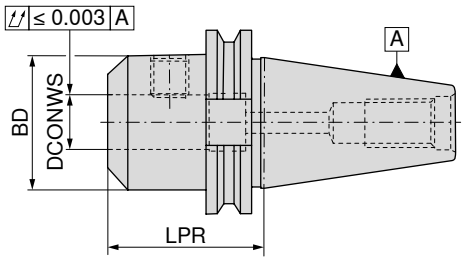
Stop screw IK

82 950 ...

Spare parts DCONWS		£ Y8/3B	
6	M5x16 - SW2,5	5.32	**30000**
8	M6x16 - SW3	5.39	**30100**
10	M8x1x16 - SW4	5.74	**30200**
12	M10x1x14 - SW5	6.07	**30300**
14	M10x1x14 - SW5	6.07	**30300**
16	M12x1x16 - SW6	6.40	**30400**
18	M12x1x16 - SW6	6.40	**30400**
20	M16x1x16 - SW8	6.73	**30500**
25	M16x1x16 - SW8	6.73	**30500**
32	M16x1x16 - SW8	6.73	**30500**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW



AD
G 2,5 n_{max} 25000

82 741 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	£ Y8	
short	SK 30	6	50	25	169.35	**10680**
	SK 30	8	50	28	154.31	**10880**
	SK 30	10	50	35	154.31	**11080**
	SK 30	12	50	42	154.31	**11280**
	SK 30	14	63	44	154.31	**11480**
	SK 30	16	63	48	154.31	**11680**
	SK 30	18	63	50	154.31	**11880**
	SK 30	20	70	52	184.79	**12080**
extra short	SK 40	16	35	48	91.12	**01679**
	SK 40	20	35	50	91.12	**02079**
	SK 40	25	40	50	99.59	**02579**
	SK 40	32	75	72	125.86	**03279**[1)]

1) Version with two grubscrews

SK 50 adapters and other lengths can be found on the next 2 pages



Grubscrew

62 950 ...

Spare parts DCONWS		£ W7	
6	M6x10	1.16	**006**
8	M8x10	1.16	**008**
10	M10x12	2.22	**010**
12	M12x16	1.76	**012**
14	M12x16	1.76	**012**
16	M14x16	2.18	**016**
18	M14x16	2.18	**016**
20	M16x16	2.32	**020**
25	M18x2x20	4.48	**025**
32	M20x2x20	4.68	**032**

Accessories



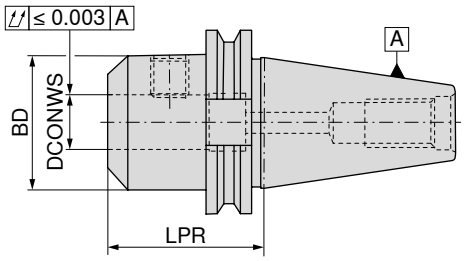
Coolant transfer pipe
→ 156



Others
→ 284

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW



AD/B
G 2,5 n_{max} 25000

82 740 ...

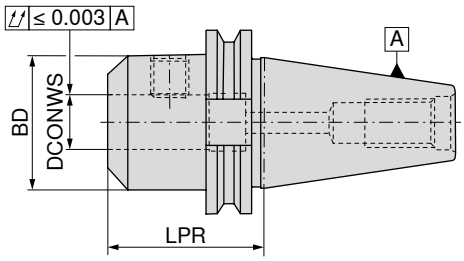
	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	£ Y8	
short	SK 40	6	50	25	84.31	**10679**
	SK 40	8	50	28	84.31	**10879**
	SK 40	10	50	35	79.58	**11079**
	SK 40	12	50	42	79.58	**11279**
	SK 40	14	50	44	79.58	**11479**
	SK 40	16	63	48	86.16	**11679**
	SK 40	18	63	50	86.16	**11879**
	SK 40	20	63	52	86.16	**12079**
	SK 40	25	100	65	94.53	**12579**[1)]
	SK 40	32	100	72	102.83	**13279**[1)]
	SK 40	40	120	80	112.47	**14079**[1)]
	SK 50	6	63	25	126.80	**10678**
	SK 50	8	63	28	126.80	**10878**
	SK 50	10	63	35	121.35	**11078**
	SK 50	12	63	42	121.35	**11278**
	SK 50	14	63	44	121.35	**11478**
	SK 50	16	63	48	121.72	**11678**
	SK 50	18	63	50	121.72	**11878**
	SK 50	20	63	52	121.72	**12078**
	SK 50	25	80	65	133.08	**12578**[1)]
	SK 50	32	100	72	134.94	**13278**[1)]
	SK 50	40	100	80	140.82	**14078**[1)]
medium length	SK 40	6	100	25	87.89	**20679**
	SK 40	8	100	28	87.89	**20879**
	SK 40	10	100	35	82.97	**21079**
	SK 40	12	100	42	82.97	**21279**
	SK 40	14	100	44	82.41	**21479**
	SK 40	16	100	48	91.12	**21679**
	SK 40	18	100	50	90.72	**21879**
	SK 40	20	100	52	91.12	**22079**
	SK 50	6	100	25	140.43	**20678**
	SK 50	8	100	28	140.43	**20878**
	SK 50	10	100	35	134.78	**21078**
	SK 50	12	100	42	134.78	**21278**
	SK 50	14	100	44	134.78	**21478**
	SK 50	16	100	48	135.14	**21678**
	SK 50	18	100	50	135.14	**21878**
	SK 50	20	100	52	135.14	**22078**
	SK 50	25	100	65	143.08	**22578**[1)]

1) Version with two grubscrews

Continued on next page

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW



AD/B
G 2,5 n_{max} 25000

82 740 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	£ Y8	
long	SK 40	6	130	25	97.15	**30679**
	SK 40	8	130	28	97.15	**30879**
	SK 40	10	130	35	91.47	**31079**
	SK 40	12	130	42	91.47	**31279**
	SK 40	14	130	44	91.47	**31479**
	SK 40	16	130	48	93.20	**31679**
	SK 40	18	130	50	93.20	**31879**
	SK 40	20	130	52	93.20	**32079**
	SK 50	6	130	25	151.39	**30678**
	SK 50	8	130	28	151.39	**30878**
	SK 50	10	130	35	148.56	**31078**
	SK 50	12	130	42	148.56	**31278**
	SK 50	14	130	44	148.56	**31478**
	SK 50	16	130	48	148.76	**31678**
	SK 50	18	130	50	148.76	**31878**
	SK 50	20	130	52	148.76	**32078**
	SK 50	25	130	65	152.71	**32578**[1)]
extra-long	SK 40	6	160	25	101.12	**40679**
	SK 40	8	160	28	101.12	**40879**
	SK 40	10	160	35	95.82	**41079**
	SK 40	12	160	42	95.82	**41279**
	SK 40	14	160	44	95.82	**41479**
	SK 40	16	160	48	96.20	**41679**
	SK 40	18	160	50	96.20	**41879**
	SK 40	20	160	52	96.20	**42079**
	SK 40	25	160	65	102.83	**42579**[1)]
	SK 50	6	160	25	157.41	**40678**
	SK 50	8	160	28	157.41	**40878**
	SK 50	10	160	35	157.07	**41078**
	SK 50	12	160	42	157.07	**41278**
	SK 50	14	160	44	157.07	**41478**
	SK 50	16	160	48	157.99	**41678**
	SK 50	18	160	50	157.99	**41878**
	SK 50	20	160	52	157.99	**42078**
	SK 50	25	160	65	157.60	**42578**[1)]
	SK 50	32	160	72	158.38	**43278**[1)]

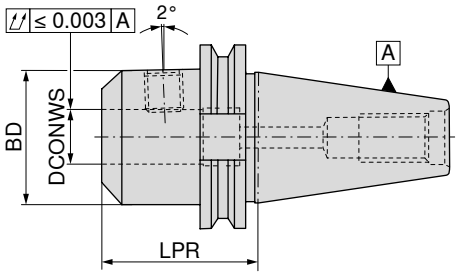
1) Version with two grubscrews

The M3 screws with WAF 1.5 mm supplied can be used to seal the two additional coolant holes.

Spare parts and accessories on → **Page 34**.

Cylindrical Shank Adapter (Whistle Notch)

- ▲ For shanks according to DIN 6535 HE / 1835 E with angled clamping flat
- ▲ The groove in the flat face is a characteristic feature of the Whistle Notch version
- ▲ also available with Balluff chip **on request**





NEW



AD/B
G 2,5 n_{max} 25000

82 742 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	£ Y8	
short	SK 40	6	50	25	103.98	**10679**
	SK 40	8	50	28	103.98	**10879**
	SK 40	10	50	35	96.39	**11079**
	SK 40	12	50	42	96.39	**11279**
	SK 40	14	50	44	96.39	**11479**
	SK 40	16	63	48	105.82	**11679**
	SK 40	18	63	50	105.82	**11879**
	SK 40	20	63	52	105.82	**12079**
	SK 40	25	100	65	134.58	**12579**[1)]
	SK 40	32	100	72	126.41	**13279**[1)]
	SK 50	6	63	25	177.41	**10678**
	SK 50	8	63	28	177.41	**10878**
	SK 50	10	63	35	169.52	**11078**
	SK 50	12	63	42	169.52	**11278**
	SK 50	14	63	44	169.52	**11478**
	SK 50	16	63	48	170.53	**11678**
	SK 50	18	63	50	170.53	**11878**
	SK 50	20	63	52	170.53	**12078**
	SK 50	25	80	65	185.97	**12578**[1)]
	SK 50	32	100	72	188.99	**13278**[1)]
long	SK 40	6	130	25	131.00	**30679**
	SK 40	8	130	28	131.00	**30879**
	SK 40	10	130	35	123.43	**31079**
	SK 40	12	130	42	123.43	**31279**
	SK 40	16	130	48	131.73	**31679**
	SK 40	20	130	52	131.73	**32079**
	SK 40	25	130	65	157.60	**32579**[1)]
	SK 50	6	130	25	206.11	**30678**
	SK 50	8	130	28	206.11	**30878**
	SK 50	10	130	35	198.39	**31078**
	SK 50	12	130	42	198.39	**31278**
	SK 50	16	130	48	200.23	**31678**
	SK 50	20	130	52	200.23	**32078**
	SK 50	25	130	65	209.97	**32578**[1)]
	SK 50	32	130	72	209.97	**33278**[1)]

1) Version with two grubscrews

16

Spare parts
cylindrical shank adapters (Weldon and Whistle Notch)

		Adjustment screw			Clamping screw			Grubscrew			Backstop screw		
		10 950 ...			**62 950 ...**			**62 950 ...**			**84 950 ...**		
Spare parts DCONWS H4		£ W7/6B			£ W7/6B			£ W7			£ Y8	
6							M6x10	1.16	**006**	M5x20	15.50	**44100**
8							M8x10	1.16	**008**	M6x20	5.38	**21500**
10							M10x12	2.22	**010**	M8x16	15.50	**44200**
12 - 14	M10X20 DIN 913	3.26	**17500**				M12x16	1.76	**012**			
16 - 18							M14x16	2.18	**016**	M12x20	15.50	**44300**
20				M16x20 - SW8	1.28	**51200**	M16x16	2.32	**020**			
25							M18x2x20	4.48	**025**	M20x24	15.50	**44000**
32							M20x2x20	4.68	**032**	M20x24	15.50	**44000**

Accessories



Pull studs

→ 58, 60

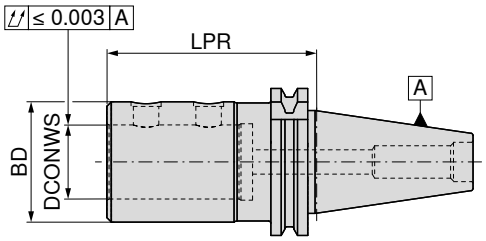


Others

→ 284

Indexable insert drill adapter ISO 7388-1 SK

▲ also available with Balluff chip **on request**





NEW



AD/B
G 6,3 n_{max} 15000

Adapter	DCONWS mm	LPR mm	BD mm		£ Y8	82 748 ...
SK 40	20	80	40		266.53	**12079**
SK 40	25	85	45		266.53	**12579**
SK 40	32	90	52		266.53	**13279**
SK 50	20	80	40		338.53	**12078**
SK 50	25	85	45		338.53	**12578**
SK 50	32	90	52		338.53	**13278**
SK 50	40	90	65		338.53	**14078**
SK 50	50	100	75		338.53	**15078**

Suitable eccentric sleeves can be found in → **Chapter 3, Indexable insert drilling.**



Grubscrew

Spare parts DCONWS		£ 2A/28	10 950 ...
20	M10x1x10	4.64	**001**
25 - 32	M12x1x10	4.64	**002**
40 - 50	M16x1x12	4.64	**003**

Accessories





Pull studs	Others
→ 58, 60	→ 284

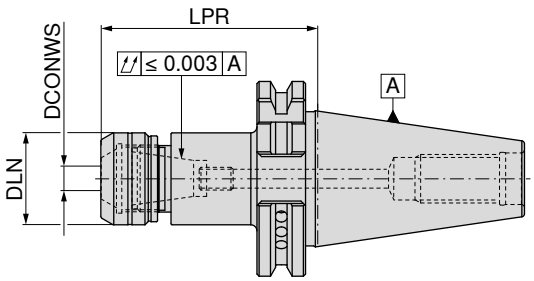
16

ER Precision Collet chuck – PCC

- ▲ For standard or sealing disc lock nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 100 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body with lock nut and backstop screw







AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	for collet	82 700 ... £ Y8	
SK 40	1 - 10	70	30	426E (ER16)	227.17	**11079**
SK 40	1 - 10	100	30	426E (ER16)	327.25	**21079**
SK 40	2 - 16	70	40	430E (ER25)	227.17	**11679**
SK 40	2 - 16	100	40	430E (ER25)	327.25	**21679**
SK 40	2 - 20	70	50	470E (ER32)	227.17	**12079**
SK 40	2 - 20	100	50	470E (ER32)	327.25	**22079**
SK 50	2 - 16	70	40	430E (ER25)	427.98	**11678**
SK 50	2 - 16	100	40	430E (ER25)	531.51	**21678**
SK 50	2 - 20	70	50	470E (ER32)	427.98	**12078**
SK 50	2 - 20	100	50	470E (ER32)	531.51	**22078**

Dimension LPR is 4.5 mm longer for ER16 and ER32 and 5.0 mm longer for ER25 when using thro' coolant lock nut

Spare parts for collet	 Lock nut IK 82 950 ... £ Y8		 Lock nut 82 950 ... £ Y8		 Backstop screw PCC 2 82 950 ... £ Y8		 Backstop screw PCC 1 82 950 ... £ Y8	
426E (ER16)	86.35	**11000**	81.37	**01000**			8.13	**00100**
430E (ER25)	86.35	**11600**	81.37	**01600**	11.07	**00200**	8.13	**00300**
470E (ER32)	86.35	**12000**	81.37	**02000**	11.07	**00200**	8.13	**00300**

Accessories



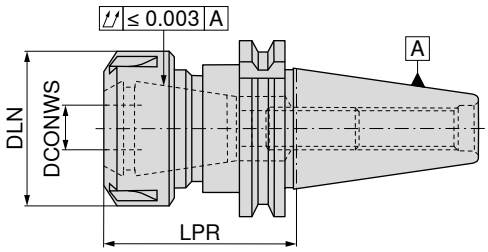


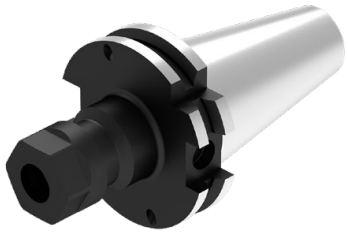
ER collet	Sealing ring	Roll key
→ 268–276, 278–279	→ 281	→ 286

ER Collet chuck

▲ also available with Balluff chip **on request**

Scope of supply:
Holder with lock nut and adjustable back stop





	Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	NEW AD G 2,5 n_{max} 25000 82 743 ... £ Y8		NEW AD/B G 2,5 n_{max} 25000 82 743 ... £ Y8	
short	SK 30	1 - 10	70	28	8 - 56	426E (ER16)	174.89	11080[1)]		
	SK 30	1 - 16	70	42	24 - 104	430E (ER25)	174.89	11680		
	SK 30	2 - 20	70	50	24 - 136	470E (ER32)	174.89	12080		
	SK 40	1 - 10	60	22	8 - 56	426E (ER16 mini)			223.90	11179
	SK 40	1 - 10	60	28	8 - 56	426E (ER16)			117.72	11079[1)]
	SK 40	1 - 16	70	42	24 - 104	430E (ER25)			123.05	11679
	SK 40	2 - 20	70	50	24 - 136	470E (ER32)			123.43	12079
	SK 40	3 - 26	70	63	176	472E (ER40)			128.31	12679
	SK 50	1 - 10	60	28	8 - 56	426E (ER16)			158.94	11078[1)]
	SK 50	1 - 16	70	42	24 - 104	430E (ER25)			165.55	11678
	SK 50	2 - 20	70	50	24 - 136	470E (ER32)			168.34	12078
	SK 50	3 - 26	70	63	176	472E (ER40)			172.37	12678
medium length	SK 30	1 - 10	100	28	8 - 56	426E (ER16)	244.38	21080[1)]		
	SK 30	1 - 16	100	42	24 - 104	430E (ER25)	244.38	21680		
	SK 30	2 - 20	100	50	24 - 136	470E (ER32)	244.38	22080		
	SK 40	1 - 10	120	28	8 - 56	426E (ER16)			129.09	21079[1)]
	SK 40	1 - 10	120	22	8 - 56	426E (ER16 mini)			223.90	21179
	SK 40	1 - 16	120	42	24 - 104	430E (ER25)			134.41	21679
	SK 40	2 - 20	120	50	24 - 136	470E (ER32)			134.78	22079
	SK 40	3 - 26	100	63	176	472E (ER40)			161.85	22679
	SK 50	1 - 10	100	28	8 - 56	426E (ER16)			152.71	21078[1)]
	SK 50	1 - 16	100	42	24 - 104	430E (ER25)			158.94	21678
	SK 50	2 - 20	100	50	24 - 136	470E (ER32)			169.18	22078
	SK 50	3 - 26	100	63	176	472E (ER40)			177.41	22678
extra-long	SK 40	1 - 10	160	28	8 - 56	426E (ER16)			201.91	41079[1)]
	SK 40	2 - 16	160	42	24 - 104	430E (ER25)			201.91	41679
	SK 40	2 - 20	160	50	24 - 136	470E (ER32)			201.91	42079
	SK 40	3 - 26	160	63	176	472E (ER40)			233.47	42679
	SK 50	1 - 16	160	42	24 - 104	430E (ER25)			173.21	41678
	SK 50	2 - 20	160	50	24 - 136	470E (ER32)			190.83	42078

1) with 6 position lock nut

Spare parts ER collet chucks

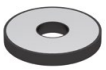
	 Lock nut		 Lock nut IK		 Lock nut		 Y clamping key		 ER Mini clamping key		 Mini lock nut		 Mini IK		 Stop screw IK	
	62 950 ...		**83 950 ...**		**62 950 ...**		**83 357 ...**		**83 950 ...**		**62 950 ...**		**83 950 ...**		**84 950 ...**	
Spare parts for collet	£ W7		£ Y8		£ W7		£ Y8		£ Y8		£ W7		£ Y8		£ Y8	
426E (ER16 mini)									49.71	**101**	46.66	**066**	112.26	**058**	45.25	**44600**
426E (ER16)	33.81	**044**													45.25	**44600**
430E (ER25)			101.40	**055**	28.01	**055**	29.58	**125**							45.25	**44400**
470E (ER32)			108.45	**056**	35.87	**65600**	43.08	**132**							45.25	**44400**
472E (ER40)			130.50	**057**	34.86	**65700**	48.80	**140**							45.25	**44500**

Dimension LPR is 5.0 mm longer for ER16, ER25 and ER32, and 5.5 mm for ER40 when using thro' coolant lock nuts

Accessories



ER collet
→ 271–276, 279



Sealing ring
→ 280



Pull studs
→ 58, 60



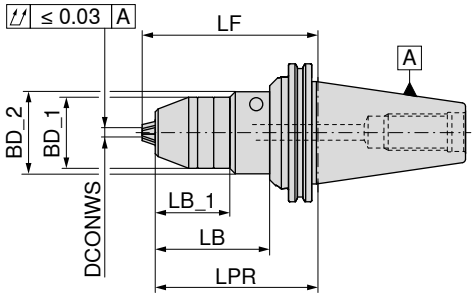
Others
→ 284

Short drill chuck – NC 2010

- ▲ Independent of direction of rotation
- ▲ Torque Moment = 12 Nm
- ▲ also available with Balluff chip **on request**

Scope of supply:

Toolholder including clamping key SW4







A
G 6,3 n_{max} 10000



AD
G 6,3 n_{max} 10000

Adapter	DCONWS mm	LPR mm	BD_1 mm	BD_2 mm	LB_1 mm	LB mm	LF mm	84 418 ... £ Y8		84 419 ... £ Y8	
SK 30	0,5 - 10	80	43.0			59.9	89.0	562.65	**313**		
SK 40	0,5 - 13	80	48.5			60.8	89.0	562.65	**413**	510.46	**413**
SK 40	2,5 - 16	80	51.0			60.0	90.5			501.29	**416**
SK 40	2,5 - 16	80	51.0			60.8	90.5	466.26	**416**		
SK 50	0,5 - 13	110	48.5	56	50.9	78.0	119.0			759.84	**513**
SK 50	0,5 - 13	110	48.5	56	50.9	78.1	119.0	663.46	**513**		
SK 50	2,5 - 16	110	51.0	56	50.9	78.0	120.5			698.47	**516**
SK 50	2,5 - 16	110	56.0		50.9	78.0	120.5	663.46	**516**		

Can be used at G 2.5 to 30,000 1/min after additional balancing !

Accessories



Others

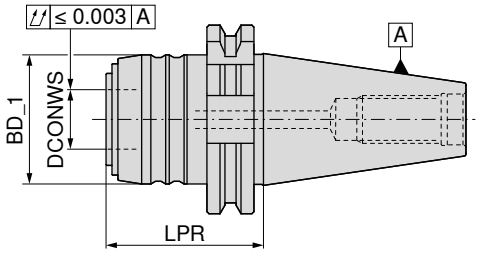
→ 284

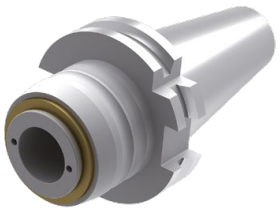
16

Synchro tapping chuck with minimum length compensation

- For collet
- With length compensation under tension and compression (LZD)
- for synchro use
- $p_{max.}$ = 50 bar
- also available with Balluff chip **on request**

Scope of supply:
Without insert







AD

Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LZD± mm	83 416 ... £ Y8	
SK 40	M3 - M12	1	53	43	20	1,0 / 0,2	363.24	**012**
SK 40	M6 - M20	2	90	60	32	1,0 / 0,2	471.18	**020**
SK 50	M3 - M12	1	53	43	20	1,0 / 0,2	394.57	**112**
SK 50	M6 - M20	2	74	60	32	1,0 / 0,2	610.71	**120**

Accessories



Pull studs
→ 58, 60

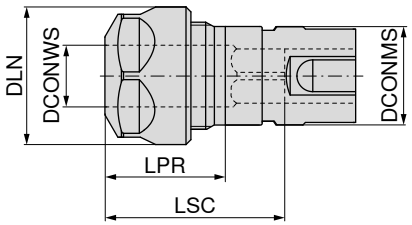


Others
→ 284

Insert for synchro quick change tapping chuck with minimum length compensation

▲ SZID = for insert size

Scope of supply:
Includes lock nut





SZID	DCONWS mm	cutting range	LPR mm	DLN mm	LSC mm	for collet	DCONMS mm	83 608 ... £ Y8	
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	247.61	012 [1]
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	288.42	020

1) with 6 position lock nut


Lock nut


Lock nut IK


Lock nut

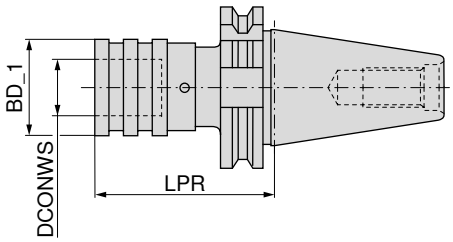

Y clamping key

Spare parts for Article no.		62 950 ... £ W7		83 950 ... £ Y8		62 950 ... £ W7		83 357 ... £ Y8	
83 608 012	M22x1,5 - SW25	33.81	044	M22x1,5	87.05	054	M22x1,5	26.90	054	29.58	116
83 608 020				M32x1,5	101.40	055	M32x1,5	28.01	055	29.58	125

16

Quick change tap chuck with length compensation

▲ With length compensation under tension and compression (LZD)
▲ also available with Balluff chip **on request**






A

Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LZD± mm	83 428 ... £ Y8	
SK 30	M3 - M12	01	60	38	19	9	614.38	**312**
SK 30	M6 - M20	02	101	55	31	15	698.00	**320**
SK 40	M3 - M12	01	60	38	19	9	474.48	**412**
SK 40	M6 - M20	02	100	55	31	15	514.16	**420**
SK 50	M3 - M12	01	62	38	19	9	708.64	**512**
SK 50	M6 - M20	02	83	55	31	15	767.62	**520**

Accessories


Collet
→ 288, 290–292


Pull studs
→ 58, 60

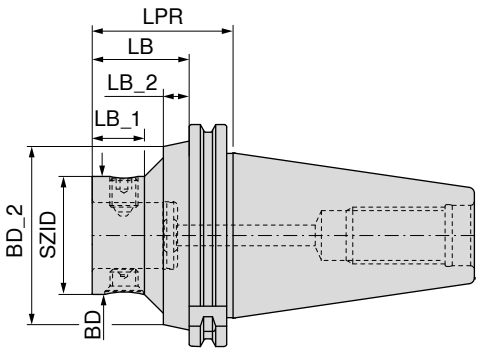

Others
→ 284

Adapter with ABS Connection

▲ also available with Balluff chip **on request**

Scope of supply:

Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc







AD/B

G 6,3 n_{max} 8000

Adapter	KOMET no.	SZID	BD	LPR	LB	LB_1	LB_2	BD_2	84 201 ... £ 3E	
			mm	mm	mm	mm	mm	mm		
SK 40	A50 55120	ABS 25	25	50	30.9	20.0	7.9	50	236.35	**04090**
SK 40	A50 55130	ABS 32	32	50	30.9	20.0	7.9	50	236.35	**04089**
SK 40	A50 55140	ABS 40	40	50	30.9	20.0		50	236.35	**04088**
SK 40	A50 55150	ABS 50	50	50	30.9				236.35	**04097**
SK 40	A50 55160	ABS 63	63	90	70.9		15.9	50	236.35	**04096**
SK 50	A50 55320	ABS 25	25	60	40.9	20.0	12.9	80	266.52	**05090**
SK 50	A50 55330	ABS 32	32	60	40.9	20.0	12.9	80	266.52	**05089**
SK 50	A50 55340	ABS 40	40	60	40.9	20.0	12.9	80	266.52	**05088**
SK 50	A50 55350	ABS 50	50	60	40.9	22.0	10.9	80	266.52	**05097**
SK 50	A50 55360	ABS 63	63	60	40.9	30.4	7.3	80	266.52	**05096**
SK 50	A50 55370	ABS 80	80	70	50.9				266.52	**05092**
SK 50	A50 55380	ABS 100	100	115	95.9		15.9	80	266.52	**05091**

Conversion kit – Cooling agent supply

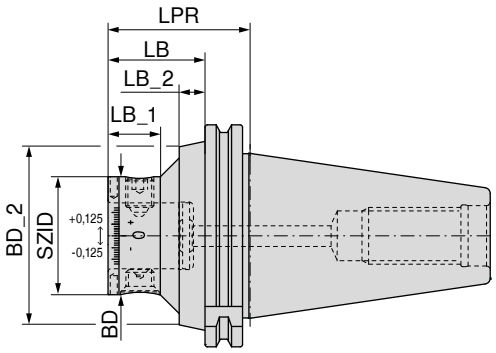


for	Adapter	84 950 ... £ W7/6B	
4 mm	SK 40	7.30	**23200**
6 mm	SK 50	7.30	**23400**

Eccentric adjuster with ABS Connection

▲ Adjustment ± 0.25 mm on diameter
▲ also available with Balluff chip **on request**

Scope of supply:
Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc





AD/B

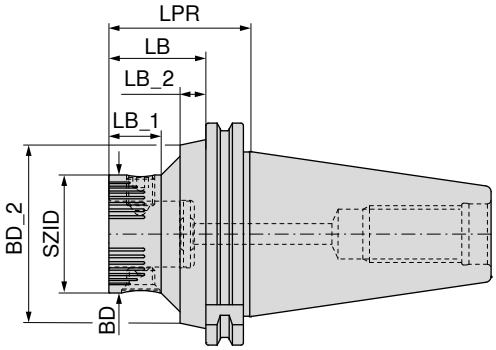
84 204 ...

Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	LB_1 mm	LB_2 mm	BD_2 mm	£ W4/6A	
SK 40	A50 56150	ABS 50	50	50	30.9				636.91	**04097**
SK 40	A50 56160	ABS 63	63	90	70.9		15.9	50	819.82	**04096**
SK 50	A50 56350	ABS 50	50	60	40.9	22.0	10.9	80	714.47	**05097**
SK 50	A50 56360	ABS 63	63	60	40.9	30.4	7.3	80	938.67	**05096**

Torsional vibration dampers with ABS Connection

▲ also available with Balluff chip **on request**

Scope of supply:
Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc





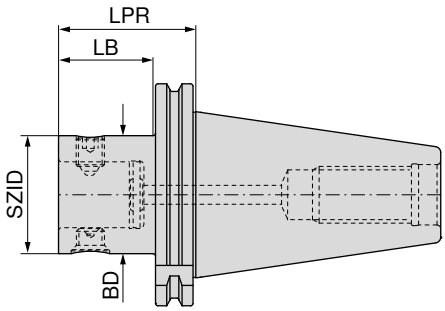
AD/B

84 207 ...

Adapter	KOMET no.	SZID	BD mm	LPR mm	BD_2 mm	LB mm	LB_1 mm	LB_2 mm	£ 3E	
SK 40	A50 01351	ABS 50	50	50		30.9			648.50	**04097**
SK 40	A50 01361	ABS 63	63	90	50	70.9		15.9	772.19	**04096**
SK 50	A50 01451	ABS 50	50	60	80	40.9	22.0	10.9	774.90	**05097**
SK 50	A50 01461	ABS 63	63	60	80	40.9	30.4	7.3	805.17	**05096**
SK 50	A50 01470	ABS 80	80	70		50.9			895.88	**05092**

Adapter with ABS Connection – SK-FC

▲ with face contact
▲ also available with Balluff chip **on request**







AD
G 6,3 n_{max} 8000

Adapter	SZID	BD mm	LPR mm	LB mm	£ Y8	84 264 ...
SK-FC 50	ABS 50	50	60	40.9	1,648.33	**05073**
SK-FC 50	ABS 63	63	60	40.9	1,692.53	**06373**
SK-FC 50	ABS 80	80	70	50.9	1,718.35	**08073**
SK-FC 50	ABS 100	100	115	95.9	1,736.96	**10073**


Clamping screw


Taper screw

Spare parts SZID	84 950 ... £ XX		84 950 ... £ XX	
ABS 50	11.49	**20300**	14.59	**20400**
ABS 63	10.93	**25500**	13.87	**27300**
ABS 80	13.45	**25600**	16.36	**25100**
ABS 100	16.56	**25700**	18.17	**25200**

Accessories

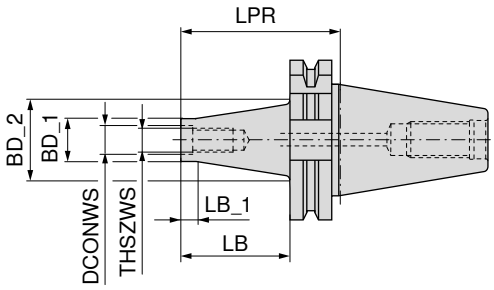

Pull studs
→ 58, 60


Extension
→ 187


Others
→ 284

Adapter for milling cutters with threaded end

▲ also available with Balluff chip **on request**





Adapter	THSZWS	DCONWS	LB	BD_1	BD_2	LB_1	LPR	AD G 6,3 n_{max} 18000 56 705 ...		AD G 16 n_{max} 8000 56 707 ...	
		mm	mm	mm	mm	mm	mm	£ WA		£ WA	
SK 40	M8	8.5	25	13.8	15	12	44	257.26	**081**		
SK 40	M8	8.5	50	13.8	23	12	69	263.55	**082**		
SK 40	M8	8.5	75	13.8	25	12	94	269.65	**083**		
SK 40	M10	10.5	25	18.0	23	12	44	257.26	**101**		
SK 40	M10	10.5	50	18.0	25	12	69	263.55	**102**		
SK 40	M10	10.5	75	18.0	30	12	94	269.65	**103**		
SK 40	M10	10.5	100	18.0	35	12	119	275.92	**104**		
SK 40	M12	12.5	25	21.0	24	12	44	257.26	**121**		
SK 40	M12	12.5	50	21.0	30	12	69	263.55	**122**		
SK 40	M12	12.5	75	21.0	35	12	94	269.65	**123**		
SK 40	M12	12.5	100	21.0	38	12	119	275.92	**124**		
SK 40	M16	17.0	25	29.0	29	12	44	257.26	**161**		
SK 40	M16	17.0	50	29.0	34	12	69	263.55	**162**		
SK 40	M16	17.0	75	29.0	35	12	94	269.65	**163**		
SK 40	M16	17.0	100	29.0	40	12	119	275.92	**164**		
SK 40	M16	17.0	125	29.0	44	12	144	281.97	**165**		
SK 40	M16	17.0	150	29.0	48	12	169	288.28	**166**		
SK 40	M16	17.0	200	29.0	50	12	219	300.65	**167**		
SK 50	M12	12.5	50	21.0	30	12	69			365.11	**122**
SK 50	M12	12.5	100	21.0	38	12	119			377.47	**124**
SK 50	M12	12.5	150	21.0	52	12	169			389.83	**126**
SK 50	M16	17.0	50	29.0	34	12	69			365.11	**162**
SK 50	M16	17.0	100	29.0	40	12	119			371.18	**164**
SK 50	M16	17.0	150	29.0	48	12	169			383.56	**166**
SK 50	M16	17.0	200	29.0	58	12	219			395.91	**167**
SK 50	M16	17.0	250	29.0	62	12	269			408.49	**168**

Accessories



Extension-Reduction set
→ 257



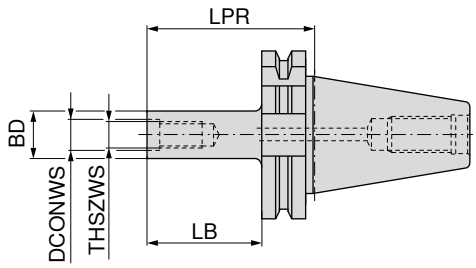
Pull studs
→ 58, 60

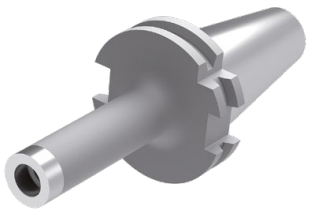


Others
→ 284

Adapter for milling cutters with threaded end

▲ also available with Balluff chip **on request**







AD

G 6,3 n_{max} 18000

56 709 ...

Adapter	THSZWS	DCONWS mm	LB mm	BD mm	LPR mm	£ WA	
SK 40	M8	8.5	50	13.8	69	279.96	**082**
SK 40	M10	10.5	50	18.0	69	279.96	**102**
SK 40	M10	10.5	75	18.0	94	286.24	**103**
SK 40	M10	10.5	100	18.0	119	292.55	**104**
SK 40	M12	12.5	50	21.0	69	279.96	**122**
SK 40	M12	12.5	75	21.0	94	286.24	**123**
SK 40	M12	12.5	100	21.0	119	292.55	**124**
SK 40	M16	17.0	50	29.0	69	279.96	**162**
SK 40	M16	17.0	75	29.0	94	286.24	**163**
SK 40	M16	17.0	100	29.0	119	292.55	**164**

Accessories



Extension-Reduction set
→ 257



Pull studs
→ 58, 60

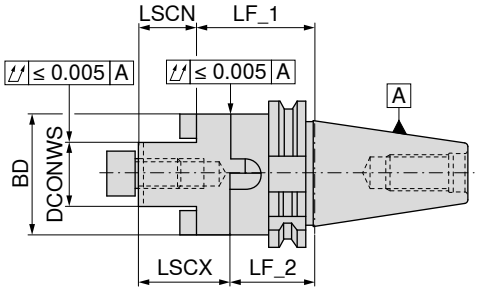


Others
→ 284

Combination shell mill adapter

▲ For milling cutters with transverse or longitudinal groove according to DIN 6358
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder with clamping screw, driving ring and dowel spring





NEW



A
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LF_1 mm	BD mm	LSCX mm	LSCN mm	LF_2 mm	82 744 ... £ Y8	
short	SK 30	16	50	32	27	17	40	169.35	**11680**
	SK 30	22	50	40	31	19	38	169.35	**12280**
	SK 30	27	55	48	33	21	43	179.92	**12780**
	SK 30	32	60	58	38	24	46	190.33	**13280**
	SK 40	16	55	32	27	17	45	116.42	**11679**
	SK 40	22	55	40	31	19	43	120.98	**12279**
	SK 40	27	55	48	33	21	43	123.43	**12779**
	SK 40	32	60	58	38	24	46	130.43	**13279**
	SK 40	40	60	70	41	27	46	137.23	**14079**[1)]
	SK 50	16	55	32	27	17	45	174.72	**11678**
	SK 50	22	55	40	31	19	43	180.76	**12278**
	SK 50	27	55	48	33	21	43	194.86	**12778**
	SK 50	32	55	58	38	24	41	200.23	**13278**
	SK 50	40	55	70	41	27	41	206.11	**14078**[1)]
	SK 50	50	70	90	46	30	54	225.07	**15078**[1)]
medium length	SK 40	16	100	32	27	17	90	155.14	**21679**
	SK 40	22	100	40	31	19	88	161.65	**22279**
	SK 40	27	100	48	33	21	88	164.67	**22779**
	SK 40	32	100	58	38	24	86	173.55	**23279**
	SK 40	40	100	70	41	27	86	182.95	**24079**

1) With cross screw


Parallel key


Drive ring


Cross nut key


Cross screw


clamping screw

Spare parts DCONWS		83 950 ... £ Y8/3B		83 370 ... £ Y8		83 368 ... £ Y8		83 367 ... £ Y8		83 950 ... £ Y8/3B	
16	4 x 4 x 20	4.37	**284**	16.18	**116**	26.72	**116**	M8	7.10	**016**	M8x25	7.53	**113**
22	6 x 6 x 25	4.37	**285**	15.51	**122**	33.25	**122**	M10	7.90	**022**	M10x25	8.50	**124**
27	7 x 7 x 25	6.94	**286**	19.35	**127**	39.10	**127**	M12	10.10	**027**	M12x30	9.39	**125**
32	8 x 7 x 28	4.95	**287**	20.31	**132**	53.28	**132**	M16	15.86	**032**	M16x35	11.43	**126**
40	10 x 8 x 32	5.84	**288**	34.21	**140**	52.92	**140**	M20	16.97	**040**	M20x40 - SW17	12.61	**112**
50	12 x 8 x 36	5.84	**289**	68.82	**150**	75.42	**150**	M24	43.17	**050**			

Accessories


Pull studs
→ 58, 60

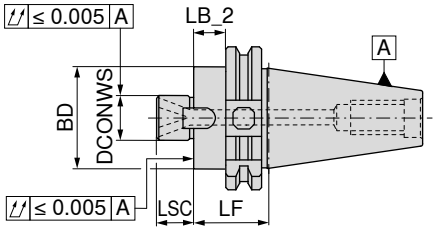

Milling Adapter Rings
→ 263


Others
→ 284

Shell mill adapter with reduced flange diameter

▲ Screwed drive dogs
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with retaining screw and drive dog





NEW



AD
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm		82 315 ... £ Y8/3B	
short	SK 40	22	41	60	38	19		123.53	**12279**
	SK 40	27	25	44	48	21		120.45	**12779**
	SK 50	22	41	60	38	19		169.97	**12278**
	SK 50	27	25	44	48	21		172.90	**12778**

These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters.
Now they can be clamped perfectly, thanks to the adapted flange diameters.



Screw for drivers



Driver



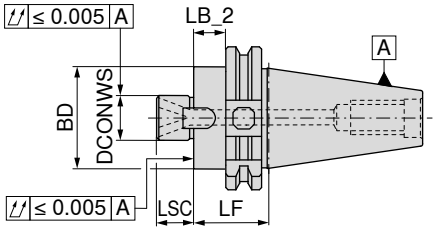
clamping screw

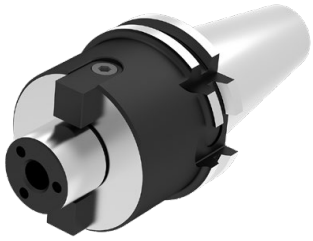
Spare parts DCONWS		83 950 ... £ Y8/3B			83 950 ... £ Y8/3B			83 950 ... £ Y8/3B	
22	M4x8	0.80	**51700**	10x7x20,5	11.26	**51500**	M10x25	8.50	**124**
27	M5x8	0.98	**51800**	12x9x24,3	12.83	**51600**	M12x30	9.39	**125**

Shell mill adapter

▲ Screwed drive dogs
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder with clamping screw







AD
G 2,5 n_{max} 25000



AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	82 745 ... £ Y8		82 745 ... £ Y8	
short	SK 30	16	20.9	40	38	17	159.28	**11680**		
	SK 30	22	30.9	50	48	19	159.28	**12280**		
	SK 30	27	35.9	55	58	21	169.35	**12780**		
	SK 30	32	30.9	50	78	24	180.60	**13280**		
	SK 40	16	25.0	44	38	17			116.42	**11679**
	SK 40	22	25.0	44	48	19			123.43	**12279**
	SK 40	27	36.0	55	58	21			125.68	**12779**
	SK 40	32	31.0	50	78	24			132.31	**13279**
	SK 40	40	31.0	50	88	27			143.86	**14079**[1)]
	SK 50	16	25.0	44	38	17			179.76	**11678**
	SK 50	22	25.0	44	48	19			184.46	**12278**
	SK 50	27	25.0	44	58	21			188.99	**12778**
	SK 50	32	21.0	40	78	24			204.26	**13278**
	SK 50	40	31.0	50	88	27			207.95	**14078**[1)]
medium length	SK 40	16	81.0	100	38	17			120.39	**21679**
	SK 40	22	81.0	100	48	19			124.37	**22279**
	SK 40	27	81.0	100	58	21			126.41	**22779**
	SK 40	32	81.0	100	78	24			133.08	**23279**
	SK 40	40	81.0	100	88	27			138.92	**24079**[1)]
	SK 50	16	81.0	100	38	17			190.83	**21678**
	SK 50	22	81.0	100	48	19			194.86	**22278**
	SK 50	27	81.0	100	58	21			200.23	**22778**
	SK 50	32	81.0	100	78	24			206.11	**23278**
	SK 50	40	81.0	100	88	27			209.97	**24078**[1)]
long	SK 40	16	111.0	130	38	17			127.95	**31679**
	SK 40	22	111.0	130	48	19			132.31	**32279**
	SK 40	27	111.0	130	58	21			134.41	**32779**
	SK 40	32	111.0	130	78	24			140.82	**33279**
	SK 40	40	111.0	130	88	27			147.05	**34079**[1)]
	SK 50	16	111.0	130	38	17			202.08	**31678**
	SK 50	22	111.0	130	48	19			206.11	**32278**
	SK 50	27	111.0	130	58	21			211.65	**32778**
	SK 50	32	111.0	130	78	24			217.52	**33278**
	SK 50	40	111.0	130	88	27			221.05	**34078**[1)]
extra-long	SK 40	16	141.0	160	38	17			132.31	**41679**
	SK 40	22	141.0	160	48	19			136.64	**42279**
	SK 40	27	141.0	160	58	21			138.53	**42779**
	SK 40	32	141.0	160	78	24			144.96	**43279**
	SK 40	40	141.0	160	88	27			151.02	**44079**[1)]
	SK 50	16	141.0	160	38	17			207.95	**41678**
	SK 50	22	141.0	160	48	19			213.66	**42278**
	SK 50	27	141.0	160	58	21			217.52	**42778**
	SK 50	32	141.0	160	78	24			223.06	**43278**
	SK 50	40	141.0	160	88	27			228.77	**44078**[1)]

1) with cross screw and 4 holes M12, Pitch Circle diameter = 66.7 mm, coolant outlet on the outer diameter of the spigot (DCONWS)!

Spare parts facemill adapters

Cross nut key



Cross screw



clamping screw

Spare parts DCONWS	83 368 ... £ Y8		83 367 ... £ Y8		83 950 ... £ Y8/3B	
16	26.72	**116**	M8	7.10	**016**	M8x25	7.53	**113**
22	33.25	**122**	M10	7.90	**022**	M10x25	8.50	**124**
27	39.10	**127**	M12	10.10	**027**	M12x30	9.39	**125**
32	53.28	**132**	M16	15.86	**032**	M16x35	11.43	**126**
40	52.92	**140**	M20	16.97	**040**	M20x40 - SW17	12.61	**112**



Screw for drivers



Driver

Spare parts DCONWS	84 950 ... £ Y8		84 950 ... £ Y8	
16	M3x12	10.40	**162**	8x9,8x10	45.97	**43400**
22	M4x10	10.40	**163**	10x11,2x12	45.97	**43200**
27	M4x16	10.40	**164**	12x12,6x14	45.97	**43300**
32	M5x16	10.40	**166**	14x14x22,5	38.31	**160**
40	M5x16	10.40	**166**	16x16x23	42.64	**161**

Accessories



Pull studs
→ 58, 60



Extensions
→ 262

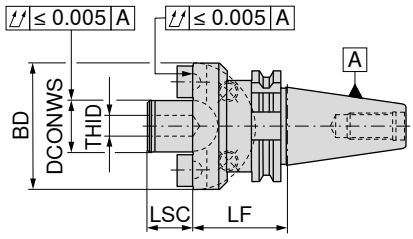


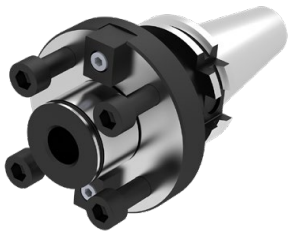
Others
→ 284

Large diameter facemill adapter

▲ For milling cutters with keyway or drive slot DIN 6357
▲ also available with Balluff chip **on request**

Scope of supply:
Holder with integrated drive dogs according to DIN 2079 and 4 fixation screws





NEW



A
G 6,3 n_{max} 8000

82 432 ...

Adapter	DCONWS mm	LF mm	BD mm	LSC mm	THID	£ Y8	
SK 40	40	60	89	30	M20	238.33	**14079**
SK 50	40	70	89	30	M20	275.93	**14078**
SK 50	60	70	129	40	M30	334.67	**16078**



Screw for drivers

84 950 ...



Driver

84 950 ...



clamping screw

83 950 ...

Spare parts DCONWS		£ Y8			£ Y8			£ Y8/3B	
40	M5x16	10.40	**166**	16x16x23	42.64	**161**	M12x50	9.38	**140**
60	M12x25	7.47	**43500**	25,4x25x26,5	45.97	**43100**	M16x45	19.27	**160**

Accessories



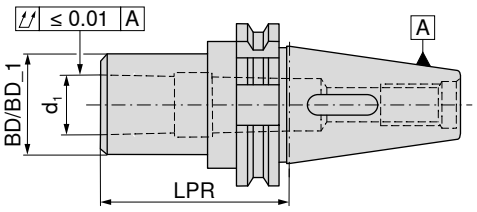
Pull studs
→ 58, 60



Others
→ 284

Taper sleeve DIN6383 for DIN 228-2D Morse taper shanks

▲ also available with Balluff chip **on request**





NEW

AD

G 6,3 n_{max} 15000

82 746 ...

	Adapter	d_1	LPR mm	BD mm	£ Y8	
short	SK 30	MK1	50	25	151.26	**11080**
	SK 30	MK2	63	32	151.26	**12080**
	SK 30	MK3	80	40	164.46	**13080**
	SK 40	MK2	50	32	102.45	**12079**
	SK 40	MK1	50	25	102.45	**11079**
	SK 40	MK3	70	40	109.41	**13079**
	SK 40	MK4	95	48	114.16	**14079**
	SK 50	MK1	50	25	140.06	**11078**
	SK 50	MK2	60	32	144.96	**12078**
	SK 50	MK3	65	40	144.96	**13078**
	SK 50	MK4	95	48	149.68	**14078**
	SK 50	MK5	105	63	162.77	**15078**
medium length	SK 40	MK2	117	32	145.85	**22079**
	SK 40	MK3	133	40	162.10	**23079**
	SK 40	MK4	156	48	176.74	**24079**

Accessories



Morse taper adapter sleeve
→ 242



Pull studs
→ 58, 60

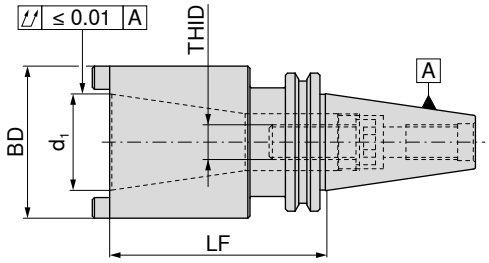


Others
→ 284

Milling adapter sleeve

▲ For mounting steep taper adapters according to DIN 2080
▲ With an extended retaining screw, adapters compliant with ISO 7388-1 – SK, ISO 7388-2 – MAS-BT and ANSI-CAT can also be clamped
▲ also available with Balluff chip **on request**

Scope of supply:
Holder with clamping screw for DIN 2080 adapters





NEW



A
G 6,3 n_{max} 8000

Adapter	d_1	LF mm	BD mm	THID	84 040 ... £ Y8	
SK 40	SK 30	50	50	M12	246.56	**13079**
SK 40	SK 40	100	70	M16	192.68	**14079**
SK 50	SK 40	80	70	M16	262.50	**14078**
SK 50	SK 50	120	100	M24	275.93	**15078**

Spare parts for Article no.	Clamping screw SK 83 950 ... £ Y8/3B		Clamping Screw 84 950 ... £ Y8		Counterscrew 83 950 ... £ Y8/3B		Hollow key with nose 83 359 ... £ Y8/3B		Threaded ring 84 950 ... £ Y8		clamping screw 83 950 ... £ Y8/3B	
84 040 13079					1.01	**030**	51.95	**017**	52.21	**127**	9.39	**125**
84 040 14079	14.17	**264**	7.47	**43700**	1.01	**030**	63.15	**023**	49.41	**43800**		
84 040 14078	13.23	**009**	7.47	**43600**								
84 040 15078	46.61	**256**			1.01	**030**	78.41	**133**	49.41	**43900**		

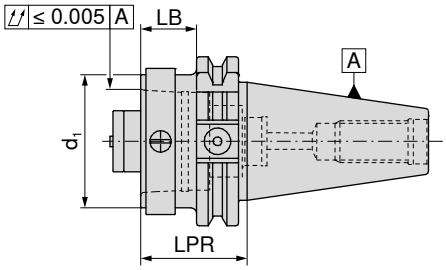
Auxiliary table for finding the required spare parts and accessories for intermediate sleeves for SK-adapters

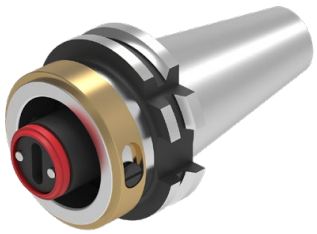
ISO 7388-1 Suitable for article no.	Norm of the SK-shank Ø d_1 ISO 7388-1	Ø d_1 DIN 2080	Clamping screw length THID	Clamping screw SK Article no.	Threaded ring Article no.	lock screw Article no.	hollow key Article no.
84 040 13079		SK 30	M12 x 30	**83 950 125**	**84 950 127**	**83 950 030**	**83 359 017**
84 040 14079	SK40		M16 x 70	**83 950 264**	**84 950 43800**	**83 950 030**	**83 359 023**
84 040 14079		SK40	M16 x 45	**84 950 43700**	**84 950 43800**	**83 950 030**	**83 359 023**
84 040 14078	SK40		M16 x 65	**84 950 43600**			
84 040 14078		SK40	M16 x 40	**83 950 009**			
84 040 15078	SK50		M24 x 80	**83 950 256**	**84 950 43900**	**83 950 030**	**83 359 133**
84 040 15078		SK50	M24 x 50	**83 950 263**	**84 950 43900**	**83 950 030**	**83 359 133**

SK/HSK-A adapter

▲ for mounting HSK-A adapters according to ISO 12164
▲ also available with Balluff chip **on request**

Scope of supply:
with clamping cartridge and cover ring







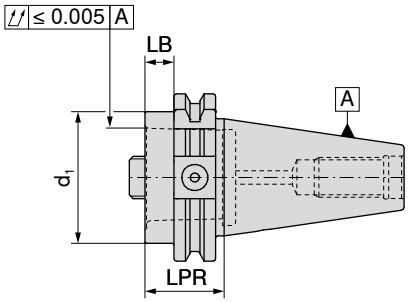
AD

Adapter	d_1	LB mm	LPR mm	84 014 ... £ Y8	
SK 40	HSK-A 32	20.9	40	1,100.57	**04060**
SK 40	HSK-A 40	20.9	40	1,122.64	**04059**
SK 40	HSK-A 50	20.9	40	1,144.92	**04058**
SK 40	HSK-A 63	60.9	80	1,122.64	**04057**
SK 50	HSK-A 32	20.9	40	1,387.82	**05060**
SK 50	HSK-A 40	20.9	40	1,387.82	**05059**
SK 50	HSK-A 50	20.9	40	1,410.13	**05058**
SK 50	HSK-A 63	20.9	40	1,498.60	**05057**
SK 50	HSK-A 100	80.9	100	1,763.78	**05055**

SK/PSC adapter

▲ for mounting PSC adapters according to ISO 26623-1
▲ also available with Balluff chip **on request**

Scope of supply:
with tightening screw






AD

Adapter	d_1	LB mm	LPR mm	84 015 ... £ Y8	
SK 40	PSC 32	10.9	30	702.55	**04087**
SK 40	PSC 40	10.9	30	724.85	**04095**
SK 40	PSC 50	10.9	30	724.85	**04094**
SK 40	PSC 63	65.9	85	702.55	**04093**
SK 50	PSC 32	10.9	30	968.22	**05087**
SK 50	PSC 40	10.9	30	1,144.92	**05095**
SK 50	PSC 50	10.9	30	990.04	**05094**
SK 50	PSC 63	10.9	30	1,012.10	**05093**
SK 50	PSC 80	50.9	70	1,078.51	**05086**

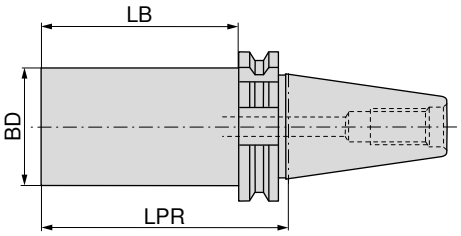

Threaded ring


tightening screw

Spare parts d_1	84 950 ... £ Y8			84 950 ... £ Y8	
PSC 32	52.21	**127**	SW8	37.89	**122**
PSC 40	52.21	**128**	SW8	42.70	**123**
PSC 50	52.21	**129**	SW10	42.70	**124**
PSC 63	104.24	**130**	SW14	47.53	**126**
PSC 80	104.24	**130**	SW14	47.53	**126**

Blank

- ▲ Material: Steel 16MnCr5
- ▲ for production of special tools
- ▲ Diameter BD turned with 0.5 mm oversize
- ▲ Taper hardened and ground
- ▲ Special tool area in soft state
- ▲ also available with Balluff chip **on request**





NEW



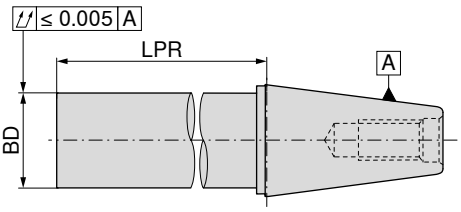
AD/B

Adapter	BD mm	LPR mm	LB mm	82 747 ... £ Y8	
SK 40	63,0	250	231	135.70	**16379**
SK 50	63,5	300	281	249.58	**16378**

Test bar

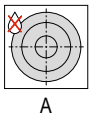
- ▲ Without tool change groove
- ▲ Use for MAS BT 40 special pull studs with 3 mm shorter LF dimension, as standard

Scope of supply:
in wooden box





NEW



A

Adapter	BD mm	LPR mm	81 746 ... £ Y8	
SK / BT 40	40	320	591.64	**14079**
SK / BT 50	50	320	729.43	**15078**

Accessories



Pull studs
→ 58, 60



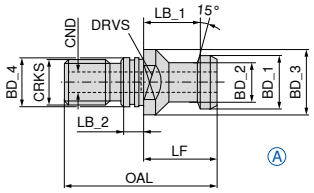
Others
→ 284

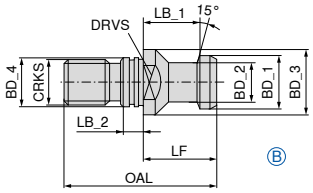
16

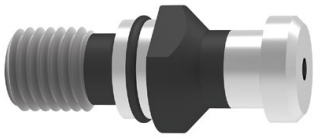
Pull studs for tool holders according to ISO 7388-1

▲ ISO 7388-3 AD
▲ For tools with or without axial coolant supply

Scope of supply:
including O-Ring





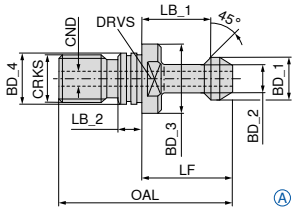


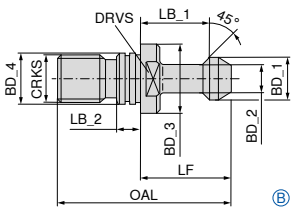
Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	form	82 475 ... £ Y8		82 468 ... £ Y8	
SK 30	13	9	17	13	M12	44	24	19	5	3.5	14	20	A			18.80	**030**
SK 40	19	14	23	17	M16	54	26	20	7	7.0	19	50	A			16.00	**040**
SK 50	28	21	36	25	M24	74	34	25	10	11.5	30	150	A			23.75	**050**
SK 30	13	9	17	13	M12	44	24	19	5		14	20	B	18.80	**030**		
SK 40	19	14	23	17	M16	54	26	20	7		19	50	B	16.00	**040**		
SK 50	28	21	36	25	M24	74	34	25	10		30	150	B	23.75	**050**		

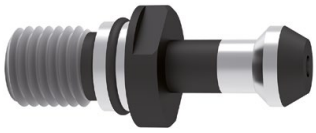
Pull studs for tool holders according to ISO 7388-1

▲ Similar to BT 45°, but 3 mm shorter
▲ for Haas, Micron and Hurco machines

Scope of supply:
including O-Ring







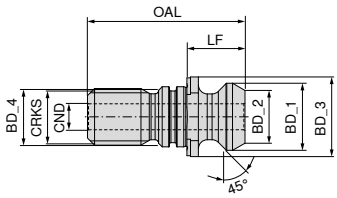
Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	form	83 538 ... £ Y8		83 535 ... £ Y8	
SK 40	15	10	23	17	M16	57	32	25	5	4	19	50	A			23.15	**040**
SK 40	15	10	23	17	M16	57	32	25	5		19	50	B	27.47	**040**		

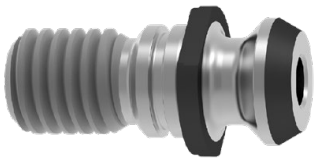


Spare parts BD_4		83 476 ... £ Y8	
17	BT / SK 40	3.16	**040**
25	BT / SK 50	3.16	**050**

Pull studs for tool holders according to ISO 7388-1

▲ ISO 7388-3 Form UD
▲ For tools with axial coolant supply



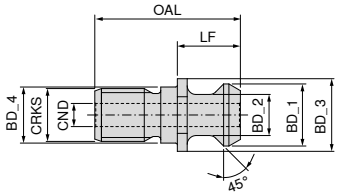


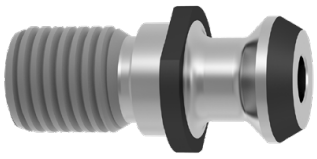
NEW

Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	CND mm	DRVS mm	TQX Nm	82 469 ... £ Y8	
SK 40	18.95	12.95	22.5	17	M16	44.5	16.4	11.15	7.35	19	50	15.59	**04000**

Pull studs for adapters according to ANSI-CAT (MAZAK)

▲ ANSI – CAT 40
▲ Similar to BT 45°, but 3 mm shorter
▲ For Mazak machines





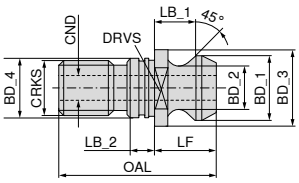
NEW

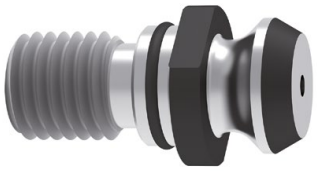
Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	CND mm	DRVS mm	TQX Nm	82 469 ... £ Y8	
SK 40	18.796	12.449	22	17	M16	44.106	19.106	14.026	7	19	50	15.59	**14000**

Pull studs for tool holders according to ISO 7388-1

▲ CAT Mazak
▲ Face ground flat

Scope of supply:
SK 50 including O-ring
SK 40 without O-ring groove

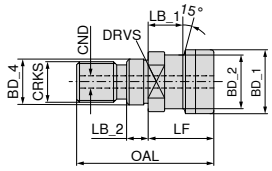


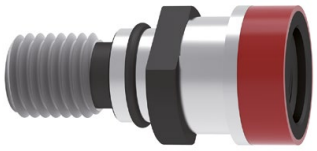


Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	82 487 ... £ Y8	
SK 40	18.79	12.44	21.8	17	M16	41.26	16.25	11.17	4.0	7.0	19	50	16.00	**040**
SK 50	29.10	19.60	37.0	25	M24	65.50	25.55	17.95	5.5	11.5	30	150	25.10	**050**

Pull studs for tool holders according to ISO 7388-1

▲ SK 40 with circlip groove and edge protection, with and without internal thread
▲ SK 50 with circlip groove, with and without internal thread
▲ For tools according to ISO 7388-1 for conversion to DIN 2080



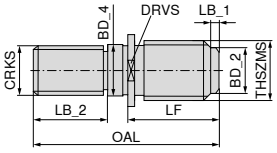


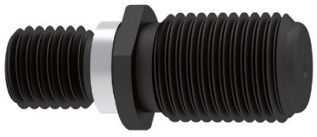
Adapter	BD_1 mm	BD_2 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	without internal thread 82 493 ... £ Y8		with internal thread 82 494 ... £ Y8	
SK 40	25.0	21.1	17	M16	53	25	13.6	8	7	19	50	26.17	**040**	26.17	**040**
SK 50	39.3	32.0	25	M24	65	25	13.3	10		30	150	29.85	**050** [1]	29.85	**050**

1) with O ring

Pull studs for tool holders according to ISO 7388-1

▲ DECKEL thread S 20 x 2





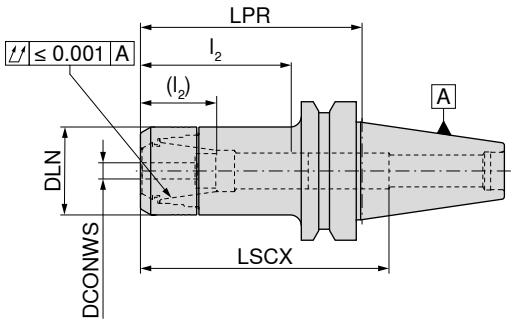
Adapter	THSZMS	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	BD_2 mm	BD_4 mm	DRVS mm	83 471 ... £ Y8	
SK 40	S 20 x 2	M16	55	33	4	17	16.7	17	22	44.99	**040**

ER Precision Collet chuck – Centro-P

- ▲ for standard or sealed nuts
- ▲ maximum size collet to ISO tolerance field H10
- ▲ for clamping a roll key is required
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Holder **without** nut, **without** backstop







AD

G 2,5 n_{max} 25000

84 524 ...

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	£ Y8	
BT 30	1 - 10	50	30	73	28 - 44 (16 - 31)	426E (ER16)	263.76	**001**
BT 30	1 - 10	75	30	97	28 - 45 (14 - 31)	426E (ER16)	292.02	**002**
BT 30	1 - 10	100	30	123	28 - 44 (16 - 31)	426E (ER16)	339.04	**003**
BT 30	1 - 10	120	30	112	28 - 45 (14 - 31)	426E (ER16)	367.98	**004**
BT 30	2 - 16	60	40	77	35 - 59 (30 - 42)	430E (ER25)	301.49	**160**
BT 30	2 - 16	75	40	72	38 - 56 (23 - 39)	430E (ER25)	301.49	**161**
BT 30	2 - 16	90	40	87	38 - 56 (23 - 39)	430E (ER25)	367.98	**162**
BT 30	2 - 16	120	40	115	38 - 56 (23 - 39)	430E (ER25)	367.98	**164**
BT 30	2 - 20	60	50	69	42 - 52	470E (ER32)	230.91	**207**
BT 30	2 - 20	75	50	84	42 - 62 (24 - 45)	470E (ER32)	230.91	**208**
BT 30	2 - 20	90	50	94	42 - 62 (24 - 45)	470E (ER32)	252.81	**209**
BT 40	1 - 10	75	30	90	38 - 53 (29 - 39)	426E (ER16)	186.01	**210**
BT 40	1 - 10	90	30	120	30 - 50 (29 - 36)	426E (ER16)	220.42	**310**
BT 40	1 - 10	120	30	140	29 - 45 (29 - 35)	426E (ER16)	300.14	**410**
BT 40	1 - 10	150	30	180	29 - 45 (29 - 32)	426E (ER16)	323.57	**510**
BT 40	1 - 10	200	30	220	29 - 50 (29 - 36)	426E (ER16)	375.15	**610**
BT 40	2 - 16	60	40	92	44 - 64 (36 - 46)	430E (ER25)	211.05	**116**
BT 40	2 - 16	75	40	100	42 - 59 (36 - 41)	430E (ER25)	186.01	**216**
BT 40	2 - 16	90	40	91	42 - 59 (36 - 41)	430E (ER25)	220.42	**316**
BT 40	2 - 16	105	40	100	35 - 60 (20 - 42)	430E (ER25)	317.60	**168**
BT 40	2 - 16	120	40	91	40 - 65 (36 - 47)	430E (ER25)	323.57	**416**
BT 40	2 - 16	150	40	100	40 - 64 (36 - 45)	430E (ER25)	347.03	**516**
BT 40	2 - 16	200	40	150	40 - 64 (36 - 45)	430E (ER25)	398.60	**616**
BT 40	2 - 20	60	50	55	45 - 64 (42 - 46)	470E (ER32)	211.05	**120**
BT 40	2 - 20	75	50	100	42 - 76 (42 - 52)	470E (ER32)	186.01	**220**
BT 40	2 - 20	90	50	100	42 - 76 (42 - 52)	470E (ER32)	220.42	**320**
BT 40	2 - 20	120	50	110	42 - 71 (42 - 53)	470E (ER32)	323.57	**420**
BT 40	2 - 20	150	50	110	42 - 71 (42 - 53)	470E (ER32)	347.03	**520**
BT 40	3 - 26	75	63	78	54 - 59	472E (ER40)	237.61	**226**
BT 40	3 - 26	105	63	93	55 - 71 (48 - 53)	472E (ER40)	307.95	**326**
BT 50	2 - 20	75	50	110	45 - 70 (42 - 53)	470E (ER32)	351.72	**720**
BT 50	2 - 20	105	50	140	45 - 63 (42 - 45)	470E (ER32)	417.38	**820**
BT 50	2 - 20	165	50	200	45 - 74 (42 - 56)	470E (ER32)	628.40	**920**
BT 50	3 - 26	75	63	100	48 - 58	472E (ER40)	375.15	**726**
BT 50	3 - 26	105	63	100	48 - 58	472E (ER40)	440.82	**826**

→ Transmittable torque moments, Page 313

LSCX = clamping depth without back stop screw for shanks
l_2 = with back stop screw 1, dimension in brackets (l_2) = with back stop screw 2
dimension LPR when using tightening nuts with seals 3 mm longer

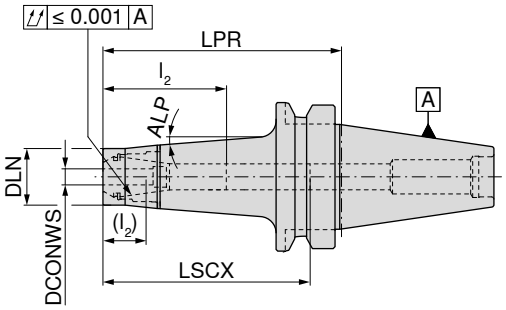
Spare parts, ER precision collet chuck – Centro-P

Spare parts for collet	Lock nut IK 84 950 ... £ Y8		Lock nut 84 950 ... £ Y8			Stop screw 2 83 950 ... £ Y8			Stop screw 1 83 950 ... £ Y8	
426E (ER16)	96.95	011	72.00	001	M11x1 - SW6	60.14	341	M11x1 - SW6	40.28	337
430E (ER25)	108.06	013	80.00	003	M18x1,5 - SW6	42.31	432	M18x1,5 - SW6	30.17	431
470E (ER32)	115.55	015	88.00	005	M22x1,5 - SW6	35.73	402	M22x1,5 - SW6	26.03	401
472E (ER40)	158.03	017	128.02	007				M28x1,5 - SW6	36.47	400

ER Precision tapered collet chuck – Centro-P

- ▲ for special tapered nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** nut, **without** backstop





AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	ALP	84 517 ... £ Y8	
BT 40	1 - 10	100	24	72	28 - 48 (20 - 35)	426E (ER16)	4.5°	309.06	**410**
BT 40	1 - 10	135	24	165	28 - 48 (20 - 35)	426E (ER16)	4.5°	290.47	**31000**
BT 40	1 - 10	160	24	180	28 - 48 (20 - 35)	426E (ER16)	4.5°	387.39	**510**

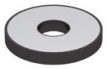
→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

Spare parts for collet	Tapered lock nut IK 84 950 ... £ Y8		Tapered lock nut 84 950 ... £ Y8			Stop screw 2 83 950 ... £ Y8			Stop screw 1 83 950 ... £ Y8	
426E (ER16)	119.03	033	100.56	031	M11x1 - SW6	60.14	341	M11x1 - SW6	40.28	337

Accessories


ER collet
→ 268–276, 279


Sealing ring
→ 280


Roll key
→ 286


Roll key device
→ 286

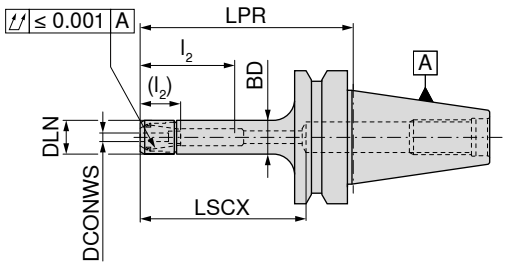

Pull studs
→ 110–111


Others
→ 284

ER Precision collet chuck, slim version – Centro-P

- ▲ for Mini Clamping Nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** nut, **without** backstop






AD
G 2,5 n_{max} 25000


AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	BD mm	LSCX mm	l_2 (l_2) mm	for collet	84 507 ... £ Y8		84 508 ... £ Y8	
BT 30	1 - 7	50	16	16	68	18 - 32 (12 - 22)	4008E (ER11)	293.27	**007**		
BT 30	1 - 7	100	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	324.71	**008**		
BT 40	1 - 7	75	16	16	100	15 - 30 (8 - 21)	4008E (ER11)			308.86	**307**
BT 40	1 - 7	90	16	16	68	18 - 36 (12 - 26)	4008E (ER11)			318.75	**40600**
BT 40	1 - 7	120	16	16	140	15 - 30 (8 - 21)	4008E (ER11)			411.70	**507**
BT 40	1 - 7	150	16	16	68	18 - 36 (12 - 26)	4008E (ER11)			429.90	**90600**
BT 40	1 - 10	75	22	22	100	27 - 49 (16 - 32)	426E (ER16)			308.86	**216**
BT 40	1 - 10	90	22	22	115	27 - 49 (16 - 32)	426E (ER16)			308.86	**316**
BT 40	1 - 10	120	22	22	145	27 - 49 (16 - 32)	426E (ER16)			411.70	**416**
BT 40	1 - 10	150	22	22	175	27 - 49 (16 - 32)	426E (ER16)			411.70	**516**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer


Mini lock nut IK


Mini lock nut

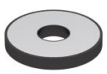

Stop screw 2


Stop screw 1

Spare parts for collet	84 950 ... £ Y8		84 950 ... £ Y8		83 950 ... £ Y8		83 950 ... £ Y8	
4008E (ER11)			100.56	**041**	M8x1 - SW4	57.32 **340**	M8x1 - SW4	38.17 **336**
426E (ER16)	97.92	**035**	80.34	**034**	M11x1 - SW6	60.14 **341**	M11x1 - SW6	40.28 **337**

Accessories


ER collet
→ 268–276, 279


Sealing ring
→ 280


Device
→ 285


Roll key
→ 286


Roll key device
→ 286


Pull studs
→ 110–111


Others
→ 284

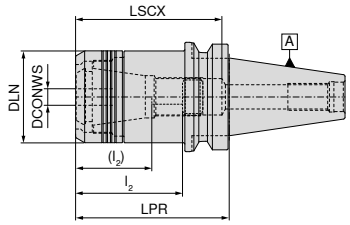
16

ER precision collet chuck – HDC

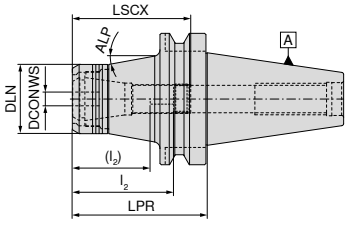
- ▲ HDC = Heavy Duty Chuck, an adapter specially designed for rough machining
- ▲ For heavy duty lock nut
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body **including** lock nut, **without** backstop screw



cylindrical



Conical





AD
G 6,3 n_{max} 18000
cylindrical



AD
G 6,3 n_{max} 18000
conical

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	ALP °	for collet	84 400 ... £ Y8		84 400 ... £ Y8	
BT 40	2 - 20	60	53	80	41 - 63 (27 - 45)		470E (ER32)	427.74	**12069**		
BT 40	2 - 20	90	53	85	41 - 63 (27 - 45)		470E (ER32)	445.46	**22069**		
BT 50	2 - 20	75	53	114	41 - 80 (27 - 62)	10	470E (ER32)			663.10	**12068**
BT 50	2 - 20	105	53	140	41 - 80 (27 - 62)	10	470E (ER32)			774.48	**22068**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without backstop screw
l_2 = Clamping depth backstop screw 1, dimension in brackets (l_2) = Clamping depth backstop screw 2



Lock nut



Stop screw 2



Stop screw 1

Spare parts DCONWS	84 950 ... £ Y8			83 950 ... £ Y8			83 950 ... £ Y8	
2 - 20	134.15	**30100**	M22x1,5 - SW6	35.73	**402**	M22x1,5 - SW6	26.03	**401**

Accessories



ER collet
→ 268–276, 278–279



Roll key
→ 286



Roll key device
→ 286



Pull studs
→ 110–111

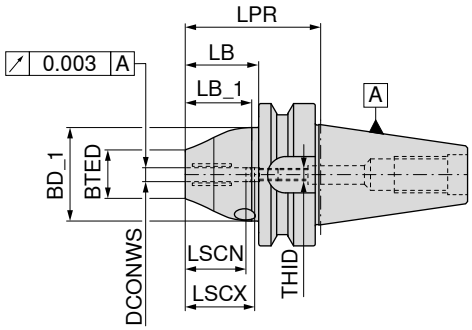


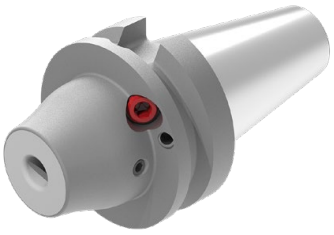
Others
→ 284

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw





NEW



AD/B
G 2,5 n_{max} 25000

84 254 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	£ Y8	
BT 40	6	58.0	26	42	27.2	31.0	37	27	M5	691.08	**10669**
BT 40	8	58.0	28	42	27.2	31.0	37	27	M6	691.08	**10869**
BT 40	10	58.0	30	42	27.2	31.0	41	31	M8x1	691.08	**11069**
BT 40	12	58.0	32	49	27.2	31.0	46	36	M10x1	691.08	**11269**
BT 40	16	72.5	38	49	41.7	45.5	49	38	M12x1	691.08	**11669**
BT 40	20	72.5	38	49	41.7	45.5	51	41	M16x1	691.08	**12069**

→ Min. clamping depth, Page 312



Clamping key – T



Pressure screw



Stop screw IK

Spare parts DCONWS		80 397 ... £ Y7		83 950 ... £ Y8		83 950 ... £ Y7	
6	SW5	8.11	**050**	M10x12	13.60 **55000**	M5x12,5 - SW2,5	25.16 **418**
8	SW5	8.11	**050**	M10x12	13.60 **55000**	M6x12,5 - SW3	25.16 **419**
10	SW5	8.11	**050**	M10x12	13.60 **55000**	M8x1x13,5 - SW3	25.16 **420**
12	SW5	8.11	**050**	M10x12	13.60 **55000**	M10x1x13,5 - SW5	25.16 **421**
16	SW5	8.11	**050**	M10x12	13.60 **55000**	M12x1x13,5 - SW5	25.16 **422**
20	SW5	8.11	**050**	M10x12	13.60 **55000**	M16x1x13,5 - SW8	29.02 **424**

Accessories



Reduction sleeve
→ 282



Pull studs
→ 110–111

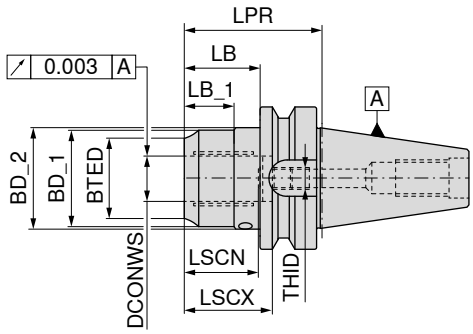


Others
→ 284

HyPower – Complus

▲ High pressure chuck, short and stable version
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw





NEW



AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB mm	LB_1 mm	LSCX mm	LSCN mm	THID		83 513 ... £ Y8	
BT 40	20	72.5	38					51	40	M16x1x13,5		450.95	**120**
BT 40	32	90.0	54	63		63.0		61	51	M16x1x13,5		544.37	**13269**
BT 50	20	83.5	38	49		45.5		51	41	M16x1x13,5		676.54	**12068**
BT 50	32	90.0	57	68	72	52.0	35	61	51	M16x1x13,5		676.54	**13268**

→ Min. clamping depth, Page 312


Cylindrical screw


Clamping key – T


Pressure screw


Stop screw IK

Spare parts for Article no.		83 950 ... £ Y7			80 397 ... £ Y7			83 950 ... £ Y7			83 950 ... £ Y7	
83 513 13269	M5x5 - SW2,5	3.85	**157**	SW5	8.11	**050**	M10x1x14	11.52	**429**	M16x1x13,5 - SW8	29.02	**424**
83 513 12068	M5x5 - SW2,5	3.85	**157**	SW5	8.11	**050**	M10x1x14	11.52	**429**	M16x1x13,5 - SW8	29.02	**424**
83 513 13268	M5x5 - SW2,5	3.85	**157**	SW5	8.11	**050**	M10x1x14	11.52	**429**	M16x1x13,5 - SW8	29.02	**424**

Accessories


Reduction sleeve
→ 282

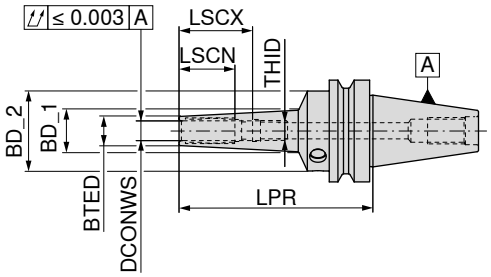

Pull studs
→ 110–111


Others
→ 284

HyPower – Access 3°

▲ High pressure chuck, slim 3°
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw, pressure screw and screw plug







AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	THID	83 522 ... £ Y8	
medium length	BT40	3	120	9	16.55	49.5	28	12	M3	882.18	103
	BT40	4	120	10	17.55	49.5	28	16	M3	882.18	104
	BT40	5	120	11	18.55	49.5	28	20	M3	882.18	105
	BT40	6	120	12	19.55	49.5	37	27	M5	752.33	106
	BT40	8	120	14	21.55	49.5	37	27	M6	752.33	108
	BT40	10	120	16	23.65	49.5	41	31	M8x1	752.33	110
	BT40	12	120	18	25.76	49.5	46	36	M10x1	752.33	112
	BT40	16	120	24	31.45	49.5	49	39	M12x1	1,081.73	116
	BT40	20	120	28	35.55	49.5	51	41	M16x1	1,081.73	120
	BT40	6	160	16	33.53	49.5	37	27	M5	1,132.28	206
	BT40	8	160	18	34.60	49.5	37	27	M6	1,132.28	208
	BT40	10	160	20	36.27	49.5	41	31	M8x1	1,132.28	210
	BT40	12	160	22	37.88	49.5	46	36	M10x1	1,132.28	212
	BT40	6	200	16	37.88	49.5	37	27	M5	1,272.43	306
	BT40	8	200	18	38.90	49.5	37	27	M6	1,272.43	308
	BT40	10	200	20	40.57	49.5	41	31	M8x1	1,272.43	310
	BT40	12	200	22	42.18	49.5	46	36	M10x1	1,272.43	312

→ Min. clamping depth, Page 312


Cylindrical screw


Clamping key – T


Pressure screw

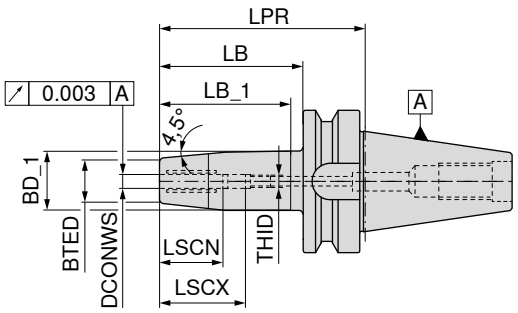

Stop screw IK

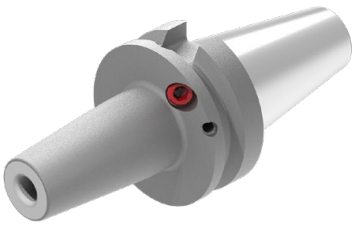
Spare parts for Article no.		83 950 ... £ Y7			80 397 ... £ Y7			83 950 ... £ Y7			83 950 ... £ Y7	
83 522 103	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M3x20 - SW1,5	17.47	172
83 522 104	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M3x20 - SW1,5	17.47	172
83 522 105	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M3x20 - SW1,5	17.47	172
83 522 106	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M5x12,5 - SW2,5	25.16	418
83 522 108	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M6x12,5 - SW3	25.16	419
83 522 110	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M8x1x13,5 - SW3	25.16	420
83 522 112	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M10x1x13,5 - SW5	25.16	421
83 522 116	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M12x1x13,5 - SW5	25.16	422
83 522 120	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M16x1x13,5 - SW8	29.02	424
83 522 206	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M5x12,5 - SW2,5	25.16	418
83 522 208	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M6x12,5 - SW3	25.16	419
83 522 210	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M8x1x13,5 - SW3	25.16	420
83 522 212	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M10x1x13,5 - SW5	25.16	421
83 522 306	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M5x12,5 - SW2,5	25.16	418
83 522 308	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x10	22.91	158	M6x12,5 - SW3	25.16	419
83 522 310	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M8x1x13,5 - SW3	25.16	420
83 522 312	M5x5 - SW2,5	3.85	157	SW5	8.11	050	M10x1x12	22.91	159	M10x1x13,5 - SW5	25.16	421

HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw





NEW



AD/B
G 2,5 n_{max} 25000

84 255 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	£ Y8	
BT 40	6	90	21	27	57.7	63	37	27	M5	827.03	**10669**
BT 40	8	90	21	27	57.7	63	37	27	M6	827.03	**10869**
BT 40	10	90	24	32	57.7	63	41	31	M8x1	827.03	**11069**
BT 40	12	90	24	32	57.7	63	46	36	M10x1	827.03	**11269**
BT 40	16	90	27	34	57.2	63	49	39	M12x1	827.03	**11669**
BT 40	20	90	33	42	57.5	63	51	41	M16x1	827.03	**12069**

→ Min. clamping depth, Page 312


Clamping key – T

80 397 ...


Pressure screw

83 950 ...


Stop screw IK

83 950 ...

Spare parts DCONWS		£ Y7			£ Y8			£ Y7	
6	SW5	8.11	**050**	M10x12	13.60	**55000**	M5x12,5 - SW2,5	25.16	**418**
8	SW5	8.11	**050**	M10x12	13.60	**55000**	M6x12,5 - SW3	25.16	**419**
10	SW5	8.11	**050**	M10x12	13.60	**55000**	M8x1x13,5 - SW3	25.16	**420**
12	SW5	8.11	**050**	M10x12	13.60	**55000**	M10x1x13,5 - SW5	25.16	**421**
16	SW5	8.11	**050**	M10x12	13.60	**55000**	M12x1x13,5 - SW5	25.16	**422**
20	SW5	8.11	**050**	M10x12	13.60	**55000**	M16x1x13,5 - SW8	29.02	**424**


Reduction sleeve
→ 282

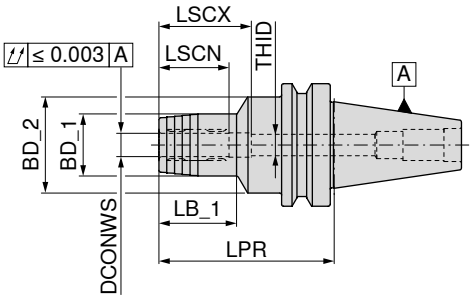

Pull studs
→ 110–111


Others
→ 284

HyTens – Fit

▲ Hydraulic chuck, short and slim version
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw







AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	LB_1 mm	THID	83 521 ... £ Y8	
BT 40	6	90	26	49.5	37	27	29	M5	876.59	**106**
BT 40	8	90	28	49.5	37	27	30	M6	876.59	**108**
BT 40	10	90	30	49.5	41	31	35	M8x1	876.59	**110**
BT 40	12	90	32	49.5	46	36	40	M10x1	766.28	**112**
BT 40	16	90	38	49.5	49	39	45	M12x1	876.59	**116**
BT 40	20	90	42	49.5	51	41	47	M16x1	766.28	**120**
BT 40	25	90	55	52.0	57	47	50	M16x1	876.59	**125**
BT 40	32	90	63	62.0	61	51	48	M16x1	876.59	**132**
BT 50	6	90	26	49.5	37	27	29	M5	1,226.81	**306**
BT 50	8	90	28	49.5	37	27	30	M6	1,226.81	**308**
BT 50	10	90	30	49.5	41	31	34	M8x1	1,226.81	**310**
BT 50	12	90	32	49.5	46	36	34	M10x1	1,114.58	**312**
BT 50	16	90	38	49.5	49	39	35	M12x1	1,226.81	**316**
BT 50	20	90	42	49.5	51	41	35	M16x1	1,114.58	**320**
BT 50	25	110	55	63.0	57	47	48	M16x1	1,226.81	**325**
BT 50	32	110	63	70.0	61	51	50	M16x1	1,226.81	**332**

→ Min. clamping depth, Page 312


Pressure screw


Stop screw IK


Stop screw IK

Spare parts DCONWS		83 950 ... £ Y7			83 950 ... £ Y7			83 950 ... £ Y7	
6	M8x1x10	17.42	**439**				M5x12,5 - SW2,5	25.16	**418**
8	M8x1x10	17.42	**439**	M6x14 - SW2	25.16	**417**	M6x12,5 - SW3	25.16	**419**
10	M10x1x12	17.42	**440**				M8x1x13,5 - SW3	25.16	**420**
12	M10x1x12	17.42	**440**				M10x1x13,5 - SW5	25.16	**421**
16	M10x1x12	17.42	**440**				M12x1x13,5 - SW5	25.16	**422**
20 - 32	M10x1x12	17.42	**440**				M16x1x13,5 - SW8	29.02	**424**

Accessories


Reduction sleeve
→ 282

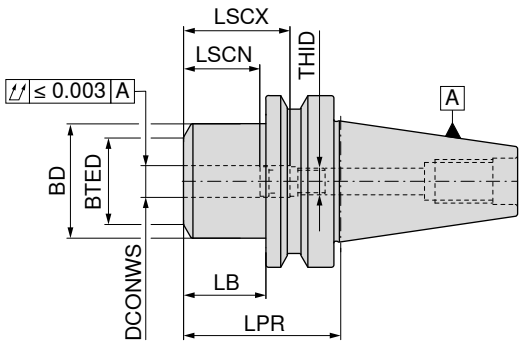

Pull studs
→ 110–111

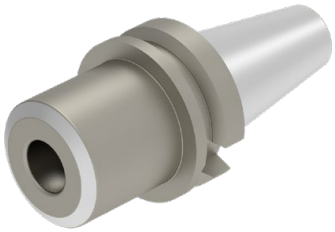

Others
→ 284

HyTens – Compact

▲ Hydraulic chuck, short and stable version
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw







AD
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BD mm	BTED mm	LB mm	LSCN mm	LSCX mm	THID		**83 430 ...** £ Y8	
BT 40	12	58.0	42	32	31.0	36	46	M8x1		395.61	**01269**
BT 40	20	72.5	49	38	45.5	41	51	M16x1		395.61	**02069**
BT 50	20	83.5	49	38	45.5	41	51	M16x1		707.06	**02068**

→ Min. clamping depth, Page 312


Clamping key – T


Pressure screw

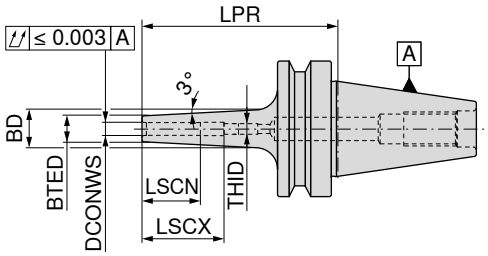

Stop screw IK

Spare parts for Article no.	**80 397 ...** £ Y7		**83 950 ...** £ Y7		**83 950 ...** £ Y7	
83 430 01269	8.11	**050**	17.42	**440**	25.16	**420**
83 430 02069	8.11	**050**	17.42	**440**	29.02	**424**
83 430 02068	8.11	**050**	17.42	**440**	29.02	**424**

Shrink adapter, Slim 3°

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

TG







AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	84 323 ... £ Y8	
short	BT 40	3	90	9	15	28	12	M6	710.42	103
	BT 40	4	90	10	16	28	16	M6	691.22	104
	BT 40	5	90	11	17	30	20	M6	691.22	105
	BT 40	6	90	12	18	36	26	M5	614.40	106
	BT 40	8	90	14	20	36	26	M6	614.40	108
	BT 40	10	90	16	22	41	31	M8x1	614.40	110
	BT 40	12	90	18	24	47	37	M10x1	614.40	112
	BT 40	14	90	20	26	47	37	M10x1	614.40	114
	BT 40	16	90	22	28	50	40	M12x1	614.40	116
	BT 40	18	90	24	30	50	40	M12x1	614.40	118
	BT 40	20	90	26	32	52	42	M16x1	614.40	120
medium length	BT 40	3	120	9	16	12	12		792.00	203
	BT 40	4	120	10	17	16	16		777.61	204
	BT 40	5	120	11	18	20	20		777.61	205
	BT 40	6	120	12	21	36	26	M5	696.02	206
	BT 40	8	120	14	23	36	26	M6	696.02	208
	BT 40	10	120	16	25	41	31	M8x1	696.02	210
	BT 40	12	120	18	27	47	37	M10x1	696.02	212
	BT 40	14	120	20	29	47	37	M10x1	696.02	214
	BT 40	16	120	22	31	50	40	M12x1	696.02	216
	BT 40	18	120	24	33	50	40	M12x1	696.02	218
	BT 40	20	120	26	35	52	42	M16x1	696.02	220
extra-long	BT 40	3	160	9	19	12	12		892.80	303
	BT 40	4	160	10	20	16	16		878.40	304
	BT 40	5	160	11	21	20	20		878.40	305
	BT 40	6	160	12	24	36	26	M5	796.81	306
	BT 40	8	160	14	26	36	26	M6	796.81	308
	BT 40	10	160	16	28	41	31	M8x1	796.81	310
	BT 40	12	160	18	30	47	37	M10x1	796.81	312
	BT 40	14	160	20	32	47	37	M10x1	796.81	314
	BT 40	16	160	22	34	50	40	M12x1	796.81	316
	BT 40	18	160	24	36	50	40	M12x1	796.81	318
	BT 40	20	160	26	38	52	42	M16x1	796.81	320

→ Min. clamping depth, Page 312


Stop screw IK

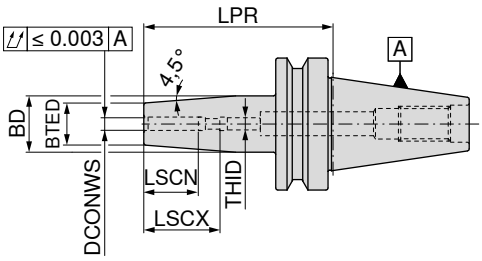

Stop screw IK

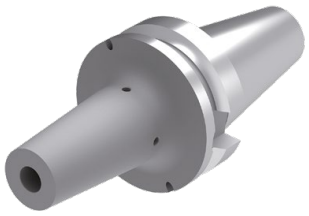
Spare parts DCONWS		83 950 ... £ Y7			83 950 ... £ Y7	
3 - 5	M6x14 - SW2	25.16	417			
6				M5x12,5 - SW2,5	25.16	418
8				M6x12,5 - SW3	25.16	419
10				M8x1x13,5 - SW3	25.16	420
12 - 14				M10x1x13,5 - SW5	25.16	421
16 - 18				M12x1x13,5 - SW5	25.16	422
20				M16x1x13,5 - SW8	29.02	424

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

TG







AD
G 2,5 n_{max} 25000



AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	84 303 ... £ Y8		84 303 ... £ Y8	
short	BT 30	3	85	10	17	28	12	M6	715.22	003		
	BT 30	4	85	15	22	28	16	M6	691.22	004		
	BT 30	5	85	15	22	30	20	M6	691.22	005		
	BT 30	6	85	21	27	36	26	M5	614.40	006		
	BT 30	8	85	21	27	36	26	M6	614.40	008		
	BT 30	10	85	24	32	41	31	M8x1	614.40	010		
	BT 30	12	85	24	32	47	37	M10x1	614.40	012		
	BT 30	14	85	27	34	47	37	M10x1	614.40	014		
	BT 30	16	85	27	34	50	40	M12x1	614.40	016		
	BT 30	18	85	33	42	50	40	M12x1	614.40	018		
	BT 30	20	85	33	42	52	42	M16x1	614.40	020		
	BT 40	3	90	10	17	28	12	M6			337.91	103
	BT 40	4	90	15	22	28	16	M6			328.42	104
	BT 40	5	90	15	22	30	20	M6			328.42	105
	BT 40	6	90	21	27	36	26	M5			289.03	106
	BT 40	8	90	21	27	36	26	M6			289.03	108
	BT 40	10	90	24	32	41	31	M8x1			289.03	110
	BT 40	12	90	24	32	47	37	M10x1			289.03	112
	BT 40	14	90	27	34	47	37	M10x1			289.03	114
	BT 40	16	90	27	34	50	40	M12x1			289.03	116
	BT 40	18	90	33	42	50	40	M12x1			289.03	118
	BT 40	20	90	33	42	52	42	M16x1			289.03	120
	BT 40	25	100	44	53	58	48	M16x1			289.03	125
medium length	BT 40	3	120	10	20	12	12				379.27	203
	BT 40	4	120	15	22	16	16				369.76	204
	BT 40	5	120	15	22	20	20				369.76	205
	BT 40	6	120	21	27	36	26	M5			330.38	206
	BT 40	8	120	21	27	36	26	M6			330.38	208
	BT 40	10	120	24	32	41	31	M8x1			330.38	210
	BT 40	12	120	24	32	47	37	M10x1			330.38	212
	BT 40	14	120	27	34	47	37	M10x1			330.38	214
	BT 40	16	120	27	34	50	40	M12x1			330.38	216
	BT 40	18	120	33	42	50	40	M12x1			330.38	218
	BT 40	20	120	33	42	52	42	M16x1			330.38	220
	BT 40	25	120	44	53	58	48	M16x1			330.38	225
extra-long	BT 40	3	160	10	20	12	12				429.90	303
	BT 40	4	160	15	22	16	16				420.41	304
	BT 40	5	160	15	22	20	20				420.41	305
	BT 40	6	160	21	27	36	26	M5			381.05	306
	BT 40	8	160	21	27	36	26	M6			381.05	308
	BT 40	10	160	24	32	41	31	M8x1			381.05	310
	BT 40	12	160	24	32	47	37	M10x1			381.05	312
	BT 40	14	160	27	34	47	37	M10x1			381.05	314
	BT 40	16	160	27	34	50	40	M12x1			381.05	316
	BT 40	18	160	33	42	50	40	M12x1			381.05	318
	BT 40	20	160	33	42	52	42	M16x1			381.05	320
	BT 40	25	160	44	53	58	48	M16x1			381.05	325

→ Min. clamping depth, Page 312

Spare parts heat shrink adapter 4.5°



Stop screw IK



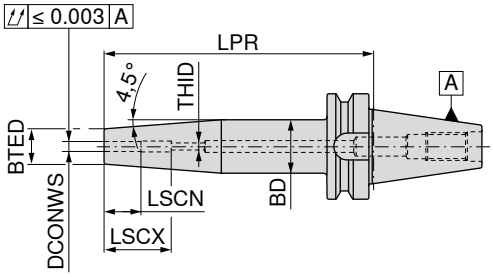
Stop screw IK

Spare parts DCONWS		83 950 ... £ Y7			83 950 ... £ Y7	
3 - 5	M6x14 - SW2	25.16	417			
6				M5x12,5 - SW2,5	25.16	418
8				M6x12,5 - SW3	25.16	419
10				M8x1x13,5 - SW3	25.16	420
12 - 14				M10x1x13,5 - SW5	25.16	421
16 - 18				M12x1x13,5 - SW5	25.16	422
20 - 25				M16x1x13,5 - SW8	29.02	424

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG







AD/B
G 2,5 n_{max} 25000

82 310 ...

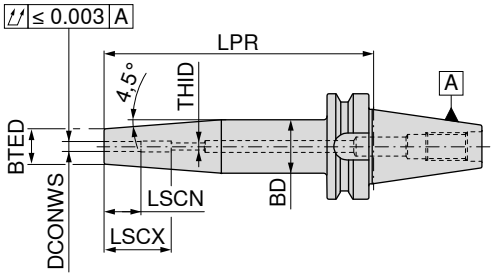
	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	£ Y8/3B	
short	BT 40	3	90	11	15				306.68	**10369**
	BT 40	4	90	11	15				294.20	**10469**
	BT 40	5	90	11	15				294.20	**10569**
	BT 40	6	90	21	27	36	26	M5	263.99	**10669**
	BT 40	8	90	21	27	36	26	M6	263.99	**10869**
	BT 40	10	90	24	34	41	31	M8x1	263.99	**11069**
	BT 40	12	90	24	34	46	36	M10x1	263.99	**11269**
	BT 40	14	90	27	34	46	36	M10x1	263.99	**11469**
	BT 40	16	90	27	34	49	39	M12x1	263.99	**11669**
	BT 40	18	90	33	42	49	39	M12x1	263.99	**11869**
	BT 40	20	90	33	42	51	41	M16x1	263.99	**12069**
	BT 40	25	100	44	53	57	47	M16x1	263.99	**12569**
	BT 50	6	100	21	27	36	26	M5	280.93	**10668**
	BT 50	8	100	21	27	36	26	M6	280.93	**10868**
	BT 50	10	100	24	32	41	31	M8x1	280.93	**11068**
	BT 50	12	100	24	32	47	37	M10x1	280.93	**11268**
	BT 50	14	100	27	34	47	37	M10x1	280.93	**11468**
	BT 50	16	100	27	34	50	40	M12x1	280.93	**11668**
	BT 50	18	100	33	42	50	40	M12x1	280.93	**11868**
	BT 50	20	100	33	42	52	42	M16x1	280.93	**12068**
	BT 50	25	100	44	53	58	48	M16x1	280.93	**12568**
	BT 50	32	100	44	53	62	52	M16x1	280.93	**13268**
medium length	BT 50	6	120	21	27	36	26	M5	308.51	**20668**
	BT 50	8	120	21	27	36	26	M6	308.51	**20868**
	BT 50	10	120	24	32	41	31	M8x1	308.51	**21068**
	BT 50	12	120	24	32	47	37	M10x1	308.51	**21268**
	BT 50	14	120	27	34	47	37	M10x1	308.51	**21468**
	BT 50	16	120	27	34	50	40	M12x1	308.51	**21668**
	BT 50	18	120	33	42	50	40	M12x1	308.51	**21868**
	BT 50	20	120	33	42	52	42	M16x1	308.51	**22068**
	BT 50	25	120	44	53	58	48	M16x1	308.51	**22568**
	BT 50	32	120	44	53	62	52	M16x1	308.51	**23268**

→ Min. clamping depth, Page 312

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG







AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	82 310 ... £ Y8/3B	
extra-long	BT 40	6	160	21	27	36	26	M5	341.92	**30669**
	BT 40	8	160	21	27	36	26	M6	341.92	**30869**
	BT 40	10	160	24	34	41	31	M8x1	341.92	**31069**
	BT 40	12	160	24	34	46	36	M10x1	341.92	**31269**
	BT 40	14	160	27	34	46	36	M10x1	341.92	**31469**
	BT 40	16	160	27	34	49	39	M12x1	341.92	**31669**
	BT 40	18	160	33	42	49	39	M12x1	341.92	**31869**
	BT 40	20	160	33	42	51	41	M16x1	341.92	**32069**
	BT 40	25	160	44	53	57	47	M16x1	341.92	**32569**
	BT 50	6	160	21	27	36	26	M5	342.69	**30668**
	BT 50	8	160	21	27	36	26	M6	342.69	**30868**
	BT 50	10	160	24	32	41	31	M8x1	342.69	**31068**
	BT 50	12	160	24	32	47	37	M10x1	342.69	**31268**
	BT 50	14	160	27	34	47	37	M10x1	342.69	**31468**
	BT 50	16	160	27	34	50	40	M12x1	342.69	**31668**
	BT 50	18	160	33	42	50	40	M12x1	342.69	**31868**
	BT 50	20	160	33	42	52	42	M16x1	342.69	**32068**
	BT 50	25	160	44	53	58	48	M16x1	342.69	**32568**
	BT 50	32	160	44	53	62	52	M16x1	342.69	**33268**

→ Min. clamping depth, Page 312



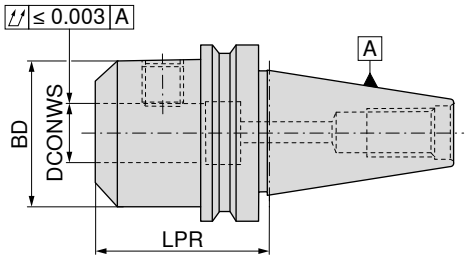
Stop screw IK

Spare parts DCONWS		82 950 ... £ Y8/3B	
6	M5x16 - SW2,5	5.32	**30000**
8	M6x16 - SW3	5.39	**30100**
10	M8x1x16 - SW4	5.74	**30200**
12 - 14	M10x1x14 - SW5	6.07	**30300**
16 - 18	M12x1x16 - SW6	6.40	**30400**
20 - 32	M16x1x16 - SW8	6.73	**30500**

16

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW



AD
G 2,5 n_{max} 25000

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	£ Y8	82 741 ...
short	BT 30	6	50	25	169.35	10670
	BT 30	8	50	28	154.31	10870
	BT 30	10	50	35	154.31	11070
	BT 30	12	55	42	154.31	11270
	BT 30	14	55	44	154.31	11470
	BT 30	16	63	48	154.31	11670
	BT 30	18	63	50	154.31	11870
	BT 30	20	63	52	184.79	12070
extra short	BT 40	16	35	48	91.12	01669
	BT 40	20	35	50	91.12	02069
	BT 40	25	40	50	99.59	02569[1)]
	BT 40	32	75	72	125.86	03269[1)]

1) Version with two grubscrews



Grubscrew

Spare parts DCONWS		£ W7	62 950 ...
6	M6x10	1.16	006
8	M8x10	1.16	008
10	M10x12	2.22	010
12 - 14	M12x16	1.76	012
16 - 18	M14x16	2.18	016
20	M16x16	2.32	020
25	M18x2x20	4.48	025
32	M20x2x20	4.68	032

Accessories

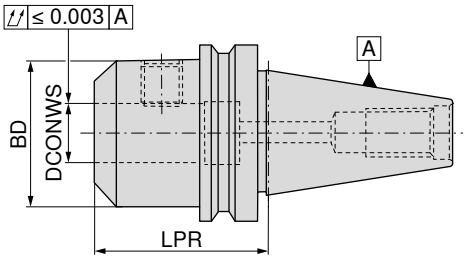


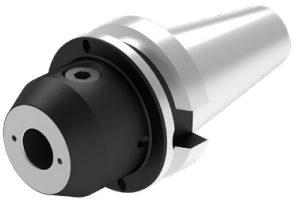


Pull studs → 110–111
Others → 284

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW



AD/B
G 2,5 n_{max} 25000

82 740 ...

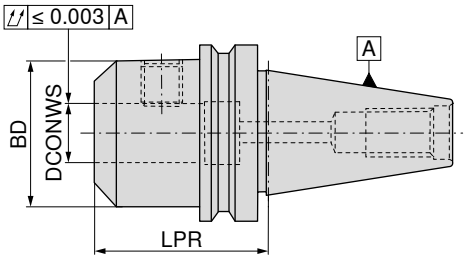
	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	£ Y8	
short	BT 40	6	50	25	84.31	**10669**
	BT 40	8	50	28	84.31	**10869**
	BT 40	10	63	35	79.58	**11069**
	BT 40	12	63	42	79.58	**11269**
	BT 40	14	63	44	79.58	**11469**
	BT 40	16	63	48	86.16	**11669**
	BT 40	18	63	50	86.16	**11869**
	BT 40	20	63	52	86.16	**12069**
	BT 40	25	100	65	94.53	**12569**
	BT 40	32	100	72	102.83	**13269**[1)]
	BT 40	40	120	80	112.47	**14069**[1)]
	BT 50	6	63	25	114.53	**10668**
	BT 50	8	63	28	114.53	**10868**
	BT 50	10	80	35	111.33	**11068**
	BT 50	12	80	42	118.13	**11268**
	BT 50	14	80	44	118.13	**11468**
	BT 50	16	80	48	118.13	**11668**
	BT 50	18	80	50	118.13	**11868**
	BT 50	20	80	52	118.13	**12068**
	BT 50	25	100	65	131.37	**12568**[1)]
	BT 50	32	105	72	134.02	**13268**[1)]
	BT 50	40	120	80	138.92	**14068**[1)]
medium length	BT 40	6	100	25	87.89	**20669**
	BT 40	8	100	28	87.89	**20869**
	BT 40	10	100	35	82.97	**21069**
	BT 40	12	100	42	82.97	**21269**
	BT 40	14	100	44	82.41	**21469**
	BT 40	16	100	48	91.12	**21669**
	BT 40	18	100	50	90.72	**21869**
	BT 40	20	100	52	91.12	**22069**
	BT 50	6	100	25	128.31	**20668**
	BT 50	8	100	28	128.31	**20868**
	BT 50	10	100	35	122.67	**21068**
	BT 50	12	100	42	122.67	**21268**
	BT 50	14	100	44	122.67	**21468**
	BT 50	16	100	48	123.43	**21668**
	BT 50	18	100	50	123.43	**21868**
	BT 50	20	100	52	123.43	**22068**
	BT 50	25	120	65	134.41	**22568**[1)]

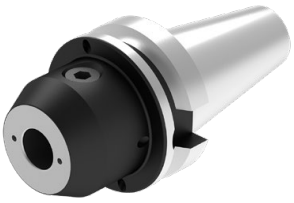
1) Version with two grubscrews

Continued on next page

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW



AD/B
G 2,5 n_{max} 25000

82 740 ...

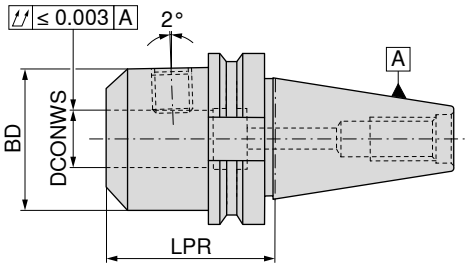
	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	£ Y8	
extra-long	BT 40	6	160	25	101.12	**40669**
	BT 40	8	160	28	101.12	**40869**
	BT 40	10	160	35	95.82	**41069**
	BT 40	12	160	42	95.82	**41269**
	BT 40	14	160	44	95.82	**41469**
	BT 40	16	160	48	96.20	**41669**
	BT 40	18	160	50	96.20	**41869**
	BT 40	20	160	52	96.20	**42069**
	BT 40	25	160	65	102.83	**42569**[1)]
	BT 50	6	160	25	156.87	**40668**
	BT 50	8	160	28	156.87	**40868**
	BT 50	10	160	35	157.07	**41068**
	BT 50	12	160	42	157.07	**41268**
	BT 50	14	160	44	157.07	**41468**
	BT 50	16	160	48	156.29	**41668**
	BT 50	18	160	50	156.29	**41868**
	BT 50	20	160	52	156.29	**42068**
	BT 50	25	160	65	157.41	**42568**[1)]
	BT 50	32	160	72	157.07	**43268**[1)]

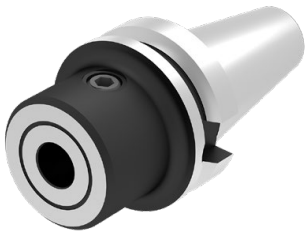
1) Version with two grubscrews

The M3 screws with WAF 1.5 mm supplied can be used to seal the two additional coolant holes.

Cylindrical Shank Adapter (Whistle Notch)

- ▲ For shanks according to DIN 6535 HE / 1835 E with angled clamping flat
- ▲ The groove in the flat face is a characteristic feature of the Whistle Notch version
- ▲ also available with Balluff chip **on request**





NEW



AD/B
G 2,5 n_{max} 25000

82 742 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	£ Y8	
short	BT 40	6	50	25	103.98	**10669**
	BT 40	8	50	28	103.98	**10869**
	BT 40	10	63	35	96.39	**11069**
	BT 40	12	63	42	96.39	**11269**
	BT 40	14	63	44	96.39	**11469**
	BT 40	16	63	48	105.82	**11669**
	BT 40	18	63	50	105.82	**11869**
	BT 40	20	63	52	105.82	**12069**
	BT 40	25	100	65	134.58	**12569**[1)]
	BT 40	32	100	72	146.66	**13269**[1)]
	BT 40	40	120	80	170.36	**14069**[1)]
	BT 50	6	63	25	177.41	**10668**
	BT 50	8	63	28	177.41	**10868**
	BT 50	10	80	35	169.52	**11068**
	BT 50	12	80	42	169.52	**11268**
	BT 50	14	80	44	169.52	**11468**
	BT 50	16	80	48	170.53	**11668**
	BT 50	18	80	50	170.53	**11868**
	BT 50	20	80	52	170.53	**12068**
	BT 50	25	100	65	185.97	**12568**[1)]
	BT 50	32	105	72	188.99	**13268**[1)]
long	BT 40	6	130	25	131.00	**30669**
	BT 40	8	130	28	131.00	**30869**
	BT 40	10	130	35	122.46	**31069**
	BT 40	12	130	42	122.46	**31269**
	BT 40	16	130	48	131.73	**31669**
	BT 40	20	130	52	131.73	**32069**
	BT 40	25	130	65	157.60	**32569**[1)]
	BT 50	6	130	25	206.11	**30668**
	BT 50	8	130	28	206.11	**30868**
	BT 50	10	130	35	196.54	**31068**
	BT 50	12	130	42	196.54	**31268**
	BT 50	16	130	48	196.54	**31668**
	BT 50	20	130	52	196.54	**32068**
	BT 50	25	130	65	206.11	**32568**[1)]
	BT 50	32	130	72	207.95	**33268**[1)]

1) Version with two grubscrews

Spare parts
cylindrical shank adapters (Weldon and Whistle Notch)

		Adjustment screw			Clamping screw			Grubscrew			Backstop screw	
		10 950 ...			**62 950 ...**			**62 950 ...**			**84 950 ...**	
Spare parts DCONWS H4		£ W7/6B			£ W7/6B			£ W7			£ Y8	
6							M6x10	1.16	**006**	M5x20	15.50	**44100**
8							M8x10	1.16	**008**	M6x20	5.38	**21500**
10							M10x12	2.22	**010**	M8x16	15.50	**44200**
12 - 14	M10X20 DIN 913	3.26	**17500**				M12x16	1.76	**012**			
16 - 18							M14x16	2.18	**016**	M12x20	15.50	**44300**
20				M16x20 - SW8	1.28	**51200**	M16x16	2.32	**020**			
25							M18x2x20	4.48	**025**	M20x24	15.50	**44000**
32 - 40							M20x2x20	4.68	**032**	M20x24	15.50	**44000**

Accessories



Pull studs

→ 110–111

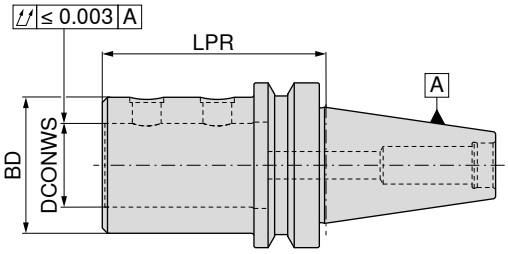


Others

→ 284

Indexable insert drill adapter ISO 7388- 2 – MAS-BT

▲ also available with Balluff chip **on request**





NEW



AD/B
G 6,3 n_{max} 15000

82 748 ...

Adapter	DCONWS mm	LPR mm	BD mm	£ Y8	
BT 40	20	75	40	266.53	**12069**
BT 40	25	80	45	266.53	**12569**
BT 40	32	85	52	266.53	**13269**
BT 50	20	85	40	338.53	**12068**
BT 50	25	90	45	338.53	**12568**
BT 50	32	95	52	338.53	**13268**
BT 50	40	105	65	338.53	**14068**
BT 50	50	113	75	338.53	**15068**

Suitable eccentric sleeves can be found in → **Chapter 3, Indexable insert drilling.**



Grubscrew

10 950 ...

Spare parts DCONWS		£ 2A/28	
20	M10x1x10	4.64	**001**
25 - 32	M12x1x10	4.64	**002**
40 - 50	M16x1x12	4.64	**003**

Accessories



Pull studs
→ 110–111



Others
→ 284

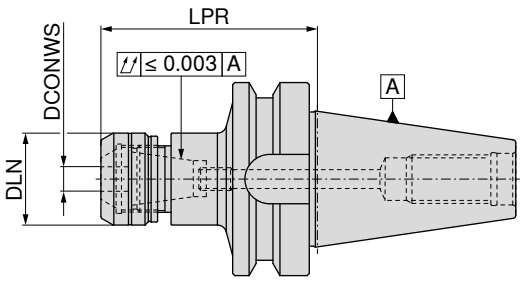
16

ER Precision Collet chuck – PCC

- ▲ For standard or sealing disc lock nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 100 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body with lock nut and backstop screw







AD/B
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	for collet	Torque moment / Clamping force Nm	82 700 ... £ Y8	
BT 40	1 - 10	70	30	426E (ER16)	40 / 2-70	227.17	**11069**
BT 40	1 - 10	100	30	426E (ER16)	40 / 2-70	327.25	**21069**
BT 40	2 - 16	70	40	430E (ER25)	80 / 10-160	227.17	**11669**
BT 40	2 - 16	100	40	430E (ER25)	80 / 10-160	327.25	**21669**
BT 40	2 - 20	70	50	470E (ER32)	125 / 15-250	227.17	**12069**
BT 40	2 - 20	100	50	470E (ER32)	125 / 15-250	327.25	**22069**
BT 50	2 - 16	80	40	430E (ER25)	80 / 10-160	427.98	**11668**
BT 50	2 - 16	100	40	430E (ER25)	80 / 10-160	531.51	**21668**
BT 50	2 - 20	80	50	470E (ER32)	125 / 15-250	427.98	**12068**
BT 50	2 - 20	100	50	470E (ER32)	125 / 15-250	531.51	**22068**

Dimension LPR is 4.5 mm longer for ER16 and ER32 and 5.0 mm longer for ER25 when using thro' coolant lock nut


Lock nut IK


Lock nut


Backstop screw PCC 2


Backstop screw PCC 1

Spare parts for collet	82 950 ... £ Y8		82 950 ... £ Y8			82 950 ... £ Y8			82 950 ... £ Y8	
426E (ER16)	86.35	**11000**	81.37	**01000**				M8X3,0	8.13	**00100**
430E (ER25)	86.35	**11600**	81.37	**01600**	M18x1,5	11.07	**00200**	M8x8	8.13	**00300**
470E (ER32)	86.35	**12000**	81.37	**02000**	M18x1,5	11.07	**00200**	M8x8	8.13	**00300**

Accessories


ER collet
→ 268–276, 278–279

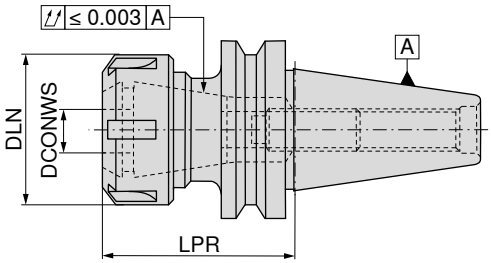

Sealing ring
→ 281

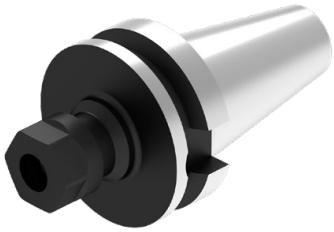

Roll key
→ 286

ER-Collet chuck

▲ also available with Balluff chip **on request**

Scope of supply:
Holder with lock nut and adjustable back stop





	Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	NEW AD G 2,5 n_{max} 25000 82 743 ... £ Y8		NEW AD/B G 2,5 n_{max} 25000 82 743 ... £ Y8	
short	BT 30	1 - 10	70	28	56	426E (ER16)	174.89	11070[1)]		
	BT 30	1 - 16	70	42	104	430E (ER25)	174.89	11670		
	BT 30	2 - 20	70	50	136	470E (ER32)	174.89	12070		
	BT 40	1 - 10	60	22	56	426E (ER16 mini)			223.90	11169
	BT 40	1 - 10	60	28	56	426E (ER16)			117.72	11069[1)]
	BT 40	1 - 16	70	42	104	430E (ER25)			123.05	11669
	BT 40	2 - 20	70	50	136	470E (ER32)			123.43	12069
	BT 40	3 - 26	70	63	176	472E (ER40)			128.31	12669
	BT 50	1 - 10	75	28	56	426E (ER16)	157.25	11068[1)]		
	BT 50	1 - 16	75	42	104	430E (ER25)	141.96	11668		
	BT 50	2 - 20	75	50	136	470E (ER32)	149.29	12068		
	BT 50	4 - 26	75	63	176	472E (ER40)	152.34	12668		
medium length	BT 30	1 - 10	100	28	56	426E (ER16)	244.38	21070[1)]		
	BT 30	1 - 16	100	42	104	430E (ER25)	244.38	21670		
	BT 40	1 - 10	120	22	56	426E (ER16 mini)			223.90	21169
	BT 40	1 - 10	120	28	56	426E (ER16)			129.09	21069[1)]
	BT 40	1 - 16	120	42	104	430E (ER25)			134.41	21669
	BT 40	2 - 20	120	50	136	470E (ER32)			134.78	22069
	BT 40	3 - 26	100	63	176	472E (ER40)			167.67	22669
	BT 50	1 - 10	100	28	56	426E (ER16)	175.56	21068[1)]		
	BT 50	1 - 16	100	42	104	430E (ER25)	145.33	21668		
	BT 50	2 - 20	100	50	136	470E (ER32)	155.52	22068		
	BT 50	3 - 26	100	63	176	472E (ER40)	164.06	22668		
extra-long	BT 40	1 - 10	160	28	56	426E (ER16)			180.60	41069[1)]
	BT 40	1 - 16	160	42	104	430E (ER25)			178.92	41669
	BT 40	2 - 20	160	50	136	470E (ER32)			178.92	42069
	BT 40	3 - 26	160	63	176	472E (ER40)			189.16	42669
	BT 50	1 - 16	160	42	104	430E (ER25)	161.02	41668		
	BT 50	2 - 20	160	50	136	470E (ER32)	177.41	42068		

1) with 6 position lock nut

	 Lock nut 62 950 ... £ W7		 Lock nut IK 83 950 ... £ Y8		 Lock nut 62 950 ... £ W7		 Y clamping key 83 357 ... £ Y8		 ER Mini clamping key 83 950 ... £ Y8		 Mini lock nut 62 950 ... £ W7		 Mini IK 83 950 ... £ Y8		 Stop screw IK 84 950 ... £ Y8	
Spare parts for collet																
426E (ER16 mini)									49.71	101	46.66	066	112.26	058	45.25	44600
426E (ER16)	33.81	044													45.25	44600
430E (ER25)			101.40	055	28.01	055	29.58	125							45.25	44400
470E (ER32)			108.45	056	35.87	65600	43.08	132							45.25	44400
472E (ER40)			130.50	057	34.86	65700	48.80	140							45.25	44500

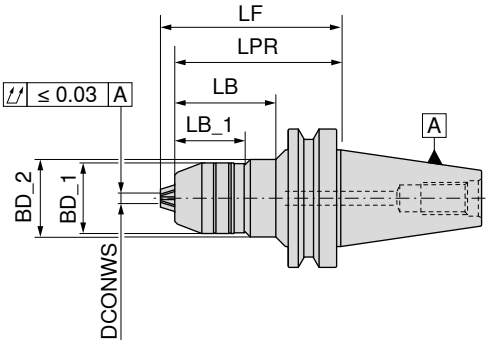
Dimension LPR is 5.0 mm longer for ER16, ER25 and ER32, and 5.5 mm for ER40 when using thro' coolant lock nuts

Short drill chuck – NC 2010

- ▲ Independent of direction of rotation
- ▲ Torque Moment = 12 Nm
- ▲ also available with Balluff chip **on request**

Scope of supply:

Toolholder including clamping key SW4







A
G 6,3 n_{max} 10000



AD
G 6,3 n_{max} 10000

Adapter	DCONWS mm	BD_1 mm	BD_2 mm	LB_1 mm	LB mm	LPR mm	LF mm	84 509 ... £ Y8		84 510 ... £ Y8	
BT 40	0,5 - 13	48.5		50.9		80	89.0	562.65	**413**	510.46	**413**
BT 40	2,5 - 16	51.0		50.9		80	90.5	466.26	**416**	501.29	**416**
BT 50	2,5 - 16	51.0	56	50.9	73	120	130.5	663.46	**516**	698.47	**516**

Accessories



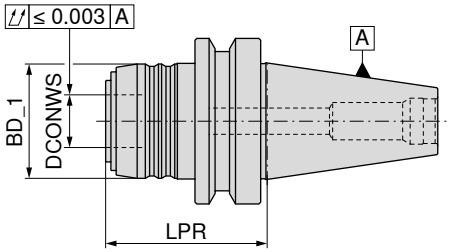
Others

→ 284

Can be used with G 2.5 to 30,000 1/min by subsequent balancing !

Synchro tapping chuck with minimum length compensation

- For collets according to DIN 6499
- With length compensation under tension 1,0 mm and under compression 0,2 mm (LZD)
- p_{max} = 50 bar
- for synchro use
- also available with Balluff chip **on request**







AD

Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LZD± mm	83 515 ... £ Y8	
BT 40	M3 - M12	1	61	43	20	1,0 / 0,2	363.24	**012**
BT 40	M6 - M20	2	82	60	32	1,0 / 0,2	471.18	**020**
BT 50	M3 - M12	1	72	43	20	1,0 / 0,2	394.57	**112**
BT 50	M6 - M20	2	93	60	32	1,0 / 0,2	610.71	**120**

Accessories



Pull studs
→ 110–111



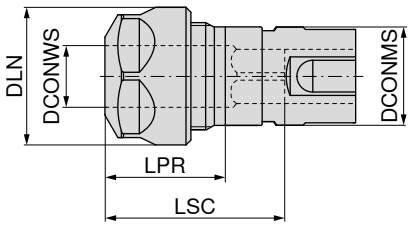
Others
→ 284

16

Insert for synchro quick change tapping chuck with minimum length compensation

▲ SZID = for insert size

Scope of supply:
Includes lock nut





SZID	DCONWS mm	cutting range	LPR mm	DLN mm	LSC mm	for collet	DCONMS mm	83 608 ... £ Y8	
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	247.61	012 [1]
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	288.42	020

1) with 6 position lock nut


Lock nut


Lock nut IK

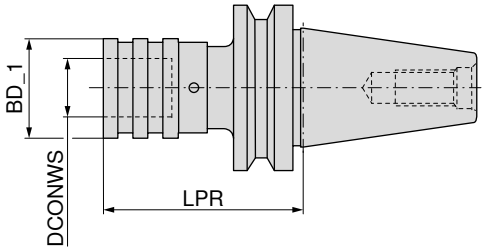

Lock nut


Y clamping key

Spare parts for Article no.		62 950 ... £ W7		83 950 ... £ Y8		62 950 ... £ W7		83 357 ... £ Y8	
83 608 012	M22x1,5 - SW25	33.81	044	M22x1,5	87.05	054	M22x1,5	26.90	054	29.58	116
83 608 020				M32x1,5	101.40	055	M32x1,5	28.01	055	29.58	125

Quick change tap chuck with length compensation

▲ With length compensation under tension and compression (LZD)
▲ also available with Balluff chip **on request**






A

83 528 ...

Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LZD± mm	£ Y8	
BT 30	M3 - M12	01	63	38	19	9	617.65	**312**
BT 30	M6 - M20	02	96	55	31	15	774.59	**320**
BT 40	M3 - M12	01	68	38	19	9	495.59	**412**
BT 40	M6 - M20	02	93	55	31	15	514.16	**420**
BT 50	M3 - M12	01	80	38	19	9	830.50	**512**
BT 50	M6 - M20	02	102	55	31	15	956.10	**520**

Accessories


Collet
→ 288, 290–292


Pull studs
→ 110–111

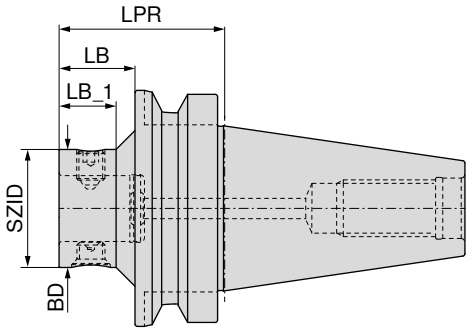

Others
→ 284

Adapter with ABS Connection

▲ also available with Balluff chip **on request**

Scope of supply:

Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc







AD



AD/B

Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	LB_1 mm	84 202 ... £ 3E		84 212 ... £ 3E	
BT 40	A55 00120	ABS 25	25	60	33	25	236.35	**04090**		
BT 40	A55 00130	ABS 32	32	60	33		236.35	**04089**		
BT 40	A55 00140	ABS 40	40	60	33		236.35	**04088**		
BT 40	A55 55150	ABS 50	50	60	33				236.35	**04097**
BT 40	A55 55160	ABS 63	63	70					236.35	**04096**
BT 50	A55 00330	ABS 32	32	70	32	24	266.52	**05089**		
BT 50	A55 00340	ABS 40	40	70	32	24	266.52	**05088**		
BT 50	A55 55350	ABS 50	50	70	32	24			266.52	**05097**
BT 50	A55 55360	ABS 63	63	80	42	37			266.52	**05096**
BT 50	A55 55370	ABS 80	80	100	62				266.52	**05092**
BT 50	A55 55380	ABS 100	100	110					266.52	**05091**

Conversion kit – Cooling agent supply

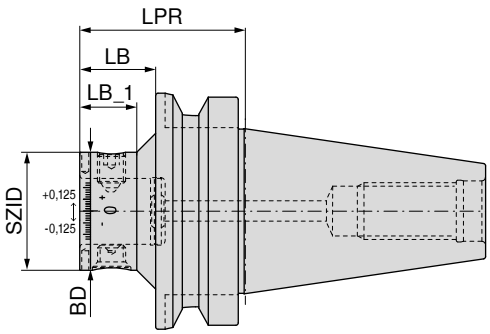


for	Adapter	84 950 ... £ W7/6B	
4 mm	SK 40	7.30	**23200**
6 mm	SK 50	7.30	**23400**

Eccentric adjuster with ABS Connection

▲ Adjustment ± 0.25 mm on diameter
▲ also available with Balluff chip **on request**

Scope of supply:
Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc






AD


AD/B

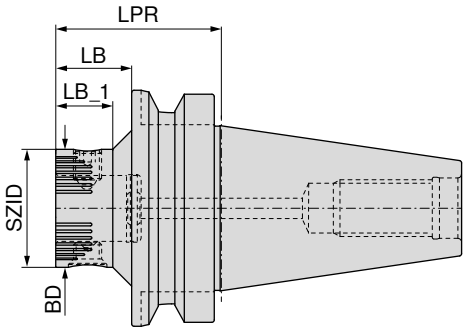
Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	LB_1 mm	84 205 ... £ W4/6A		84 205 ... £ W4/6A	
BT 40	A55 56150	ABS 50	50	60	33				636.91	**04097**
BT 40	A55 56160	ABS 63	63	70			819.82	**04096**		
BT 50	A55 56350	ABS 50	50	70	32	24			714.47	**05097**
BT 50	A55 56360	ABS 63	63	80	42	37	938.67	**05096**		

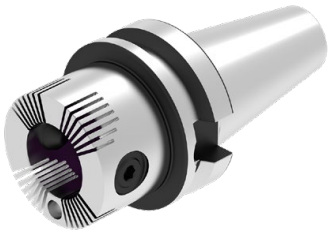
Torsional vibration dampers with ABS Connection

▲ also available with Balluff chip **on request**

Scope of supply:

Steep taper adapter (Form B) with conversion kit (Form AD) and sealing disc







AD/B

Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	LB_1 mm	84 208 ... £ 3E	
BT 40	A55 02150	ABS 50	50	60	33		689.70	**04097**
BT 40	A55 02160	ABS 63	63	70			684.28	**04096**
BT 50	A55 02350	ABS 50	50	70	32	24	761.16	**05097**
BT 50	A55 02360	ABS 63	63	80	42	37	827.11	**05096**



Clamping screw



Taper screw

Spare parts SZID	84 950 ... £ XX		84 950 ... £ XX	
ABS 50	11.49	**20300**	14.59	**20400**
ABS 63	10.93	**25500**	13.87	**27300**

Accessories



Pull studs → 110–111



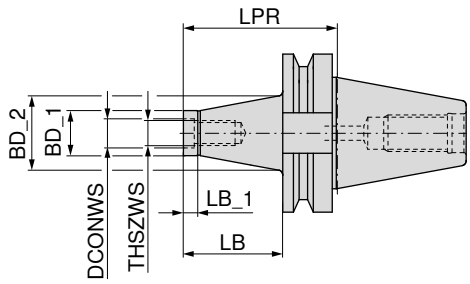
Extension → 187



Others → 284

Adapter for milling cutters with threaded end

▲ also available with Balluff chip **on request**







AD
G 6,3 n_{max} 18000

56 711 ...

Adapter	THSZWS	DCONWS	LB	BD_1	BD_2	LB_1	LPR	£ WA	
		mm	mm	mm	mm	mm	mm		
BT 40	M8	8.5	25	13.8	15	12	52	257.26	**081**
BT 40	M8	8.5	50	13.8	23	12	77	263.55	**082**
BT 40	M8	8.5	75	13.8	25	12	102	269.65	**083**
BT 40	M10	10.5	25	18.0	23	12	52	257.26	**101**
BT 40	M10	10.5	50	18.0	25	12	77	263.55	**102**
BT 40	M10	10.5	75	18.0	30	12	102	269.65	**103**
BT 40	M12	12.5	25	21.0	24	12	52	257.26	**121**
BT 40	M12	12.5	50	21.0	30	12	77	263.55	**122**
BT 40	M12	12.5	75	21.0	35	12	102	269.65	**123**
BT 40	M12	12.5	100	21.0	38	12	127	275.92	**124**
BT 40	M16	17.0	25	29.0	29	12	52	257.26	**161**
BT 40	M16	17.0	50	29.0	34	12	77	263.55	**162**
BT 40	M16	17.0	75	29.0	35	12	102	269.65	**163**
BT 40	M16	17.0	100	29.0	40	12	127	275.92	**164**

Accessories



Extension-Reduction set
→ 257



Pull studs
→ 110–111

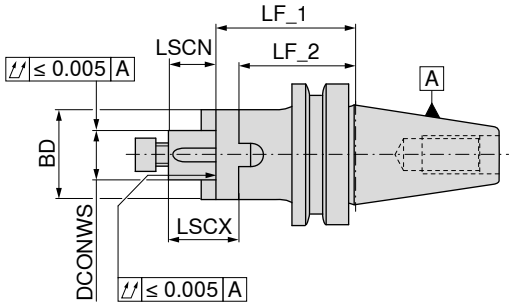


Others
→ 284

Combination shell mill adapter

▲ For milling cutters with transverse or longitudinal groove according to DIN 6358
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder with clamping screw, driving ring and dowel spring





NEW



A
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LF_1 mm	BD mm	LSCX mm	LSCN mm	LF_2 mm	82 744 ... £ Y8	
short	BT 30	16	45	32	27	17	35	169.35	11670
	BT 30	22	47	40	31	19	35	169.35	12270
	BT 30	27	49	46	33	21	37	179.92	12770
	BT 40	16	55	32	27	17	45	116.42	11669
	BT 40	22	55	40	31	19	43	120.98	12269
	BT 40	27	55	48	33	21	43	123.43	12769
	BT 40	32	60	58	38	24	46	130.43	13269
	BT 40	40	60	70	41	27	46	137.23	14069[1)]
	BT 50	16	70	32	27	17	60	178.75	11668
	BT 50	22	70	40	31	19	58	184.79	12268
	BT 50	27	70	48	33	21	58	198.39	12768
	BT 50	32	70	58	38	24	56	204.26	13268
	BT 50	40	70	70	41	27	56	211.65	14068[1)]
medium length	BT 30	16	80	32	27	17	70	215.67	21670
	BT 30	22	80	40	31	19	68	215.67	22270
	BT 30	27	90	48	33	21	78	220.21	22770
	BT 40	16	100	32	27	17	90	147.13	21669
	BT 40	22	100	40	31	19	88	153.22	22269
	BT 40	27	100	48	33	21	88	156.01	22769
	BT 40	32	100	58	38	24	86	164.67	23269
	BT 40	40	100	70	41	27	86	173.21	24069[1)]

1) With cross screw


Parallel key


Drive ring


Cross nut key


Cross screw


clamping screw

Spare parts DCONWS		83 950 ... £ Y8/3B		83 370 ... £ Y8		83 368 ... £ Y8		83 367 ... £ Y8		83 950 ... £ Y8/3B	
16	4 x 4 x 20	4.37	284	16.18	116	26.72	116	M8	7.10	016	M8x25	7.53	113
22	6 x 6 x 25	4.37	285	15.51	122	33.25	122	M10	7.90	022	M10x25	8.50	124
27	7 x 7 x 25	6.94	286	19.35	127	39.10	127	M12	10.10	027	M12x30	9.39	125
32	8 x 7 x 28	4.95	287	20.31	132	53.28	132	M16	15.86	032	M16x35	11.43	126
40	10 x 8 x 32	5.84	288	34.21	140	52.92	140	M20	16.97	040	M20x40 - SW17	12.61	112

Accessories


Pull studs
→ 110–111

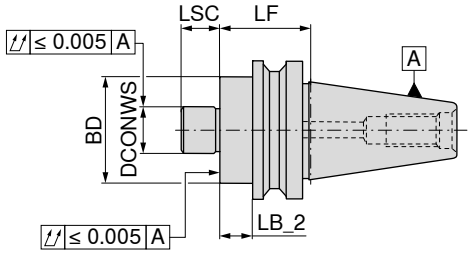

Milling Adapter Rings
→ 263


Others
→ 284

Shell mill adapter with reduced flange diameter

▲ Screwed drive dogs
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with retaining screw and drive dog





NEW



AD
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	BD mm	LB_2 mm	LF mm	LSC mm		82 315 ... £ Y8/3B	
short	BT 40	22	38	33	60	19		118.17	**12269**
	BT 40	27	48	25	52	21		114.27	**12769**
	BT 50	22	38	22	60	19		164.12	**12268**
	BT 50	27	48	25	63	21		169.32	**12768**

These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters.
Now they can be clamped perfectly, thanks to the adapted flange diameters.



Screw for drivers



Driver



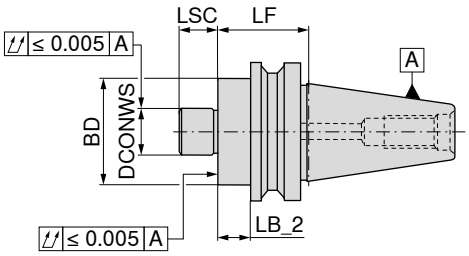
clamping screw

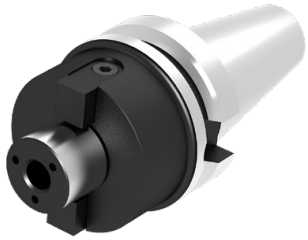
Spare parts DCONWS		83 950 ... £ Y8/3B			83 950 ... £ Y8/3B			83 950 ... £ Y8/3B	
22	M4x8	0.80	**51700**	10x7x20,5	11.26	**51500**	M10x25	8.50	**124**
27	M5x8	0.98	**51800**	12x9x24,3	12.83	**51600**	M12x30	9.39	**125**

Shell mill adapter

▲ With fixed drive dogs and enlarged contact face for milling cutters with transverse groove
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder with clamping screw






NEW
AD
G 2,5 n_{max} 25000
82 745 ...


NEW
AD/B
G 2,5 n_{max} 25000
82 745 ...

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	£ Y8		£ Y8	
short	BT 30	16	18	40	38	17	159.28	**11670**		
	BT 30	22	18	40	48	19	159.28	**12270**		
	BT 30	27	18	50	58	21	169.35	**12770**		
	BT 30	32	28	50	78	24	185.80	**13270**		
	BT 40	16	25	52	38	17			116.42	**11669**
	BT 40	22	25	52	48	19			123.23	**12269**
	BT 40	27	25	52	58	21			125.68	**12769**
	BT 40	32	23	50	78	24			132.31	**13269**
	BT 40	40	23	50	88	27			143.86	**14069**[1)]
	BT 50	16	25	63	38	17	153.86	**11668**		
	BT 50	22	25	63	48	19	157.60	**12268**		
	BT 50	27	25	63	58	21	162.92	**12768**		
	BT 50	32	22	60	78	24	167.44	**13268**		
	BT 50	40	22	60	88	27	169.69	**14068**[1)]		
medium length	BT 40	16	73	100	38	17			120.39	**21669**
	BT 40	22	73	100	48	19			124.37	**22269**
	BT 40	27	73	100	58	21			126.41	**22769**
	BT 40	32	73	100	78	24			132.51	**23269**
	BT 40	40	73	100	88	27			138.92	**24069**[1)]
	BT 50	16	62	100	38	17	168.18	**21668**		
	BT 50	22	62	100	48	19	172.20	**22268**		
	BT 50	27	62	100	58	21	177.24	**22768**		
	BT 50	32	62	100	78	24	182.78	**23268**		
	BT 50	40	62	100	88	27	186.81	**24068**[1)]		
long	BT 40	16	103	130	38	17			127.95	**31669**
	BT 40	22	103	130	48	19			132.31	**32269**
	BT 40	27	103	130	58	21			134.41	**32769**
	BT 40	32	103	130	78	24			140.82	**33269**
	BT 40	40	103	130	88	27			147.05	**34069**[1)]
	BT 50	16	92	130	38	17	179.42	**31668**		
	BT 50	22	92	130	48	19	183.28	**32268**		
	BT 50	27	92	130	58	21	188.82	**32768**		
	BT 50	32	92	130	78	24	194.86	**33268**		
	BT 50	40	92	130	88	27	198.39	**34068**[1)]		
extra-long	BT 40	16	133	160	38	17			132.31	**41669**
	BT 40	22	133	160	48	19			136.64	**42269**
	BT 40	27	133	160	58	21			138.53	**42769**
	BT 40	32	133	160	78	24			144.96	**43269**
	BT 40	40	133	160	88	27			151.02	**44069**[1)]
	BT 50	16	122	160	38	17	185.80	**41668**		
	BT 50	22	122	160	48	19	188.99	**42268**		
	BT 50	27	122	160	58	21	194.86	**42768**		
	BT 50	32	122	160	78	24	200.23	**43268**		
	BT 50	40	122	160	88	27	204.26	**44068**[1)]		

1) with cross screw and 4 holes M12, Pitch Circle diameter = 66.7 mm, coolant outlet on the outer diameter of the spigot (DCONWS)!

Spare parts facemill adapters

Cross nut key



Cross screw



clamping screw

Spare parts DCONWS	83 368 ... £ Y8		83 367 ... £ Y8		83 950 ... £ Y8/3B	
16	26.72	**116**	M8	7.10 **016**	M8x25	7.53 **113**
22	33.25	**122**	M10	7.90 **022**	M10x25	8.50 **124**
27	39.10	**127**	M12	10.10 **027**	M12x30	9.39 **125**
32	53.28	**132**	M16	15.86 **032**	M16x35	11.43 **126**
40	52.92	**140**	M20	16.97 **040**	M20x40 - SW17	12.61 **112**



Screw for drivers



Driver

Spare parts DCONWS	84 950 ... £ Y8		84 950 ... £ Y8	
16	M3x12	10.40 **162**	8x9,8x10	45.97 **43400**
22	M4x10	10.40 **163**	10x11,2x12	45.97 **43200**
27	M4x16	10.40 **164**	12x12,6x14	45.97 **43300**
32	M5x16	10.40 **166**	14x14x22,5	38.31 **160**
40	M5x16	10.40 **166**	16x16x23	42.64 **161**

Accessories



Pull studs
→ 110–111



Extensions
→ 262

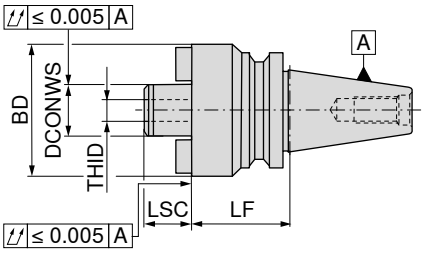


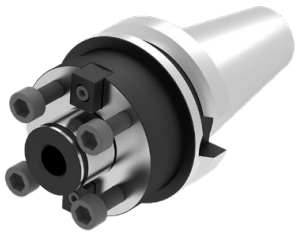
Others
→ 284

Large diameter facemill adapter

▲ For milling cutters with keyway or drive slot DIN 6357
▲ also available with Balluff chip **on request**

Scope of supply:
Holder with integrated drive dogs according to DIN 2079 and 4 fixation screws





NEW



A
G 6,3 n_{max} 8000

82 432 ...

Adapter	DCONWS mm	LF mm	BD mm	LSC mm	THID	£ Y8	
BT 50	40	70	89	30	M20	275.93	**14068**
BT 50	60	80	129	40	M30	334.67	**16068**


Screw for drivers

84 950 ...


Driver

84 950 ...


clamping screw

83 950 ...

Spare parts DCONWS		£ Y8			£ Y8			£ Y8/3B	
40	M5x16	10.40	**166**	16x16x23	42.64	**161**	M12x50	9.38	**140**
60	M12x25	7.47	**43500**	25,4x25x26,5	45.97	**43100**	M16x45	19.27	**160**

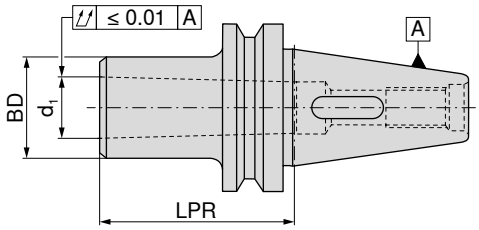
Accessories


Pull studs
→ 110–111


Others
→ 284

Taper sleeve adapter DIN6383 for DIN 228-2D Morse taper shanks

▲ also available with Balluff chip **on request**





NEW



AD

G 6,3 n_{max} 12000

82 746 ...

Adapter	d_1	LPR mm	BD mm	£ Y8	
BT 30	MK1	50	25	151.26	**11070**
BT 30	MK2	60	32	151.26	**12070**
BT 30	MK3	77	40	164.46	**13070**
BT 40	MK1	50	25	102.45	**11069**
BT 40	MK2	50	32	102.45	**12069**
BT 40	MK3	70	40	109.41	**13069**
BT 40	MK4	95	48	114.16	**14069**
BT 50	MK1	45	25	140.06	**11068**
BT 50	MK2	60	32	144.96	**12068**
BT 50	MK3	65	40	144.96	**13068**
BT 50	MK4	95	48	149.68	**14068**
BT 50	MK5	105	63	162.77	**15068**

Accessories



Morse taper adapter sleeve
→ 242



Pull studs
→ 110–111

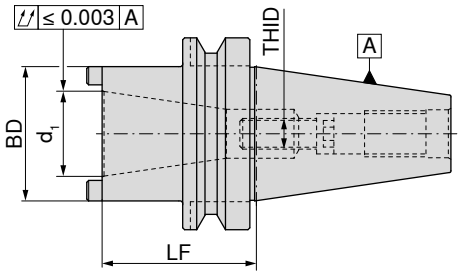


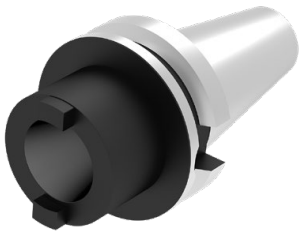
Others
→ 284

Milling adapter sleeve

- ▲ For mounting steep taper adapters according to DIN 2080
- ▲ With an extended retaining screw, adapters compliant with ISO 7388-1 – SK, ISO 7388-2 – MAS-BT and ANSI-CAT can also be clamped
- ▲ also available with Balluff chip **on request**

Scope of supply:
Holder with clamping screw for DIN 2080 adapters





NEW



A
G 6,3 n_{max} 8000

Adapter	d_1	LF mm	BD mm	THID	£ Y8	84 040 ...
BT 40	SK 30	60	51	M12	246.56	**13069**
BT 40	SK 40	100	63	M16	246.56	**14069**
BT 50	SK 40	80	70	M16	262.50	**14068**

Spare parts for Article no.	Clamping screw SK 83 950 ... £ Y8/3B		Clamping Screw 84 950 ... £ Y8		Counterscrew 83 950 ... £ Y8/3B		Hollow key with nose 83 359 ... £ Y8/3B		Threaded ring 84 950 ... £ Y8		clamping screw 83 950 ... £ Y8/3B	
84 040 13069					1.01	**030**	51.95	**017**	52.21	**127**	9.39	**125**
84 040 14069	14.17	**264**	7.47	**43700**	1.01	**030**	78.41	**133**	49.41	**43800**		
84 040 14068	13.23	**009**	7.47	**43600**								

Screw length required when pulling in ISO 7388-1 – SK, ISO 7388-2 – MAS BT or DIN 2080 shanks

ISO 7388-2 Suitable for article no.	Taper Shank Ø d_1	Clamping screw length ISO 7388-1, ISO 7388-2 THID	Clamping screw length DIN 2080 THID
84 040 13069	SK 30 – BT 30		M12x30 – **83 950 125**
84 040 14069	SK 40 – BT 40	M16x70 – **83 950 264**	M16x45 – **84 950 43700**
84 040 14068	SK 40 – BT 40	M16x65 – **84 950 43600**	M16x40 – **83 950 009**

Accessories

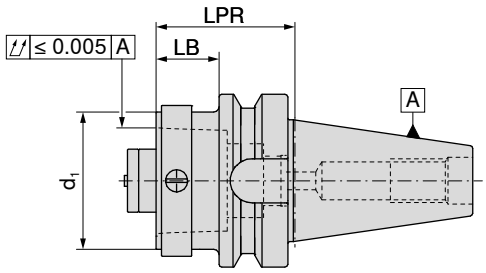



Pull studs → 110–111
Others → 284

BT/HSK-A adapter

▲ for mounting HSK-A adapters according to ISO 12164
▲ also available with Balluff chip **on request**

Scope of supply:
with clamping cartridge and cover ring





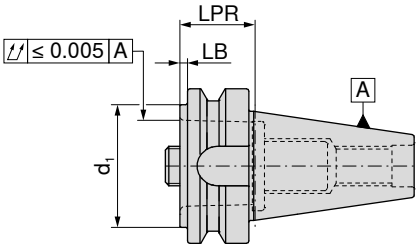
AD

Adapter	d_1	LB mm	LPR mm	84 016 ... £ Y8	
BT 40	HSK-A 32	13	40	1,189.04	**04060**
BT 40	HSK-A 40	13	40	1,211.35	**04059**
BT 40	HSK-A 50	23	50	1,233.40	**04058**
BT 40	HSK-A 63	43	70	1,211.35	**04057**
BT 50	HSK-A 32	12	50	1,498.60	**05060**
BT 50	HSK-A 40	12	50	1,498.60	**05059**
BT 50	HSK-A 50	22	60	1,542.71	**05058**
BT 50	HSK-A 63	22	60	1,630.95	**05057**
BT 50	HSK-A 100	52	90	1,852.27	**05055**

BT/PSC adapter

▲ for mounting PSC adapters according to ISO 26623-1
▲ also available with Balluff chip **on request**

Scope of supply:
with tightening screw






AD

Adapter	d_1	LB mm	LPR mm	£ Y8	84 017 ...
BT 40	PSC 32	3	30	768.97	**04087**
BT 40	PSC 40	3	30	791.26	**04095**
BT 40	PSC 50	3	30	791.26	**04094**
BT 40	PSC 63	58	85	768.97	**04093**
BT 50	PSC 32	2	40	1,056.22	**05087**
BT 50	PSC 40	2	40	1,233.40	**05095**
BT 50	PSC 50	2	40	1,078.51	**05094**
BT 50	PSC 63	2	40	1,122.64	**05093**
BT 50	PSC 80	32	70	1,166.98	**05086**

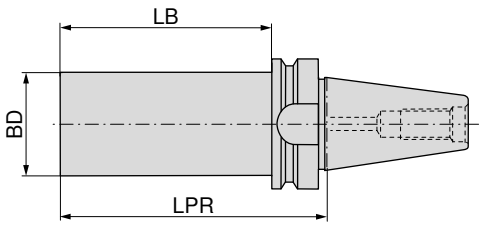

Threaded ring


tightening screw

Spare parts d_1	84 950 ... £ Y8			84 950 ... £ Y8	
PSC 32	52.21	**127**	SW8	37.89	**122**
PSC 40	52.21	**128**	SW8	42.70	**123**
PSC 50	52.21	**129**	SW10	42.70	**124**
PSC 63	104.24	**130**	SW14	47.53	**126**
PSC 80	104.24	**130**	SW14	47.53	**126**

Blank

- ▲ Material: Steel 16MnCr5
- ▲ for production of special tools
- ▲ Diameter BD turned with 0.5 mm oversize
- ▲ Taper hardened and ground
- ▲ Special tool area in soft state
- ▲ also available with Balluff chip **on request**





NEW



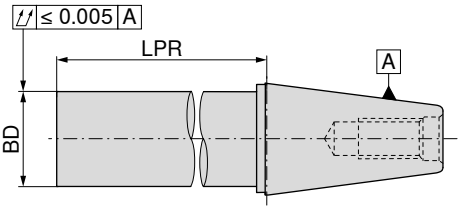
AD/B

Adapter	BD mm	LPR mm	LB mm	82 747 ... £ Y8	
BT 40	63.0	250	223	135.70	**16369**
BT 50	63.5	300	262	240.18	**16368**

Test bar

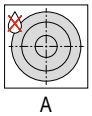
- ▲ Without tool change groove
- ▲ Use for MAS BT 40 special pull studs with 3 mm shorter LF dimension, as standard

Scope of supply:
in wooden box





NEW



A

Adapter	BD mm	LPR mm	81 746 ... £ Y8	
SK / BT 40	40	320	591.64	**14079**
SK / BT 50	50	320	729.43	**15078**

Accessories



Pull studs
→ 110–111



Others
→ 284

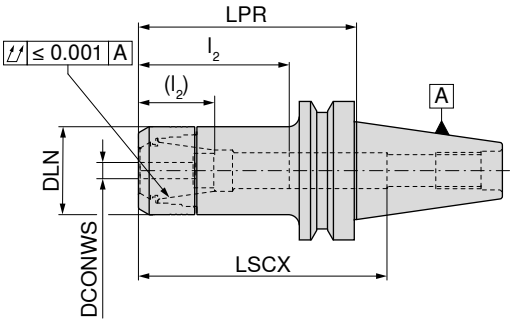
16

ER Precision Collet chuck – Centro-P – BT-FC

- ▲ with face contact
- ▲ for standard or sealed nuts
- ▲ maximum clamping range covered according to ISO tolerance field H10
- ▲ for clamping a roll key is required
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Holder **without** nut, **without** backstop







AD

G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	84 525 ... £ Y8	
BT-FC 30	1 - 10	75	30	97	28 - 45 (14 - 31)	426E (ER16)	322.64	**002**
BT-FC 30	1 - 10	90	30	105	29 - 41 (29 - 38)	426E (ER16)	324.75	**00400**
BT-FC 30	1 - 10	120	30	130	29 - 45 (29 - 32)	426E (ER16)	373.17	**00600**
BT-FC 30	2 - 16	75	40	72	38 - 56 (23 - 39)	430E (ER25)	327.25	**012**
BT-FC 30	2 - 20	75	50	84	42 - 62 (24 - 45)	470E (ER32)	327.25	**022**
BT-FC 40	1 - 10	75	30	90	38 - 53 (29 - 39)	426E (ER16)	359.51	**102**
BT-FC 40	1 - 10	90	30	115	38 - 53 (29 - 38)	426E (ER16)	310.64	**10400**
BT-FC 40	1 - 10	120	30	145	38 - 53 (29 - 38)	426E (ER16)	397.37	**10600**
BT-FC 40	1 - 16	90	40	84	41 - 64 (36 - 46)	430E (ER25)	310.64	**11400**
BT-FC 40	2 - 16	75	40	100	42 - 59 (36 - 41)	430E (ER25)	364.13	**112**
BT-FC 40	2 - 16	120	40	113	41 - 64 (36 - 46)	430E (ER25)	425.60	**11600**
BT-FC 40	2 - 20	75	50	100	42 - 76 (42 - 52)	470E (ER32)	364.13	**122**
BT-FC 40	2 - 20	90	50	95	41 - 72 (41 - 55)	470E (ER32)	310.64	**12400**
BT-FC 40	2 - 20	120	50	110	41 - 72 (41 - 55)	470E (ER32)	425.60	**12600**

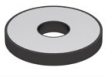
→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

Spare parts for Article no.	Lock nut IK 84 950 ... £ Y8		Lock nut 84 950 ... £ Y8			Stop screw 2 83 950 ... £ Y8			Stop screw 1 83 950 ... £ Y8	
84 525 002	96.95	**011**	72.00	**001**	M11x1 - SW6	60.14	**341**	M11x1 - SW6	40.28	**337**
84 525 012	108.06	**013**	80.00	**003**	M18x1,5 - SW6	42.31	**432**	M18x1,5 - SW6	30.17	**431**
84 525 022	115.55	**015**	88.00	**005**	M22x1,5 - SW6	35.73	**402**	M22x1,5 - SW6	26.03	**401**
84 525 102	96.95	**011**	72.00	**001**	M11x1 - SW6	60.14	**341**	M11x1 - SW6	40.28	**337**
84 525 112	108.06	**013**	80.00	**003**	M18x1,5 - SW6	42.31	**432**	M18x1,5 - SW6	30.17	**431**
84 525 122	115.55	**015**	88.00	**005**	M22x1,5 - SW6	35.73	**402**	M22x1,5 - SW6	26.03	**401**

Accessories


ER collet
→ 268–276, 278–279


Sealing ring
→ 280


Roll key
→ 286


Roll key device
→ 286


Pull studs
→ 110–111

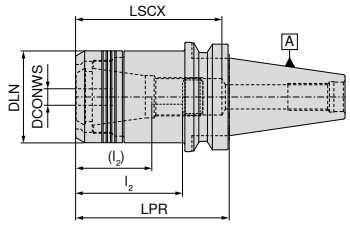

Others
→ 284

ER precision collet chuck – HDC – BT-FC

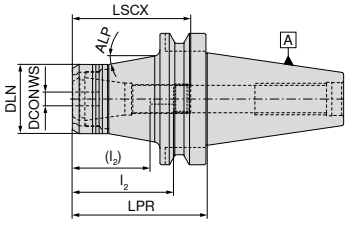
- ▲ HDC = Heavy Duty Chuck, an adapter specially designed for rough machining
- ▲ For heavy duty lock nut
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body **including** lock nut, **without** backstop screw



cylindrical



Conical





AD
G 6,3 n_{max} 18000
cylindrical



AD
G 6,3 n_{max} 18000
conical

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	ALP °	for collet	84 400 ... £ Y8		84 400 ... £ Y8	
BT-FC 40	2 - 20	60	53	80	41 - 63 (27 - 45)		470E (ER32)	645.40	**12064**		
BT-FC 40	2 - 20	90	53	95	41 - 65 (27 - 47)		470E (ER32)	663.10	**22064**		
BT-FC 50	2 - 20	75	53	114	41 - 81 (27 - 63)	10	470E (ER32)			1,075.66	**12063**
BT-FC 50	2 - 20	105	53	144	41 - 81 (27 - 63)	10	470E (ER32)			1,085.78	**22063**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without backstop screw
l_2 = Clamping depth backstop screw 1, dimension in brackets (l_2) = Clamping depth backstop screw 2



Lock nut



Stop screw 2



Stop screw 1

Spare parts DCONWS	84 950 ... £ Y8		83 950 ... £ Y8		83 950 ... £ Y8	
2 - 20	134.15	**30100**	35.73	**402**	26.03	**401**

Accessories



ER collet
→ 268–276, 278–279



Roll key
→ 286



Roll key device
→ 286



Pull studs
→ 110–111



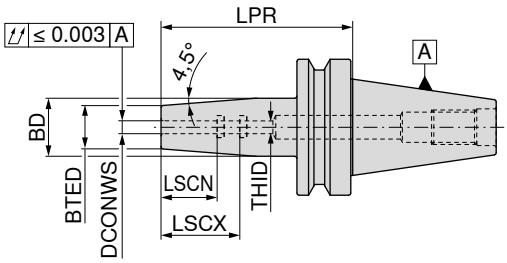
Others
→ 284

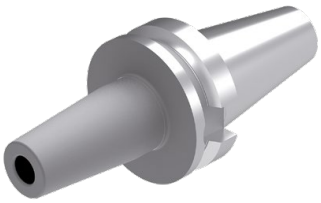
16

Shrink fit adapters 4.5° – BT-FC

▲ with face contact
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

TG






AD
G 2,5 n_{max} 25000


AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	84 325 ... £ Y8		84 325 ... £ Y8	
short	BT-FC 30	3	85	10	17	28	12	M6	269.35	003		
	BT-FC 30	4	85	15	22	28	16	M6	269.35	004		
	BT-FC 30	5	85	15	22	30	20	M6	269.35	005		
	BT-FC 30	6	85	21	27	36	26	M5	269.35	006		
	BT-FC 30	8	85	21	27	36	26	M6	269.35	008		
	BT-FC 30	10	85	24	32	41	31	M8x1	269.35	010		
	BT-FC 30	12	85	24	32	47	37	M10x1	269.35	012		
	BT-FC 30	16	85	27	34	50	40	M12x1	269.35	016		
	BT-FC 30	20	85	33	42	52	42	M16x1	269.35	020		
	BT-FC 40	3	90	10	17	28	12	M6			239.09	103
	BT-FC 40	4	90	15	22	28	16	M6			239.09	104
	BT-FC 40	5	90	15	22	30	20	M6			239.09	105
	BT-FC 40	6	90	21	27	36	26	M5			239.09	106
	BT-FC 40	8	90	21	27	36	26	M6			239.09	108
	BT-FC 40	10	90	24	32	41	31	M8x1			239.09	110
	BT-FC 40	12	90	24	32	47	37	M10x1			239.09	112
	BT-FC 40	16	90	27	34	50	40	M12x1			239.09	116
	BT-FC 40	20	90	33	42	52	42	M16x1			239.09	120
	BT-FC 40	25	100	44	53	58	48	M16x1			239.09	125

→ Min. clamping depth, Page 312


Stop screw IK


Stop screw IK

Spare parts DCONWS		83 950 ... £ Y7			83 950 ... £ Y7	
3 - 5	M6x14 - SW2	25.16	417			
6				M5x12,5 - SW2,5	25.16	418
8				M6x12,5 - SW3	25.16	419
10				M8x1x13,5 - SW3	25.16	420
12				M10x1x13,5 - SW5	25.16	421
16				M12x1x13,5 - SW5	25.16	422
20 - 25				M16x1x13,5 - SW8	29.02	424

Accessories


Shrink fit extension
→ 247

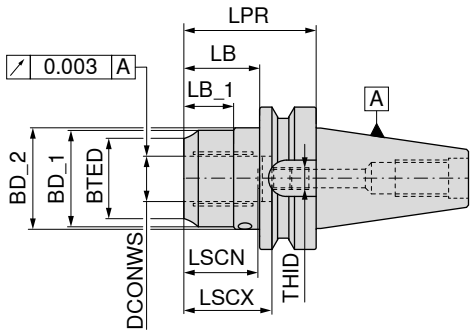

Pull studs
→ 110–111


Others
→ 284

HyPower – Complus

▲ High pressure chuck, short and stable version – BT-FC
▲ with face contact
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw





NEW



AD
G 2,5 n_{max} 25000

83 527 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB mm	LB_1 mm	LSCX mm	LSCN mm	THID	£ Y8	
BT-FC 40	20	72.5	38					51	40	M16x1x13,5	482.32	**120**
BT-FC 40	32	90.0	54	63	62	64.0	48	61	51	M16x1x13,5	585.34	**13274**
BT-FC 50	20	83.5	38	49		47.0		51	41	M16x1x13,5	700.52	**12073**
BT-FC 50	32	90.0	57	68	72	53.5	35	61	51	M16x1x13,5	700.52	**13273**

→ Min. clamping depth, Page 312



Clamping key – T

80 397 ...



Pressure screw

83 950 ...



Stop screw IK

83 950 ...

Spare parts for Article no.		£ Y7			£ Y7			£ Y7	
83 527 120	SW5	8.11	**050**	M10x1x10	22.91	**158**	M8x1x13,5 - SW3	25.16	**420**
83 527 13274	SW5	8.11	**050**	M10x1x14	11.52	**429**	M16x1x13,5 - SW8	29.02	**424**
83 527 12073	SW5	8.11	**050**	M10x1x14	11.52	**429**	M16x1x13,5 - SW8	29.02	**424**
83 527 13273	SW5	8.11	**050**	M10x1x14	11.52	**429**	M16x1x13,5 - SW8	29.02	**424**

Accessories



Reduction sleeve
→ 282



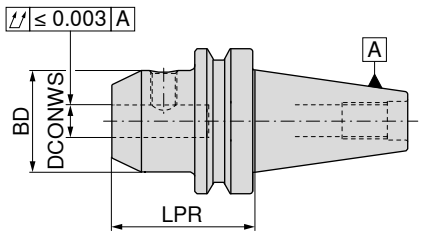
Pull studs
→ 110–111



Others
→ 284

Cylindrical shank adapter (Weldon) – BT-FC

▲ with face contact
▲ for shanks according to DIN 6535 / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**







AD
G 2,5 n_{max} 25000

84 552 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	£ Y8	
short	BT-FC 30	6	50	25	140.14	**006**
	BT-FC 30	8	50	28	140.14	**008**
	BT-FC 30	10	50	35	140.14	**010**
	BT-FC 30	12	50	42	140.14	**012**
	BT-FC 30	16	63	48	150.36	**016**
	BT-FC 30	20	63	52	150.36	**020**
	BT-FC 40	6	50	25	177.60	**106**
	BT-FC 40	8	50	28	171.84	**108**
	BT-FC 40	10	63	35	171.84	**110**
	BT-FC 40	12	63	42	171.84	**112**
	BT-FC 40	16	63	48	171.84	**116**
	BT-FC 40	20	63	52	171.84	**120**
	BT-FC 40	25	90	65	228.45	**125** 1)
	BT-FC 40	32	100	72	228.45	**132** 1)
	BT-FC 50	6	63	25	263.59	**306**
	BT-FC 50	8	63	28	255.80	**308**
	BT-FC 50	10	63	35	255.80	**310**
	BT-FC 50	12	80	42	255.80	**312**
	BT-FC 50	16	80	48	255.80	**316**
	BT-FC 50	20	80	52	255.80	**320**
	BT-FC 50	25	100	65	292.84	**325** 1)
	BT-FC 50	32	105	72	292.84	**332** 1)

1) Version with two grubscrews



Grubscrew

62 950 ...

Spare parts DCONWS		£ W7	
6	M6x10	1.16	**006**
8	M8x10	1.16	**008**
10	M10x12	2.22	**010**
12	M12x16	1.76	**012**
16	M14x16	2.18	**016**
20	M16x16	2.32	**020**
25	M18x2x20	4.48	**025**
32	M20x2x20	4.68	**032**

Accessories



Pull studs
→ 110–111

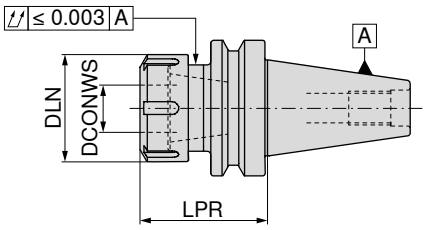


Others
→ 284

ER Collet chuck – BT-FC

▲ with face contact
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder including nut





AD
G 2,5 n_{max} 20000

	Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	84 557 ... £ Y8	
short	BT-FC 30	1 - 10	63	28	56	426E (ER16)	158.15	**010** 1)
	BT-FC 30	1 - 16	60	42	104	430E (ER25)	158.15	**016**
	BT-FC 30	2 - 20	60	50	136	470E (ER32)	158.15	**020**
	BT-FC 40	1 - 10	63	28	56	426E (ER16)	199.21	**110** 1)
	BT-FC 40	1 - 16	60	42	104	430E (ER25)	199.21	**116**
	BT-FC 40	2 - 20	60	50	136	470E (ER32)	199.21	**120**
	BT-FC 50	1 - 16	70	42	104	430E (ER25)	271.38	**316**
	BT-FC 50	2 - 20	70	50	136	470E (ER32)	271.38	**320**
medium length	BT-FC 50	1 - 10	100	28	56	426E (ER16)	271.38	**310** 1)

1) with 6 position lock nut


Lock nut


Lock nut IK


Lock nut


Y clamping key

Spare parts for collet		62 950 ... £ W7		83 950 ... £ Y8		62 950 ... £ W7		83 357 ... £ Y8	
426E (ER16) / BT30-BT50	M22x1,5 - SW25	33.81	**044**	M22x1,5	87.05	**054**			
430E (ER25) / BT30-BT50				M32x1,5	101.40	**055**	M32x1,5	28.01 **055**	29.58 **125**
470E (ER32) / BT30-BT50				M40x1,5	108.45	**056**	M40x1,5	35.87 **65600**	43.08 **132**

Dimension LPR is 5.0 mm longer for ER16, ER25 and ER32, and 5.5 mm for ER40 when using thro' coolant lock nuts

Accessories

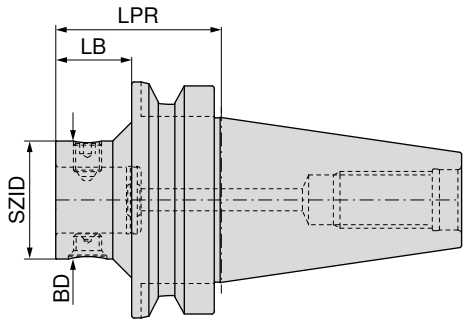

ER collet
→ 268–276, 278–279


Pull studs
→ 110–111


Others
→ 284

Adapter with ABS Connection – BT-FC

▲ with face contact
▲ also available with Balluff chip **on request**






AD

Adapter	SZID	BD mm	LPR mm	LB mm	£ Y8	84 264 ...
BT-FC 40	ABS 50	50	60	33	1,210.85	**05064**
BT-FC 40	ABS 63	63	70		1,245.87	**06364**
BT-FC 50	ABS 50	50	70	32	1,648.33	**05063**
BT-FC 50	ABS 63	63	80	42	1,692.53	**06363**
BT-FC 50	ABS 80	80	100	62	1,718.35	**08063**
BT-FC 50	ABS 100	100	110		1,736.96	**10063**

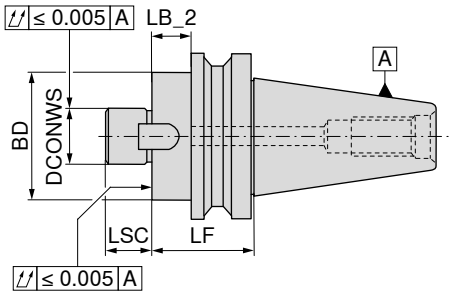

Clamping screw


Taper screw

Spare parts SZID	£ XX	84 950 ...	£ XX	84 950 ...
ABS 50	11.49	**20300**	14.59	**20400**
ABS 63	10.93	**25500**	13.87	**27300**
ABS 80	13.45	**25600**	16.36	**25100**
ABS 100	16.56	**25700**	18.17	**25200**

Shell mill adapter – BT-FC

- ▲ with face contact
- ▲ with fixed drive dogs and enlarged contact face for milling cutters with transverse slot
- ▲ also available with Balluff chip **on request**







AD
G 6,3 n_{max} 15000

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm		84 562 ... £ Y8	
short	BT-FC 30	16	18	39.0	40	17		154.27	016
	BT-FC 30	22	18	39.0	50	19		154.27	022
	BT-FC 30	27	18	39.0	60	21		154.27	027
	BT-FC 30	32	28	49.0	80	24		154.27	032
	BT-FC 40	16	8	34.0	40	17		185.51	116
	BT-FC 40	22	8	34.0	50	19		185.51	122
	BT-FC 40	27	8	34.0	60	21		185.51	127
	BT-FC 40	32	23	49.0	80	24		185.51	132
	BT-FC 40	40	23	49.0	89	27		185.51	140
	BT-FC 50	22	12	48.5	50	19		214.75	322
	BT-FC 50	27	12	48.5	60	21		214.75	327
	BT-FC 50	32	12	48.5	80	24		228.45	332
	BT-FC 50	40	17	53.5	89	27		228.45	340


Screw for drivers


Driver


clamping screw

Spare parts DCONWS		84 950 ... £ Y8			84 950 ... £ Y8			83 950 ... £ Y8/3B	
16	M3x12	10.40	162	8x9x11	26.43	157	M8x25	7.53	113
22	M4x10	10.40	163	10x11,2x13	31.12	158	M10x25	8.50	124
27	M4x16	10.40	164	12x12,6x15	33.71	159	M12x30	9.39	125
32	M5x16	10.40	165	14x14x22,5	38.31	160	M16x35	11.43	126
40	M5x16	10.40	166	16x16x23	42.64	161	M20x40 - SW17	12.61	112

Accessories


Pull studs
→ 110–111

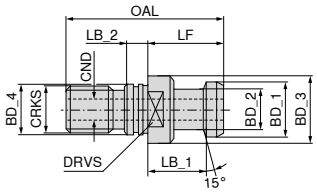

Others
→ 284

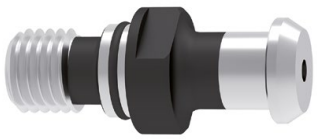
16

Pull stud for tool holders according to ISO 7388-2

▲ MAS-BT 15° Form A

Scope of supply:
including O-Ring



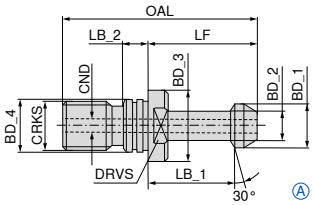


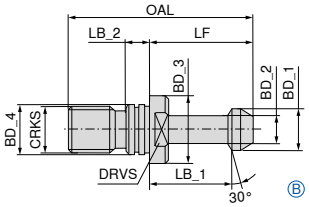
Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	83 532 ... £ Y8	
BT 40	19	14	23	17	M16	54	29	23	5	5	19	50	23.24	**040**

Pull stud for tool holders according to ISO 7388-2

▲ MAS-BT 30° Form A and B

Scope of supply:
including O-Ring







Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	form	82 533 ... £ Y8		82 531 ... £ Y8	
BT 30	11	7	16.5	12.5	M12	43	23	18	4.0	2.2	13	20	A			23.07	**030**
BT 40	15	10	23.0	17.0	M16	60	35	28	5.5	4.0	19	50	A			23.07	**040**
BT 50	23	17	38.0	25.0	M24	85	45	35	8.0	6.0	30	150	A			29.67	**050**
BT 30	11	7	16.5	12.5	M12	43	23	18	4.0		13	20	B	23.07	**030**		
BT 40	15	10	23.0	17.0	M16	60	35	28	5.5		19	50	B	19.75	**040**		
BT 50	23	17	38.0	25.0	M24	85	45	35	8.0		30	150	B	28.02	**050**		



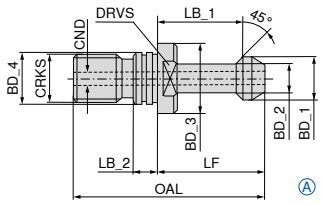
O-Ring

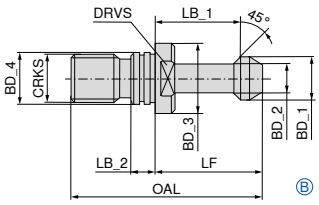
Spare parts BD_4		83 476 ... £ Y8	
17	BT / SK 40	3.16	**040**
25	BT / SK 50	3.16	**050**

Pull stud for tool holders according to ISO 7388-2

▲ MAS-BT 45° Form A and B

Scope of supply:
including O-Ring





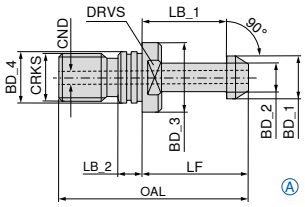


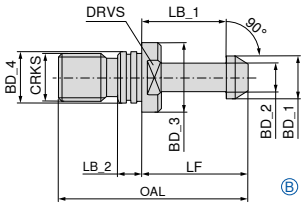
Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	form	82 530 ... £ Y8		82 534 ... £ Y8	
BT 30	11	7	16.5	12.5	M12	43	23	18	4.0	2.2	13	20	A			23.07	**030**
BT 40	15	10	23.0	17.0	M16	60	35	28	5.5	4.0	19	50	A			23.07	**040**
BT 50	23	17	38.0	25.0	M24	85	45	35	8.0	6.0	30	150	A			29.67	**050**
BT 30	11	7	16.5	12.5	M12	43	23	18	4.0		13	20	B	23.07	**030**		
BT 40	15	10	23.0	17.0	M16	60	35	28	5.5		19	50	B	19.75	**040**		
BT 50	23	17	38.0	25.0	M24	85	45	35	8.0		30	150	B	28.02	**050**		

Pull stud for tool holders according to ISO 7388-2

▲ MAS-BT 90° Form A and B

Scope of supply:
including O-Ring







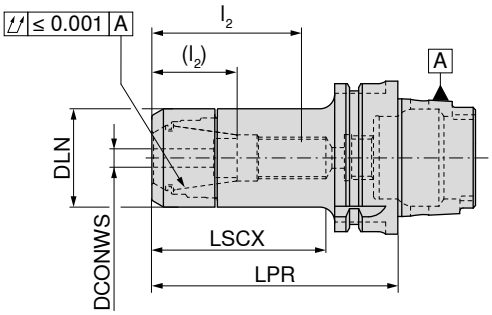
Adapter	BD_1 mm	BD_2 mm	BD_3 mm	BD_4 mm	CRKS	OAL mm	LF mm	LB_1 mm	LB_2 mm	CND mm	DRVS mm	TQX Nm	form	82 536 ... £ Y8		82 537 ... £ Y8	
BT 40	15	10	23	17	M16	60	35	28	5.5	4	19	50	A			23.07	**040**
BT 50	23	17	38	25	M24	85	45	35	8.0	6	30	150	A			29.67	**050**
BT 40	15	10	23	17	M16	60	35	28	5.5		19	50	B	19.75	**040**		
BT 50	23	17	38	25	M24	85	45	35	8.0		30	150	B	28.02	**050**		

ER precision collet chuck – Centro-P

- ▲ for standard or sealed nuts
- ▲ maximum size collet to ISO tolerance field H10
- ▲ for clamping a roll key is required
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Holder **without** nut, **without** backstop







G 2,5 n_{max} 25000

84 722 ...

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	£ Y8	
HSK-A 40	1 - 10	60	30	40	32 - 54	426E (ER16)	323.31	**401**
HSK-A 40	2 - 16	60	40	40		430E (ER25)	374.31	**404** 1)
HSK-A 40	2 - 20	61	50	45		470E (ER32)	405.44	**407** 1)
HSK-A 50	2 - 16	70	40	49	34 - 35	430E (ER25)	374.31	**505**
HSK-A 50	2 - 16	60	40	37		430E (ER25)	374.31	**504** 1)
HSK-A 63	1 - 10	55	30	32		426E (ER16)	361.66	**609** 1)
HSK-A 63	1 - 10	100	30	71	28 - 45 (16 - 31)	426E (ER16)	351.88	**610**
HSK-A 63	1 - 10	160	30	106	28 - 45 (16 - 31)	426E (ER16)	427.80	**611**
HSK-A 63	1 - 10	200	30	136	28 - 45 (16 - 31)	426E (ER16)	723.15	**612**
HSK-A 63	1 - 10	130	30	87	26 - 50 (17 - 38)	426E (ER16)	405.44	**613**
HSK-A 63	2 - 16	60	40	37		430E (ER25)	361.66	**615**
HSK-A 63	2 - 16	100	40	70	35 - 55 (24 - 37)	430E (ER25)	351.88	**616**
HSK-A 63	2 - 16	160	40	128	35 - 60 (24 - 42)	430E (ER25)	449.52	**617**
HSK-A 63	2 - 16	130	40	89	37 - 60 (12 - 42)	430E (ER25)	436.60	**619**
HSK-A 63	2 - 20	70	50	46		470E (ER32)	351.88	**620**
HSK-A 63	2 - 20	100	50	71	41 - 57 (26 - 39)	470E (ER32)	351.88	**621**
HSK-A 63	2 - 20	160	50	129	52 - 70 (26 - 60)	470E (ER32)	449.52	**622**
HSK-A 63	2 - 20	130	50	101	42 - 69 (18 - 41)	470E (ER32)	436.60	**625**
HSK-A 63	3 - 26	120	63	91		472E (ER40)	373.17	**62700**
HSK-A 63	3 - 26	80	63	56		472E (ER40)	452.04	**626** 2)
HSK-A 100	1 - 10	130	30	101	28 - 48 (16 - 35)	426E (ER16)	538.57	**11200**
HSK-A 100	1 - 10	100	30	70	28 - 48 (16 - 35)	426E (ER16)	696.82	**110**
HSK-A 100	1 - 10	160	30	130	28 - 48 (16 - 35)	426E (ER16)	997.91	**111**
HSK-A 100	1 - 16	100	40	98	40 - 60 (22 - 42)	430E (ER25)	538.57	**11800**
HSK-A 100	2 - 16	160	40	105	38 - 68 (20 - 50)	430E (ER25)	997.91	**117**
HSK-A 100	2 - 16	100	40	71	38 - 56 (20 - 40)	430E (ER25)	696.82	**116**
HSK-A 100	2 - 20	160	50	99	42 - 70 (24 - 52)	470E (ER32)	1,423.45	**122**
HSK-A 100	2 - 20	100	50	70	42 - 59 (24 - 40)	470E (ER32)	1,023.19	**121**
HSK-A 100	2 - 20	130	50	97	44 - 69 (41 - 51)	470E (ER32)	538.57	**12400**

1) Item cannot be combined with backstop screw

2) Non standard groove before tool change collar not according to DIN, not suitable for automatic tool change

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

Spare parts
ER precision collet chuck – Centro-P

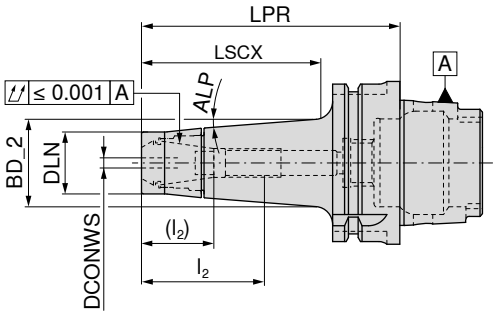
	 Lock nut IK		 Lock nut			 Stop screw 2			 Stop screw 1	
	84 950 ...		**84 950 ...**			**83 950 ...**			**83 950 ...**	
Spare parts for collet	£ Y8		£ Y8			£ Y8			£ Y8	
426E (ER16)	96.95	**011**	72.00	**001**						
426E (ER16)	96.95	**011**	72.00	**001**	M11x1 - SW6	60.14	**341**	M11x1 - SW6	40.28	**337**
430E (ER25)	108.06	**013**	80.00	**003**	M18x1,5 - SW6	42.31	**432**	M18x1,5 - SW6	30.17	**431**
470E (ER32)	115.55	**015**	88.00	**005**	M22x1,5 - SW6	35.73	**402**	M22x1,5 - SW6	26.03	**401**
472E (ER40)	158.03	**017**	128.02	**007**				M28x1,5 - SW6	36.47	**400**

ER precision collet chuck, tapered – Centro-P

- ▲ for special tapered nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Holder **without** nut, **without** backstop







G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	BD_2 mm	LSCX mm	l_2 (l_2) mm	ALP	for collet	**84 721 ...** £ Y8	
HSK-A 40	1 - 10	100	24	30.8	67	26 - 47 (12 - 32)	2.0°	426E (ER16)	374.31	**310**
HSK-A 50	1 - 10	65	24	28.9	44	26 - 32	4.5°	426E (ER16)	374.31	**710**
HSK-A 50	1 - 10	100	24	34.4	77	26 - 47 (12 - 32)	4.5°	426E (ER16)	374.31	**810**
HSK-A 63	1 - 10	130	24	36.0	77	28 - 48 (20 - 35)	3.5°	426E (ER16)	328.78	**61200**
HSK-A 63	1 - 10	100	24	33.8	74	28 - 48 (20 - 35)	4.5°	426E (ER16)	351.88	**610**
HSK-A 63	1 - 10	160	24	36.0	106	28 - 48 (20 - 35)	2.5°	426E (ER16)	410.64	**611**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

	 Tapered lock nut IK		 Tapered lock nut		 Stop screw 2		 Stop screw 1	
	84 950 ...		**84 950 ...**		**83 950 ...**		**83 950 ...**	
Spare parts for collet	£ Y8		£ Y8		£ Y8		£ Y8	
426E (ER16)	119.03	**033**	100.56	**031**	60.14	**341**	40.28	**337**

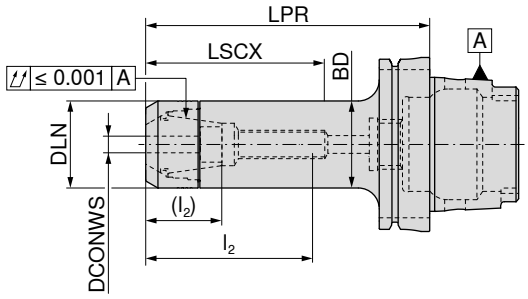
16

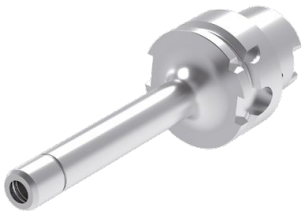
ER precision collet chuck, slim – Centro-P

- ▲ for Mini Clamping Nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Holder **without** nut, **without** backstop







G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BD mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	84 719 ... £ Y8	
HSK-A 50	1 - 7	130	16	16	60	15 - 32 (7 - 22)	4008E (ER11)	467.92	**407**
HSK-A 63	1 - 7	70	16	16	48	15 - 32 (7 - 22)	4008E (ER11)	358.62	**507**
HSK-A 63	1 - 7	100	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	374.93	**607**
HSK-A 63	1 - 7	130	16	16	108	15 - 32 (7 - 22)	4008E (ER11)	461.66	**707**
HSK-A 63	1 - 7	160	16	16	68	18 - 36 (12 - 26)	4008E (ER11)	488.71	**608**
HSK-A 63	1 - 10	70	22	22	46	27 - 34 (14 - 20)	426E (ER16)	358.62	**610**
HSK-A 63	1 - 10	100	22	22	62	27 - 44 (14 - 30)	426E (ER16)	358.62	**710**
HSK-A 63	1 - 10	130	22	22	87	27 - 52 (14 - 38)	426E (ER16)	461.66	**810**
HSK-A 63	1 - 10	160	22	22	97	27 - 52 (14 - 38)	426E (ER16)	461.66	**910**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

Spare parts for collet	Mini lock nut IK 84 950 ... £ Y8		Mini lock nut 84 950 ... £ Y8		Stop screw 2 83 950 ... £ Y8		Stop screw 1 83 950 ... £ Y8	
4008E (ER11)			100.56	**041**	M8x1 - SW4	57.32 **340**	M8x1 - SW4	38.17 **336**
426E (ER16)	97.92	**035**	80.34	**034**	M11x1 - SW6	60.14 **341**	M11x1 - SW6	40.28 **337**

Accessories


ER collet
→ 268–276, 279


Sealing ring
→ 280


Device
→ 285


Roll key
→ 286


Roll key device
→ 286


Coolant transfer pipe
→ 156

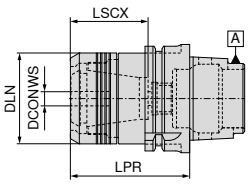

Others
→ 284

ER precision collet chuck – HDC

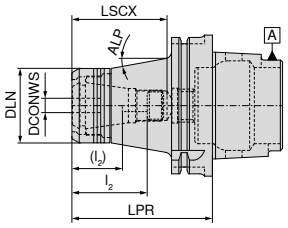
- ▲ HDC = Heavy Duty Chuck, an adapter specially designed for rough machining
- ▲ For heavy duty lock nut
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body **including** lock nut, **without** backstop screw



cylindrical



Conical







Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	ALP °	for collet	G 6,3 n_{max} 18000 cylindrical 84 400 ... £ Y8		G 6,3 n_{max} 18000 conical 84 400 ... £ Y8	
HSK-A 63	2 - 20	70	53	45	41 - 57 (27 - 39)		470E (ER32)	506.19	**12057**		
HSK-A 63	2 - 20	100	53	72	41 - 57 (27 - 39)		470E (ER32)	506.19	**22057**		
HSK-A 100	2 - 20	100	53	68	41 - 54 (27 - 36)	10	470E (ER32)			840.28	**22055**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without backstop screw
l_2 = Clamping depth backstop screw 1, dimension in brackets (l_2) = Clamping depth backstop screw 2



Lock nut



Stop screw 2



Stop screw 1

Spare parts DCONWS	Lock nut 84 950 ... £ Y8		Stop screw 2 83 950 ... £ Y8		Stop screw 1 83 950 ... £ Y8	
2 - 20	134.15	**30100**	M22x1,5 - SW6 35.73	**402**	M22x1,5 - SW6 26.03	**401**

Accessories



ER collet
→ 268–276, 278–279



Roll key
→ 286



Roll key device
→ 286



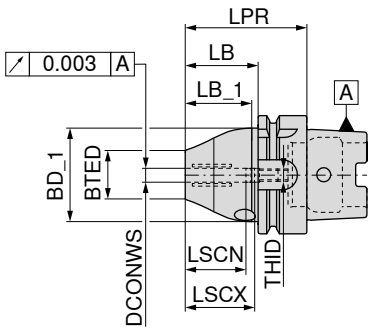
Others
→ 284

16

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw





NEW



AD
G 2,5 n_{max} 25000

84 254 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	£ Y8	
HSK-A 63	6	65	26	50.0	35.2	39	37	27	M5	698.63	**10657**
HSK-A 63	8	65	28	50.0	35.2	39	37	27	M6	698.63	**10857**
HSK-A 63	10	75	30	50.0	45.2	49	41	31	M8x1	698.63	**11057**
HSK-A 63	12	75	32	52.5	45.2	49	46	36	M8x1	698.63	**11257**
HSK-A 63	16	79	38	52.5	49.2	53	49	39	M8x1	698.63	**11657**
HSK-A 63	20	79	38	52.5	49.2	53	51	41	M8x1	698.63	**12057**
HSK-A 100	6	73	26	50.0	40.2	44	37	27	M5	953.54	**10655**
HSK-A 100	8	73	28	50.0	40.2	44	37	27	M6	953.54	**10855**
HSK-A 100	10	83	30	50.0	50.2	54	41	31	M8x1	953.54	**11055**
HSK-A 100	12	83	32	52.5	50.2	54	46	36	M8x1	953.54	**11255**
HSK-A 100	16	87	38	52.5	54.2	58	49	39	M8x1	953.54	**11655**
HSK-A 100	20	87	38	52.5	54.2	58	51	41	M8x1	953.54	**12055**

→ Min. clamping depth, Page 312


Clamping key – T

80 397 ...


Pressure screw

83 950 ...


Stop screw IK

83 950 ...

Spare parts DCONWS		£ Y7			£ Y8			£ Y7	
6	SW5	8.11	**050**	M10x12	13.60	**55000**	M5x12,5 - SW2,5	25.16	**418**
8	SW5	8.11	**050**	M10x12	13.60	**55000**	M6x12,5 - SW3	25.16	**419**
10	SW5	8.11	**050**	M10x12	13.60	**55000**	M8x1x13,5 - SW3	25.16	**420**
12	SW5	8.11	**050**	M10x12	13.60	**55000**	M8x1x13,5 - SW3	25.16	**420**
16	SW5	8.11	**050**	M10x12	13.60	**55000**	M8x1x13,5 - SW3	25.16	**420**
20	SW5	8.11	**050**	M10x12	13.60	**55000**	M8x1x13,5 - SW3	25.16	**420**

Accessories


Reduction sleeve
→ 282

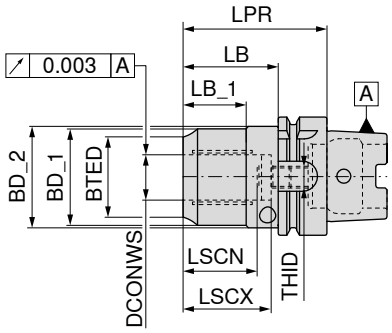

Coolant transfer pipe
→ 156


Others
→ 284

HyPower – Complus

▲ High pressure chuck, short and stable version
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw





NEW



AD
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	83 722 ... £ Y8	
HSK-A 63	20	80	36	49	52.5	36	54	51	40	M8x1	490.18	**120**
HSK-A 63	32	105	54	63	52.5	55	79	61	51	M16x1	592.33	**13257**
HSK-A 100	20	85	38	49	52.5	36	56	51	41	M8x1	800.79	**12055**
HSK-A 100	32	100	57	68	72.0	42	71	61	51	M8x1	800.79	**13255**

→ Min. clamping depth, Page 312



Clamping key – T



Pressure screw



Stop screw IK

Spare parts for Article no.		80 397 ... £ Y7		83 950 ... £ Y7		83 950 ... £ Y7	
83 722 120	SW5	8.11	**050**	M10x1x10	22.91 **158**	M8x1x13,5 - SW3	25.16 **420**
83 722 13257	SW5	8.11	**050**	M10x1x10	22.91 **158**	M16x1x13,5 - SW8	29.02 **424**
83 722 12055	SW5	8.11	**050**	M10x1x10	22.91 **158**	M8x1x13,5 - SW3	25.16 **420**
83 722 13255	SW5	8.11	**050**	M10x1x10	22.91 **158**	M8x1x13,5 - SW3	25.16 **420**

Accessories



Reduction sleeve
→ 282



Coolant transfer pipe
→ 156



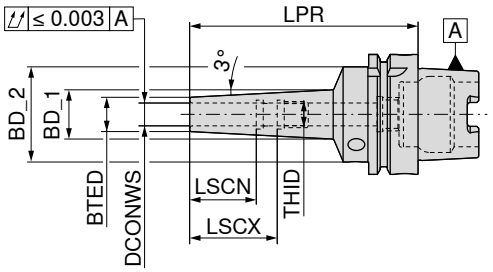
Others
→ 284

16

HyPower – Access 3°

▲ High pressure chuck, slim 3°
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw







G 2,5 n_{max} 25000

83 727 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	THID	£ Y8	
medium length	HSK-A 63	3	120	9	16.65	50	28	12	M3	937.09	**603**
	HSK-A 63	4	120	10	17.65	50	28	16	M3	937.09	**604**
	HSK-A 63	5	120	11	18.65	50	28	20	M3	937.09	**605**
	HSK-A 63	6	120	12	19.75	50	37	27	M5	807.29	**606**
	HSK-A 63	8	120	14	21.75	50	37	27	M6	807.29	**608**
	HSK-A 63	10	120	16	23.75	50	41	31	M8x1	807.29	**610**
	HSK-A 63	12	120	18	25.86	50	46	36	M10x1	807.29	**612**
	HSK-A 63	16	120	24	31.50	50	49	39	M12x1	1,255.56	**616**
	HSK-A 63	20	120	28	35.55	50	51	41	M16x1	1,255.56	**620**
extra-long	HSK-A 63	6	160	16	33.53	50	37	27	M5	1,326.36	**706**
	HSK-A 63	8	160	18	34.55	50	37	27	M6	1,326.36	**708**
	HSK-A 63	10	160	20	36.27	50	41	31	M8x1	1,326.36	**710**
	HSK-A 63	12	160	22	37.78	50	46	36	M10x1	1,326.36	**712**
extra long	HSK-A 63	6	200	16	37.83	50	37	27	M5	1,466.56	**806**
	HSK-A 63	8	200	18	38.85	50	37	27	M6	1,466.56	**808**
	HSK-A 63	10	200	20	40.57	50	41	31	M8x1	1,466.56	**810**
	HSK-A 63	12	200	22	42.07	50	46	36	M10x1	1,466.56	**812**

→ Min. clamping depth, Page 312


Clamping key – T


Pressure screw

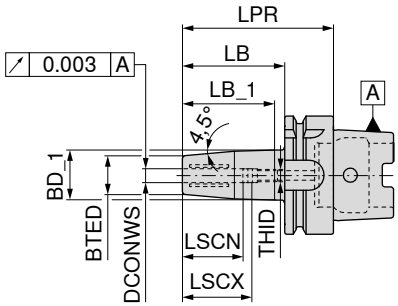

Stop screw IK

Spare parts DCONWS		**80 397 ...** £ Y7			**83 950 ...** £ Y7			**83 950 ...** £ Y7	
3	SW5	8.11	**050**	M10x1x10	22.91	**158**	M3x20 - SW1,5	17.47	**172**
4	SW5	8.11	**050**	M10x1x10	22.91	**158**	M3x20 - SW1,5	17.47	**172**
5	SW5	8.11	**050**	M10x1x10	22.91	**158**	M3x20 - SW1,5	17.47	**172**
6	SW5	8.11	**050**	M10x1x10	22.91	**158**	M5x12,5 - SW2,5	25.16	**418**
6	SW5	8.11	**050**	M10x1x10	22.91	**158**	M6x12,5 - SW3	25.16	**419**
8	SW5	8.11	**050**	M10x1x10	22.91	**158**	M6x12,5 - SW3	25.16	**419**
10	SW5	8.11	**050**	M10x1x12	22.91	**159**	M8x1x13,5 - SW3	25.16	**420**
12	SW5	8.11	**050**	M10x1x12	22.91	**159**	M10x1x13,5 - SW5	25.16	**421**
16	SW5	8.11	**050**	M10x1x12	22.91	**159**	M12x1x13,5 - SW5	25.16	**422**
20	SW5	8.11	**050**	M10x1x12	22.91	**159**	M16x1x13,5 - SW8	29.02	**424**

HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw





NEW



AD
G 2,5 n_{max} 25000

84 255 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	£ Y8	
HSK-A 63	6	80	21	27	48.9	54	37	27	M5	849.69	**10657**
HSK-A 63	8	80	21	27	48.9	54	37	27	M6	849.69	**10857**
HSK-A 63	10	85	24	32	53.7	59	41	31	M8x1	849.69	**11057**
HSK-A 63	12	90	24	32	58.6	64	46	36	M10x1	849.69	**11257**
HSK-A 63	16	95	27	34	63.1	69	49	39	M12x1	849.69	**11657**
HSK-A 63	20	100	33	42	68.9	74	51	41	M16x1	849.69	**12057**
HSK-A 100	6	85	21	27	38.7	56	37	27	M5	1,098.93	**10655**
HSK-A 100	8	85	21	27	38.7	56	37	27	M6	1,098.93	**10855**
HSK-A 100	10	90	24	32	53.7	61	41	31	M8x1	1,098.93	**11055**
HSK-A 100	12	95	24	32	58.6	66	46	36	M10x1	1,098.93	**11255**
HSK-A 100	16	100	27	34	63.1	71	49	39	M12x1	1,098.93	**11655**
HSK-A 100	20	105	33	42	68.9	76	51	41	M16x1	1,098.93	**12055**

→ Min. clamping depth, Page 312


Clamping key – T


Pressure screw


Stop screw IK

Spare parts for Article no.		80 397 ... £ Y7			83 950 ... £ Y8			83 950 ... £ Y7	
84 255 10657	SW5	8.11	**050**	M10x10	11.05	**55100**	M5x12,5 - SW2,5	25.16	**418**
84 255 10857	SW5	8.11	**050**	M10x10	11.05	**55100**	M6x12,5 - SW3	25.16	**419**
84 255 11057	SW5	8.11	**050**	M10x10	11.05	**55100**	M8x1x13,5 - SW3	25.16	**420**
84 255 11257	SW5	8.11	**050**	M10x10	11.05	**55100**	M10x1x13,5 - SW5	25.16	**421**
84 255 11657	SW5	8.11	**050**	M10x10	11.05	**55100**	M12x1x13,5 - SW5	25.16	**422**
84 255 12057	SW5	8.11	**050**	M10x10	11.05	**55100**	M16x1x13,5 - SW5	29.02	**423**
84 255 10655	SW5	8.11	**050**	M10x10	11.05	**55100**	M5x12,5 - SW2,5	25.16	**418**
84 255 10855	SW5	8.11	**050**	M10x12	13.60	**55000**	M6x12,5 - SW3	25.16	**419**
84 255 11055	SW5	8.11	**050**	M10x12	13.60	**55000**	M8x1x13,5 - SW3	25.16	**420**
84 255 11255	SW5	8.11	**050**	M10x12	13.60	**55000**	M10x1x13,5 - SW5	25.16	**421**
84 255 11655	SW5	8.11	**050**	M10x12	13.60	**55000**	M12x1x13,5 - SW5	25.16	**422**
84 255 12055	SW5	8.11	**050**	M10x12	13.60	**55000**	M16x1x13,5 - SW5	29.02	**423**

Accessories


Reduction sleeve
→ 282

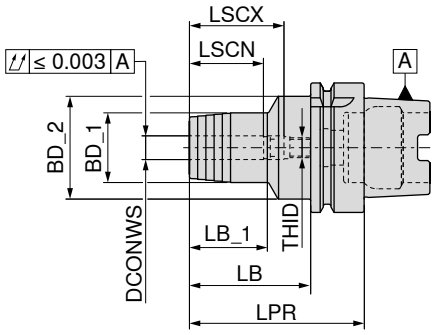

Coolant transfer pipe
→ 156


Others
→ 284

HyTens – Fit

▲ Hydraulic chuck, short and slim version
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw





NEW



G 2,5 n_{max} 25000

83 726 ...

	Adapter	DCONWS mm	LPR mm	BD_1 mm	BD_2 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	£ Y8	
short	HSK-A 63	6	70	26	49.5	24	44	37	27	M5	955.91	**606**
	HSK-A 63	8	70	28	49.5	24	44	37	27	M6	955.91	**608**
	HSK-A 63	10	80	30	49.5	32	54	41	31	M8x1	955.91	**610**
	HSK-A 63	12	85	32	49.5	40	59	46	36	M10x1	876.59	**612**
	HSK-A 63	16	90	38	49.5	46	64	49	39	M12x1	955.91	**616**
	HSK-A 63	20	90	42	49.5	48	64	51	41	M16x1	876.59	**620**
	HSK-A 63	25	120	57	52.0	63	94	57	47	M16x1	955.91	**625**
	HSK-A 63	32	125	63	53.0	61	99	61	51	M16x1	955.91	**632**
	HSK-A 100	6	75	26	50.0	26	46	37	27	M5	1,108.37	**10655**
	HSK-A 100	8	75	28	50.0	26	46	37	27	M6	1,108.37	**10855**
	HSK-A 100	10	90	30	50.0	42	61	41	31	M8x1	1,108.37	**11055**
	HSK-A 100	12	95	32	50.0	47	66	46	36	M10x1	1,108.37	**11255**
	HSK-A 100	16	100	38	50.0	53	71	49	39	M12x1	1,108.37	**11655**
	HSK-A 100	20	105	42	50.0	59	76	51	41	M16x1	1,108.37	**12055**
	HSK-A 100	25	110	57	63.0	62	81	57	47	M16x1	1,108.37	**12555**
	HSK-A 100	32	110	63	67.0	62	81	61	51	M16x1	1,108.37	**13255**

→ Min. clamping depth, Page 312

Version for MMS hydraulic chuck – 1 and 2-channel





83 432	HSK-63	1-channel
83 432	HSK-100	1-channel

This article can be found in our online shop at cuttingtools.ceratizit.com





83 433	HSK-63	2-channel
83 433	HSK-100	2-channel

This article can be found in our online shop at cuttingtools.ceratizit.com

Spare parts **HyTens** – Fit

		Pressure screw			Stop screw IK	
		83 950 ...			83 950 ...	
Spare parts for Article no.		£ Y7			£ Y7	
83 726 606	M10x1x12	17.42	**440**	M5x12,5 - SW2,5	25.16	**418**
83 726 608	M10x1x12	17.42	**440**	M6x12,5 - SW3	25.16	**419**
83 726 610	M10x1x12	17.42	**440**	M8x1x13,5 - SW3	25.16	**420**
83 726 612	M10x1x12	17.42	**440**	M10x1x13,5 - SW5	25.16	**421**
83 726 616	M10x1x12	17.42	**440**	M12x1x13,5 - SW5	25.16	**422**
83 726 620	M10x1x12	17.42	**440**	M16x1x13,5 - SW5	29.02	**423**
83 726 625	M10x1x12	17.42	**440**	M16x1x13,5 - SW5	29.02	**423**
83 726 632	M10x1x12	17.42	**440**	M16x1x13,5 - SW5	29.02	**423**
83 726 10655	M10x1x12	17.42	**440**	M5x12,5 - SW2,5	25.16	**418**
83 726 10855	M10x1x12	17.42	**440**	M6x12,5 - SW3	25.16	**419**
83 726 11055	M10x1x12	17.42	**440**	M8x1x13,5 - SW3	25.16	**420**
83 726 11255	M10x1x12	17.42	**440**	M10x1x13,5 - SW5	25.16	**421**
83 726 11655	M10x1x12	17.42	**440**	M12x1x13,5 - SW5	25.16	**422**
83 726 12055	M10x1x12	17.42	**440**	M16x1x13,5 - SW8	29.02	**424**
83 726 12555	M10x1x12	17.42	**440**	M16x1x13,5 - SW8	29.02	**424**
83 726 13255	M10x1x12	17.42	**440**	M16x1x13,5 - SW8	29.02	**424**

Accessories



Reduction sleeve
→ 282



Coolant transfer pipe
→ 156

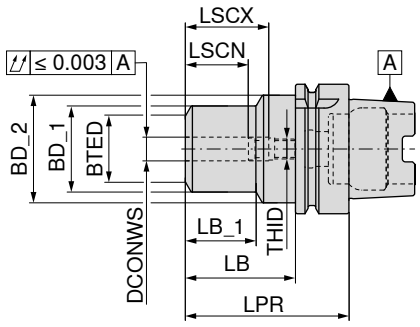


Others
→ 284

HyTens – Compact

▲ Hydraulic chuck, short and stable version
▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw







G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	BD_1 mm	BD_2 mm	BTED mm	LB mm	LB_1 mm	LSCN mm	LSCX mm	THID	83 430 ... £ Y8	
HSK-A 63	12	80	42	52.5	32	54	34	36	46	M8x1	440.30	**01257**
HSK-A 63	20	80	49	52.5	38	54	36	41	51	M8x1	440.30	**02057**
HSK-A 100	12	85	42	52.5	32	51	34	36	46	M8x1	617.98	**01255**
HSK-A 100	20	85	49	52.5	38	51	36	41	51	M8x1	617.98	**02055**

→ Min. clamping depth, Page 312


Clamping key – T


Pressure screw


Stop screw IK

Spare parts DCONWS		80 397 ... £ Y7		83 950 ... £ Y7		83 950 ... £ Y7	
12 - 20	SW5	8.11	**050**	M10x1x12	17.42	**440**	M8x1x13,5 - SW3	25.16	**420**

Accessories


Reduction sleeve
→ 282

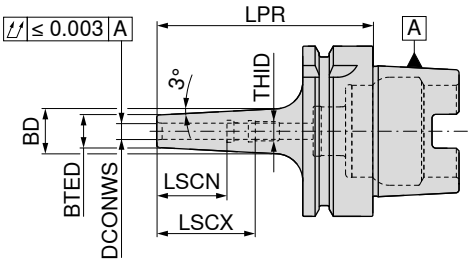

Coolant transfer pipe
→ 156


Others
→ 284

Shrink adapter, slim 3°

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

TG







G 2,5 n_{max} 25000

84 324 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	£ Y8	
short	HSK-A 63	3	80	9	14	28	12	M6	720.01	**103**
	HSK-A 63	4	80	10	15	28	16	M6	700.82	**104**
	HSK-A 63	5	80	11	16	30	20	M6	700.82	**105**
	HSK-A 63	6	80	12	17	36	26	M5	633.61	**106**
	HSK-A 63	8	80	14	19	36	26	M6	633.61	**108**
	HSK-A 63	10	85	16	21	41	31	M8x1	633.61	**110**
	HSK-A 63	12	90	18	24	47	37	M10x1	633.61	**112**
	HSK-A 63	14	90	20	26	47	37	M10x1	633.61	**114**
	HSK-A 63	16	95	22	28	50	40	M12x1	633.61	**116**
	HSK-A 63	18	95	24	30	50	40	M12x1	633.61	**118**
	HSK-A 63	20	100	26	33	52	42	M16x1	633.61	**120**
medium length	HSK-A 63	3	120	9	16	12	12		768.01	**203**
	HSK-A 63	4	120	10	17	16	16		758.43	**204**
	HSK-A 63	5	120	11	18	20	20		758.43	**205**
	HSK-A 63	6	120	12	21	36	26	M5	681.59	**206**
	HSK-A 63	8	120	14	23	36	26	M6	681.59	**208**
	HSK-A 63	10	120	16	25	41	31	M8x1	681.59	**210**
	HSK-A 63	12	120	18	27	47	37	M10x1	681.59	**212**
	HSK-A 63	14	120	20	29	47	37	M10x1	681.59	**214**
	HSK-A 63	16	120	22	31	50	40	M12x1	681.59	**216**
	HSK-A 63	18	120	24	33	50	40	M12x1	681.59	**218**
	HSK-A 63	20	120	26	35	52	42	M16x1	681.59	**220**
extra-long	HSK-A 63	3	160	9	19	12	12		840.01	**303**
	HSK-A 63	4	160	10	20	16	16		820.81	**304**
	HSK-A 63	5	160	11	21	20	20		820.81	**305**
	HSK-A 63	6	160	12	24	36	26	M5	710.42	**306**
	HSK-A 63	8	160	14	26	36	26	M6	710.42	**308**
	HSK-A 63	10	160	16	28	41	31	M8x1	710.42	**310**
	HSK-A 63	12	160	18	30	47	37	M10x1	710.42	**312**
	HSK-A 63	14	160	20	32	47	37	M10x1	710.42	**314**
	HSK-A 63	16	160	22	34	50	40	M12x1	710.42	**316**
	HSK-A 63	18	160	24	36	50	40	M12x1	710.42	**318**
	HSK-A 63	20	160	26	38	52	42	M16x1	710.42	**320**

→ Min. clamping depth, Page 312


Stop screw IK


Stop screw IK

83 950 ...

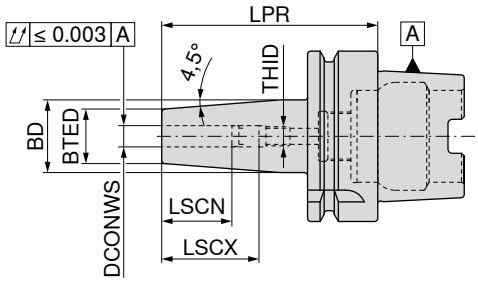
83 950 ...

Spare parts DCONWS		£ Y7			£ Y7	
3 - 5	M6x14 - SW2	25.16	**417**			
6				M5x12,5 - SW2,5	25.16	**418**
8				M6x12,5 - SW3	25.16	**419**
10				M8x1x13,5 - SW3	25.16	**420**
12 - 14				M10x1x13,5 - SW5	25.16	**421**
16 - 18				M12x1x13,5 - SW5	25.16	**422**
20				M16x1x13,5 - SW8	29.02	**424**

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

TG





G 2,5 n_{max} 25000

84 304 ...

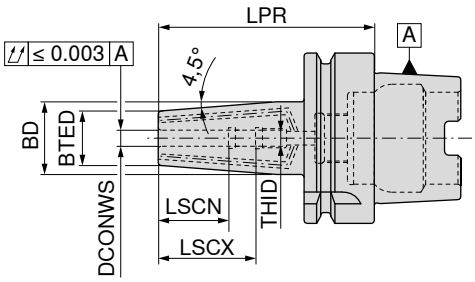
	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	£ Y8	
short	HSK-A 63	3	80	10	15	22	12	M6	257.42	103
	HSK-A 63	4	80	15	22	26	16	M6	257.42	104
	HSK-A 63	5	80	15	22	30	20	M6	257.42	105
	HSK-A 63	6	80	21	27	36	26	M5	257.42	106
	HSK-A 63	8	80	21	27	36	26	M6	257.42	108
	HSK-A 63	10	85	24	32	41	31	M8x1	257.42	110
	HSK-A 63	12	90	24	32	47	37	M10x1	257.42	112
	HSK-A 63	14	90	27	34	47	37	M10x1	257.42	114
	HSK-A 63	16	95	27	34	50	40	M12x1	257.42	116
	HSK-A 63	18	95	33	42	50	40	M12x1	257.42	118
	HSK-A 63	20	100	33	42	52	42	M16x1	257.42	120
	HSK-A 63	25	115	44	53	58	48	M16x1	257.42	125
	HSK-A 63	32	120	44	53	62	52	M16x1	257.42	132
medium length	HSK-A 63	3	120	10	20	12	12		436.55	203
	HSK-A 63	4	120	15	22	16	16		428.60	204
	HSK-A 63	5	120	15	22	20	20		428.60	205
	HSK-A 63	6	120	21	27	36	26	M5	388.99	206
	HSK-A 63	8	120	21	27	36	26	M6	388.99	208
	HSK-A 63	10	120	24	32	41	31	M8x1	388.99	210
	HSK-A 63	12	120	24	32	47	37	M10x1	388.99	212
	HSK-A 63	14	120	27	34	47	37	M10x1	729.62	214
	HSK-A 63	16	120	27	34	50	40	M12x1	729.62	216
	HSK-A 63	18	120	33	42	50	40	M12x1	729.62	218
	HSK-A 63	20	120	33	42	52	42	M16x1	729.62	220
	HSK-A 63	25	120	44	53	58	48	M16x1	729.62	225
extra-long	HSK-A 63	3	160	10	20	12	12		488.08	303
	HSK-A 63	4	160	15	22	16	16		478.11	304
	HSK-A 63	5	160	15	22	20	20		478.11	305
	HSK-A 63	6	160	21	27	36	26	M5	438.54	306
	HSK-A 63	8	160	21	27	36	26	M6	438.54	308
	HSK-A 63	10	160	24	32	41	31	M8x1	438.54	310
	HSK-A 63	12	160	24	32	47	37	M10x1	438.54	312
	HSK-A 63	14	160	27	34	47	37	M10x1	438.54	314
	HSK-A 63	16	160	27	34	50	40	M12x1	438.54	316
	HSK-A 63	18	160	33	42	50	40	M12x1	438.54	318
	HSK-A 63	20	160	33	42	52	42	M16x1	438.54	320
	HSK-A 63	25	160	44	53	62	52	M16x1	438.54	325
extra long	HSK-A 63	6	200	21	27	36	26	M5	979.19	406
	HSK-A 63	8	200	21	27	36	26	M6	979.19	408
	HSK-A 63	10	200	24	32	41	31	M8x1	979.19	410
	HSK-A 63	12	200	24	32	47	37	M10x1	979.19	412
	HSK-A 63	14	200	27	34	47	37	M10x1	979.19	414
	HSK-A 63	16	200	27	34	50	40	M12x1	979.19	416
	HSK-A 63	18	200	33	42	50	40	M12x1	979.19	418
	HSK-A 63	20	200	33	42	52	42	M16x1	979.19	420
	HSK-A 63	25	200	44	53	62	52	M16x1	979.19	425
	HSK-A 63	32	200	44	53	62	52	M16x1	979.19	432

→ Min. clamping depth, Page 312

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

TG







G 2,5 n_{max} 25000

84 316 ...

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	£ Y8	
short	HSK-A 63	3	80	10	15	28	12	M6	788.17	**103**
	HSK-A 63	4	80	15	22	28	16	M6	766.15	**104**
	HSK-A 63	5	80	15	22	30	20	M6	766.15	**105**
	HSK-A 63	6	80	21	27	36	26	M5	695.70	**106**
	HSK-A 63	8	80	21	27	36	26	M6	695.70	**108**
	HSK-A 63	10	85	24	32	41	31	M8x1	695.70	**110**
	HSK-A 63	12	90	24	32	47	37	M10x1	695.70	**112**
	HSK-A 63	14	90	27	34	47	37	M10x1	695.70	**114**
	HSK-A 63	16	95	27	34	50	40	M12x1	695.70	**116**
	HSK-A 63	18	95	33	42	50	40	M12x1	695.70	**118**
	HSK-A 63	20	100	33	42	52	42	M16x1	695.70	**120**
	HSK-A 63	25	115	44	53	58	48	M16x1	695.70	**125**
	HSK-A 63	32	120	44	53	62	52	M16x1	695.70	**132**

→ Min. clamping depth, Page 312


Stop screw IK


Stop screw IK


Sealing screw

Spare parts DCONWS		83 950 ... £ Y7			83 950 ... £ Y7			83 950 ... £ Y7	
3 - 5	M6x14 - SW2	25.16	**417**				M2x6	2.02	**512**
6				M5x12,5 - SW2,5	25.16	**418**	M2x6	2.02	**512**
8				M6x12,5 - SW3	25.16	**419**	M2x6	2.02	**512**
10				M8x1x13,5 - SW3	25.16	**420**	M2x6	2.02	**512**
12 - 14				M10x1x13,5 - SW5	25.16	**421**	M2x6	2.02	**512**
16 - 18	M12x1 - SW5	34.19	**510**				M2x6	2.02	**512**
20 - 32	M16x1 - SW5	20.19	**511**				M2x6	2.02	**512**

Accessories


Shrink fit extension
→ 247

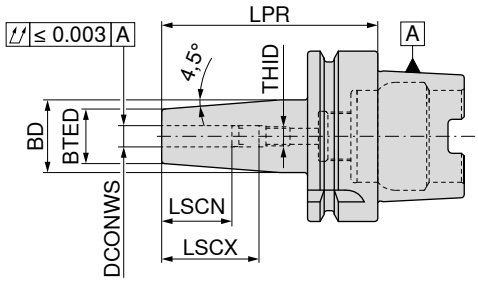

Coolant transfer pipe
→ 156


Others
→ 284

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

TG







G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	84 305 ... £ Y8	
short	HSK-A 100	6	85	21	27	36	26	M5	482.75	106
	HSK-A 100	8	85	21	27	36	26	M6	482.75	108
	HSK-A 100	10	90	24	32	41	31	M8x1	482.75	110
	HSK-A 100	12	95	24	32	47	37	M10x1	482.75	112
	HSK-A 100	14	95	27	34	47	37	M10x1	482.75	114
	HSK-A 100	16	100	27	34	50	40	M12x1	482.75	116
	HSK-A 100	18	100	33	42	50	40	M12x1	482.75	118
	HSK-A 100	20	105	33	42	52	42	M16x1	482.75	120
	HSK-A 100	25	115	44	53	58	48	M16x1	482.75	125
	HSK-A 100	32	120	44	53	62	52	M16x1	482.75	132
medium length	HSK-A 100	6	120	21	27	36	26	M5	557.72	206
	HSK-A 100	8	120	21	27	36	26	M6	557.72	208
	HSK-A 100	10	120	24	32	41	31	M8x1	557.72	210
	HSK-A 100	12	120	24	32	47	37	M10x1	557.72	212
	HSK-A 100	14	120	27	34	47	37	M10x1	557.72	214
	HSK-A 100	16	120	27	34	50	40	M12x1	557.72	216
	HSK-A 100	18	120	33	42	50	40	M12x1	557.72	218
	HSK-A 100	20	120	33	42	52	42	M16x1	557.72	220
	HSK-A 100	25	120	44	53	58	48	M16x1	557.72	225
extra-long	HSK-A 100	6	160	21	27	36	26	M5	640.91	306
	HSK-A 100	8	160	21	27	36	26	M6	640.91	308
	HSK-A 100	10	160	24	32	41	31	M8x1	640.91	310
	HSK-A 100	12	160	24	32	47	37	M10x1	640.91	312
	HSK-A 100	14	160	27	34	47	37	M10x1	640.91	314
	HSK-A 100	16	160	27	34	50	40	M12x1	640.91	316
	HSK-A 100	18	160	33	42	50	40	M12x1	640.91	318
	HSK-A 100	20	160	33	42	52	42	M16x1	640.91	320
	HSK-A 100	25	160	44	53	58	48	M16x1	640.91	325
	HSK-A 100	32	160	44	53	62	52	M16x1	640.91	332

→ Min. clamping depth, Page 312

Version for MMS heat shrink adapter 4.5° – 1 and 2-channel





TG

84 318	HSK-63	1-channel
84 318	HSK-100	1-channel

This article can be found in our online shop at cuttingtools.ceratizit.com





TG

84 319	HSK-63	2-channel
84 319	HSK-100	2-channel

This article can be found in our online shop at cuttingtools.ceratizit.com

Spare parts heat shrink adapter 4.5°


Stop screw IK

			83 950 ...
Spare parts DCONWS		£ Y7	
6	M5x12,5 - SW2,5	25.16	**418**
8	M6x12,5 - SW3	25.16	**419**
10	M8x1x13,5 - SW3	25.16	**420**
12 - 14	M10x1x13,5 - SW5	25.16	**421**
16 - 18	M12x1x13,5 - SW5	25.16	**422**
20 - 32	M16x1x13,5 - SW8	29.02	**424**

Accessories


Shrink fit extension
→ 247


Coolant transfer pipe
→ 156

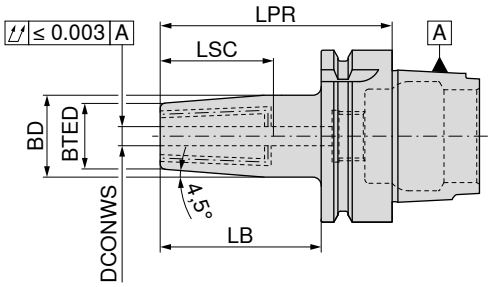

Others
→ 284

Shrink fit adapters 4.5°

▲ Version for high clamping force
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Holder with adjustable back stop

TG







G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LB mm	LSC mm	84 717 ... £ Y8	
short	HSK-A 63	6	80	21	26	54	36.5	496.12	606
	HSK-A 63	8	80	21	26	54	36.5	496.12	608
	HSK-A 63	10	85	24	30	59	41.5	496.12	610
	HSK-A 63	12	90	24	30	64	46.5	496.12	612
	HSK-A 63	14	90	27	34	64	46.5	496.12	614
	HSK-A 63	16	95	27	34	69	49.5	496.12	616
	HSK-A 63	18	95	33	41	69	49.5	496.12	618
	HSK-A 63	20	100	33	41	74	51.5	496.12	620
	HSK-A 63	25	115	44	52	89	57.5	519.36	625
	HSK-A 63	32	120	44	52	94	61.5	692.58	632
	HSK-A 100	6	85	21	26	56	36.5	699.32	106
	HSK-A 100	8	85	21	26	56	36.5	699.32	108
	HSK-A 100	10	90	24	30	56	41.5	699.32	110
	HSK-A 100	12	95	24	30	66	46.5	699.32	112
	HSK-A 100	14	95	27	34	66	46.5	699.32	114
	HSK-A 100	16	100	27	34	71	49.5	699.32	116
	HSK-A 100	18	100	33	42	71	49.5	699.32	118
	HSK-A 100	20	105	33	42	76	51.5	699.32	120
	HSK-A 100	25	115	44	53	86	57.5	722.36	125
	HSK-A 100	32	120	44	53	91	61.5	745.74	132

→ Min. clamping depth, Page 312


Stop screw IK


Sealing screw

Spare parts DCONWS		62 950 ... £ W7			62 950 ... £ W7	
6	M5x0,8x14	11.43	402	M3x6	2.43	411
8	M6x1x16	11.43	403	M3x6	2.43	411
10	M8x1x20	12.89	404	M3x6	2.43	411
12 - 18	M10x1x20	14.38	405	M3x6	2.43	411
20 - 32	M12x1x20	14.77	406	M4x8	2.43	412

Sealing screw for closing of two additional coolant holes.

Accessories


Shrink fit extension
→ 247


Coolant transfer pipe
→ 156

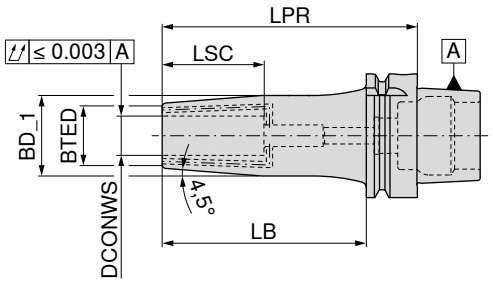

Others
→ 284

Shrink fit adapters 4.5°

▲ Version for high clamping force
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Holder with adjustable back stop

TG









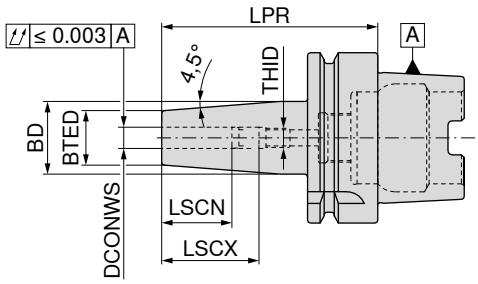
	Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB mm	LSC mm	G 2,5 n_{max} 25000 **84 720 ...** £ Y8		G 2,5 n_{max} 25000 **84 723 ...** £ Y8	
long	HSK-A 63	6	130	21	27	104	36.5	692.58	**606**		
	HSK-A 63	8	130	21	27	104	36.5	692.58	**608**		
	HSK-A 63	10	130	24	32	104	41.5	692.58	**610**		
	HSK-A 63	12	130	24	32	104	46.5	692.58	**612**		
	HSK-A 63	14	130	27	34	104	46.5	692.58	**614**		
	HSK-A 63	16	130	27	34	104	49.5	692.58	**616**		
	HSK-A 63	18	130	33	41	104	49.5	692.58	**618**		
	HSK-A 63	20	130	33	41	104	51.5	692.58	**620**		
	HSK-A 100	6	130	21	27	101	36.5	948.75	**106**		
	HSK-A 100	8	130	21	27	101	36.5	948.75	**108**		
	HSK-A 100	10	130	24	32	101	41.5	948.75	**110**		
	HSK-A 100	12	130	24	32	101	46.5	948.75	**112**		
	HSK-A 100	14	130	27	34	101	46.5	948.75	**114**		
	HSK-A 100	16	130	27	34	101	49.5	948.75	**116**		
	HSK-A 100	18	130	33	41	101	49.5	948.75	**118**		
	HSK-A 100	20	130	33	41	101	51.5	948.75	**120**		
extra-long	HSK-A 63	6	160	21	27	134	36.5			758.94	**606**
	HSK-A 63	8	160	21	27	134	36.5			758.94	**608**
	HSK-A 63	10	160	24	32	134	41.5			758.94	**610**
	HSK-A 63	12	160	24	32	134	46.5			758.94	**612**
	HSK-A 63	14	160	27	34	134	46.5			758.94	**614**
	HSK-A 63	16	160	27	34	134	49.5			758.94	**616**
	HSK-A 63	18	160	33	41	134	49.5			758.94	**618**
	HSK-A 63	20	160	33	41	134	51.5			758.94	**620**
	HSK-A 63	25	160	44	52	134	57.5			728.74	**625**
	HSK-A 100	6	160	21	27	131	36.5			1,038.54	**106**
	HSK-A 100	8	160	21	27	131	36.5			1,038.54	**108**
	HSK-A 100	10	160	24	32	131	41.5			1,038.54	**110**
	HSK-A 100	12	160	24	32	131	46.5			1,038.54	**112**
	HSK-A 100	14	160	27	34	131	46.5			1,038.54	**114**
	HSK-A 100	16	160	27	34	131	49.5			1,038.54	**116**
	HSK-A 100	18	160	33	41	131	49.5			1,038.54	**118**
	HSK-A 100	20	160	33	41	131	51.5			1,038.54	**120**
	HSK-A 100	25	160	44	53	131	57.5			1,038.54	**125**
	HSK-A 100	32	160	44	53	131	61.5			1,038.54	**132**

→ Min. clamping depth, Page 312

Shrink fit adapters 4.5°

▲ for solid carbide and HSS shanks to h6 tolerance or better
▲ also available with Balluff chip **on request**

TG







G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	82 310 ... £ Y8/3B	
short	HSK-A 63	3	80	10	15	22	12		256.31	**10357**
	HSK-A 63	4	80	15	22	26	16		256.31	**10457**
	HSK-A 63	5	80	15	22	30	20		256.31	**10557**
	HSK-A 63	6	80	21	27	36	26	M5	256.31	**10657**
	HSK-A 63	8	80	21	27	36	26	M6	256.31	**10857**
	HSK-A 63	10	85	24	32	41	31	M8x1	256.31	**11057**
	HSK-A 63	12	90	24	32	47	37	M10x1	256.31	**11257**
	HSK-A 63	14	90	27	34	47	37	M10x1	256.31	**11457**
	HSK-A 63	16	95	27	34	50	40	M12x1	256.31	**11657**
	HSK-A 63	18	95	33	42	50	40	M12x1	256.31	**11857**
	HSK-A 63	20	100	33	42	52	42	M16x1	256.31	**12057**
	HSK-A 63	25	115	44	53	58	48	M16x1	256.31	**12557**
	HSK-A 63	32	120	44	53	62	52	M16x1	256.31	**13257**
medium length	HSK-A 63	3	120	10	20	12	12		413.84	**20357**
	HSK-A 63	4	120	15	22	16	16		404.03	**20457**
	HSK-A 63	5	120	15	22	20	20		404.03	**20557**
	HSK-A 63	6	120	21	27	36	26	M5	369.73	**20657**
	HSK-A 63	8	120	21	27	36	26	M6	369.73	**20857**
	HSK-A 63	10	120	24	32	41	31	M8x1	369.73	**21057**
	HSK-A 63	12	120	24	32	47	37	M10x1	369.73	**21257**
	HSK-A 63	14	120	27	34	47	37	M10x1	369.73	**21457**
	HSK-A 63	16	120	27	34	50	40	M12x1	369.73	**21657**
	HSK-A 63	18	120	33	42	50	40	M12x1	369.73	**21857**
	HSK-A 63	20	120	33	42	52	42	M16x1	369.73	**22057**
	HSK-A 63	25	120	44	53	58	48	M16x1	369.73	**22557**
extra-long	HSK-A 63	3	160	10	20	12	12		463.50	**30357**
	HSK-A 63	4	160	15	22	16	16		453.42	**30457**
	HSK-A 63	5	160	15	22	20	20		453.42	**30557**
	HSK-A 63	6	160	21	27	36	26	M5	413.84	**30657**
	HSK-A 63	8	160	21	27	36	26	M6	413.84	**30857**
	HSK-A 63	10	160	24	32	41	31	M8x1	413.84	**31057**
	HSK-A 63	12	160	24	32	47	37	M10x1	413.84	**31257**
	HSK-A 63	14	160	27	34	47	37	M10x1	413.84	**31457**
	HSK-A 63	16	160	27	34	50	40	M12x1	413.84	**31657**
	HSK-A 63	18	160	33	42	50	40	M12x1	413.84	**31857**
	HSK-A 63	20	160	33	42	52	42	M16x1	413.84	**32057**
	HSK-A 63	25	160	44	53	62	52	M16x1	413.84	**32557**

→ Min. clamping depth, Page 312



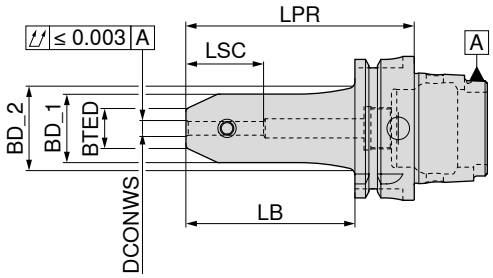
Stop screw IK

82 950 ...

Spare parts DCONWS		£ Y8/3B	
3 - 5	M6x16 - SW3	5.39	**30100**
6	M5x16 - SW2,5	5.32	**30000**
8	M6x16 - SW3	5.39	**30100**
10	M8x1x16 - SW4	5.74	**30200**
12 - 14	M10x1x14 - SW5	6.07	**30300**
16 - 18	M12x1x16 - SW6	6.40	**30400**
20 - 32	M16x1x16 - SW8	6.73	**30500**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW NEW



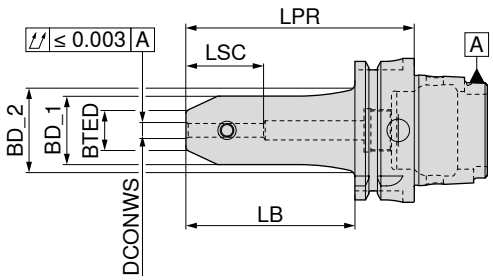

	Adapter	DCONWS $_{H5}$ mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB mm	LSC mm	G 2,5 n_{max} 25000 **82 740 ...** £ Y8/3B		G 2,5 n_{max} 25000 **82 741 ...** £ Y8/3B	
short	HSK-A 63	6	65	17	30		39	34	213.70	**10657**	162.64	**10657**
	HSK-A 63	8	65	20	32		39	34	213.70	**10857**	162.64	**10857**
	HSK-A 63	10	65	25	35		39	39	213.70	**11057**	162.64	**11057**
	HSK-A 63	12	80	30	42		54	44	213.70	**11257**	162.64	**11257**
	HSK-A 63	14	80	32	45		54	44	213.70	**11457**	162.64	**11457**
	HSK-A 63	16	80	36	48		54	47	213.70	**11657**	162.64	**11657**
	HSK-A 63	18	80	38	48		54	47	213.70	**11857**	162.64	**11857**
	HSK-A 63	20	80	40	52		54	49	213.70	**12057**	162.64	**12057**
	HSK-A 63	25	110	45	63		84	54	213.70	**12557**[1)]	162.64	**12557**[1)]
	HSK-A 63	32	110	52	72		84	58	213.70	**13257**[1)]	162.64	**13257**[1)]
	HSK-A 100	6	80	17	30		51	34	286.59	**10655**	250.06	**10655**
	HSK-A 100	8	80	20	32		51	34	286.59	**10855**	250.06	**10855**
	HSK-A 100	10	80	25	35		51	39	286.59	**11055**	250.06	**11055**
	HSK-A 100	12	80	30	42		51	44	286.59	**11255**	250.06	**11255**
	HSK-A 100	14	80	32	45		51	44	286.59	**11455**	250.06	**11455**
	HSK-A 100	16	100	36	48		71	47	286.59	**11655**	250.06	**11655**
	HSK-A 100	18	100	38	48		71	47	286.59	**11855**	250.06	**11855**
	HSK-A 100	20	100	40	52		71	49	286.59	**12055**	250.06	**12055**
	HSK-A 100	25	100	45	65		71	54	286.59	**12555**[1)]	250.06	**12555**[1)]
	HSK-A 100	32	100	52	72		71	58	286.59	**13255**[1)]	250.06	**13255**[1)]
	HSK-A 100	40	110	60	80		81	68	286.59	**14055**[1)]	250.06	**14055**[1)]
medium length	HSK-A 63	6	100	17	30	36.2	74	34	233.69	**20657**	186.68	**20657**
	HSK-A 63	8	100	20	32	38.2	74	34	233.69	**20857**	186.68	**20857**
	HSK-A 63	10	100	25	35	41.2	74	39	233.69	**21057**	186.68	**21057**
	HSK-A 63	12	100	30	42		74	44	233.69	**21257**	186.68	**21257**
	HSK-A 63	14	100	32	45		74	44	233.69	**21457**	186.68	**21457**
	HSK-A 63	16	100	36	48		74	47	233.69	**21657**	186.68	**21657**
	HSK-A 63	18	100	38	48		74	47	233.69	**21857**	186.68	**21857**
	HSK-A 63	20	100	40	52		74	49	233.69	**22057**	186.68	**22057**
long	HSK-A 63	6	130	17	30	36.2	104	34	249.67	**30657**	205.71	**30657**
	HSK-A 63	8	130	20	32	38.2	104	34	249.67	**30857**	205.71	**30857**
	HSK-A 63	10	130	25	35	41.2	104	39	249.67	**31057**	205.71	**31057**
	HSK-A 63	12	130	30	42	48.2	104	44	249.67	**31257**	205.71	**31257**
	HSK-A 63	14	130	32	45	50.5	104	44	249.67	**31457**	205.71	**31457**
	HSK-A 63	16	130	36	48	50.1	104	47	249.67	**31657**	205.71	**31657**
	HSK-A 63	18	130	38	48	50.1	104	47	249.67	**31857**	205.71	**31857**
	HSK-A 63	20	130	40	52		104	49	249.67	**32057**	205.71	**32057**
	HSK-A 63	25	130	45	63		104	54	249.67	**32557**[1)]	205.71	**32557**[1)]
	HSK-A 63	32	130	52	72		104	58	249.67	**33257**[1)]	205.71	**33257**[1)]

1) Version with two grubscrews

Continued on next page

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW NEW




	Adapter	DCONWS $_{H5}$ mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB mm	LSC mm	G 2,5 n_{max} 25000 **82 740 ...** £ Y8/3B		G 2,5 n_{max} 25000 **82 741 ...** £ Y8/3B	
extra-long	HSK-A 63	6	160	17	30	36.2	134	34	265.65	**40657**	224.94	**40657**
	HSK-A 63	8	160	20	32	38.2	134	34	265.65	**40857**	224.94	**40857**
	HSK-A 63	10	160	25	35	41.2	134	39	265.65	**41057**	224.94	**41057**
	HSK-A 63	12	160	30	42	48.2	134	44	265.65	**41257**	224.94	**41257**
	HSK-A 63	14	160	32	45	50.5	134	44	265.65	**41457**	224.94	**41457**
	HSK-A 63	16	160	36	48	50.1	134	47	265.65	**41657**	224.94	**41657**
	HSK-A 63	18	160	38	48	50.1	134	47	265.65	**41857**	224.94	**41857**
	HSK-A 63	20	160	40	52		134	49	265.65	**42057**	224.94	**42057**
	HSK-A 63	25	160	45	63		134	54	265.65	**42557**[1)]	224.94	**42557**[1)]
	HSK-A 100	6	160	17	30	38.2	131	34	349.78	**40655**	325.99	**40655**
	HSK-A 100	8	160	20	32	40.2	131	34	349.78	**40855**	325.99	**40855**
	HSK-A 100	10	160	25	35	43.2	131	39	349.78	**41055**	325.99	**41055**
	HSK-A 100	12	160	30	42	50.2	131	44	349.78	**41255**	325.99	**41255**
	HSK-A 100	14	160	32	45	53.2	131	44	349.78	**41455**	325.99	**41455**
	HSK-A 100	16	160	36	48	56.2	131	47	349.78	**41655**	325.99	**41655**
	HSK-A 100	18	160	38	48	56.2	131	47	349.78	**41855**	325.99	**41855**
	HSK-A 100	20	160	40	52	60.2	131	49	349.78	**42055**	325.99	**42055**
	HSK-A 100	25	160	45	65	73.2	131	54	349.78	**42555**[1)]	325.99	**42555**[1)]
	HSK-A 100	32	160	52	72	79.5	134	58	349.78	**43255**[1)]	325.99	**43255**[1)]

1) Version with two grubscrews

The M3 screws with WAF 1.5 mm supplied can be used to seal the two additional coolant holes.

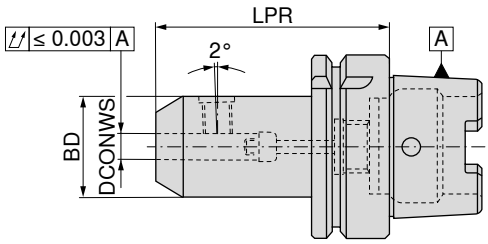
Accessories




Coolant transfer pipe	Others
→ 156	→ 284

Tool holder for tools with angled clamping flat (Whistle Notch)

▲ For shanks according to DIN 6535 HE / 1835 E with angled clamping flat
▲ also available with Balluff chip **on request**





NEW



G 2,5 n_{max} 25000

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	82 742 ... £ Y8/3B	
short	HSK-A 63	6	80	25	165.11	**10657**
	HSK-A 63	8	80	28	165.11	**10857**
	HSK-A 63	10	80	35	165.11	**11057**
	HSK-A 63	12	90	42	165.11	**11257**
	HSK-A 63	14	90	44	165.11	**11457**
	HSK-A 63	16	100	48	165.11	**11657**
	HSK-A 63	18	100	50	165.11	**11857**
	HSK-A 63	20	100	52	165.11	**12057**
	HSK-A 63	25	110	65	165.11	**12557**[1)]
	HSK-A 63	32	110	72	165.11	**13257**[1)]
	HSK-A 100	6	90	25	279.93	**10655**
	HSK-A 100	8	90	28	279.93	**10855**
	HSK-A 100	10	90	35	279.93	**11055**
	HSK-A 100	12	100	42	279.93	**11255**
	HSK-A 100	14	100	44	279.93	**11455**
	HSK-A 100	16	100	48	279.93	**11655**
	HSK-A 100	18	100	50	279.93	**11855**
	HSK-A 100	20	110	52	279.93	**12055**
	HSK-A 100	25	120	65	279.93	**12555**[1)]
	HSK-A 100	32	120	72	279.93	**13255**[1)]
	HSK-A 100	40	120	80	279.93	**14055**[1)]

1) Version with two grubscrews



Grubscrew

Spare parts DCONWS		62 950 ... £ W7	
6	M6x10	1.16	**006**
8	M8x10	1.16	**008**
10	M10x12	2.22	**010**
12 - 14	M12x16	1.76	**012**
16 - 18	M14x16	2.18	**016**
20	M16x16	2.32	**020**
25	M18x2x20	4.48	**025**
32 - 40	M20x2x20	4.68	**032**

Accessories



Coolant transfer pipe
→ 156

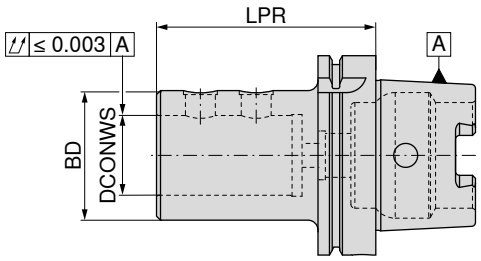


Others
→ 284

16

Indexable insert drill adapter ISO 12164 HSK Form A

▲ also available with Balluff chip **on request**







G 6,3 n_{max} 15000

Adapter	DCONWS mm	LPR mm	BD mm	10 842 ... £ 2E/45	
HSK-A 63	20	80	40	211.68	**320**
HSK-A 63	25	90	45	211.68	**325**
HSK-A 63	32	90	52	211.68	**332**
HSK-A 63	40	110	65	211.68	**340**
HSK-A 100	20	90	40	237.35	**420**
HSK-A 100	25	100	45	237.35	**425**
HSK-A 100	32	100	52	237.35	**432**
HSK-A 100	40	110	65	237.35	**440**
HSK-A 100	50	120	75	237.35	**450**

Suitable eccentric sleeves can be found in → **Chapter 3, Indexable insert drilling.**



Grubscrew

Spare parts DCONWS		10 950 ... £ 2A/28	
20	M10x1x10	4.64	**001**
25 - 32	M12x1x10	4.64	**002**
40 - 50	M16x1x12	4.64	**003**

Accessories



Coolant transfer pipe
→ 156



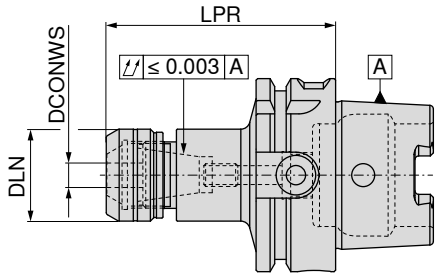
Others
→ 284

ER Precision Collet chuck – PCC

- ▲ For standard or sealing disc lock nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 100 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body with lock nut and backstop screw







G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	for collet	Torque moment / Clamping force Nm	82 700 ... £ Y8	
HSK-A 63	1 - 10	75	30	426E (ER16)	40 / 2-70	296.63	**11057**
HSK-A 63	1 - 10	100	30	426E (ER16)	40 / 2-70	311.56	**21057**
HSK-A 63	2 - 16	75	40	430E (ER25)	80 / 10-160	296.63	**11657**
HSK-A 63	2 - 16	100	40	430E (ER25)	80 / 10-160	311.56	**21657**
HSK-A 63	2 - 20	75	50	470E (ER32)	125 / 15-250	296.63	**12057**
HSK-A 63	2 - 20	100	50	470E (ER32)	125 / 15-250	311.56	**22057**
HSK-A 100	2 - 16	100	40	430E (ER25)	80 / 10-160	516.07	**21655**
HSK-A 100	2 - 16	160	40	430E (ER25)	80 / 10-160	691.70	**41655**
HSK-A 100	2 - 20	100	50	470E (ER32)	125 / 15-250	516.07	**22055**
HSK-A 100	2 - 20	160	50	470E (ER32)	125 / 15-250	691.70	**42055**

Dimension LPR is 4.5 mm longer for ER16 and ER32 and 5.0 mm longer for ER25 when using thro' coolant lock nut

Spare parts for collet	Lock nut IK 82 950 ... £ Y8		Lock nut 82 950 ... £ Y8			Backstop screw PCC 2 82 950 ... £ Y8		Backstop screw PCC 1 82 950 ... £ Y8	
426E (ER16)	86.35	**11000**	81.37	**01000**				M8X3,0	8.13 **00100**
430E (ER25)	86.35	**11600**	81.37	**01600**	M18x1,5	11.07	**00200**	M8x8	8.13 **00300**
470E (ER32)	86.35	**12000**	81.37	**02000**	M18x1,5	11.07	**00200**	M8x8	8.13 **00300**

Accessories





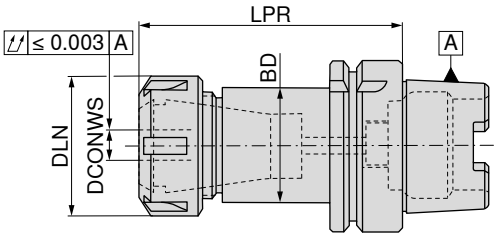
ER collet	Sealing ring	Roll key
→ 268–276, 278–279	→ 281	→ 286

16

ER Collet chuck

▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder including nut





NEW



G 2,5 n_{max} 25000

82 743 ...

	Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	£ Y8/3B	
medium length	HSK-A 63	1 - 10	100	22	8 - 56	426E (ER16 mini)	205.47	**21157**
	HSK-A 63	1 - 10	100	32	8 - 56	426E (ER16)	176.16	**21057**
	HSK-A 63	1 - 16	100	42	24 - 104	430E (ER25)	176.16	**21657**
	HSK-A 63	2 - 20	100	50	24 - 136	470E (ER32)	176.16	**22057**
	HSK-A 63	3 - 26	100	63	176	472E (ER40)	176.16	**22657**
long	HSK-A 100	1 - 10	100	32	8 - 56	426E (ER16)	299.71	**21055**
	HSK-A 100	1 - 16	100	42	24 - 104	430E (ER25)	299.71	**21655**
	HSK-A 100	2 - 20	100	50	24 - 136	470E (ER32)	299.71	**22055**
	HSK-A 100	3 - 26	100	63	176	472E (ER40)	299.71	**22655**
extra-long	HSK-A 63	1 - 10	160	22	8 - 56	426E (ER16 mini)	205.47	**41157**
	HSK-A 63	1 - 10	160	32	8 - 56	426E (ER16)	247.77	**41057**
	HSK-A 63	1 - 16	160	42	24 - 104	430E (ER25)	247.77	**41657**
	HSK-A 63	2 - 20	160	50	24 - 136	470E (ER32)	247.77	**42057**
	HSK-A 63	3 - 26	160	63	176	472E (ER40)	247.77	**42657**
	HSK-A 100	1 - 10	160	32	8 - 56	426E (ER16)	389.16	**41055**
	HSK-A 100	1 - 16	160	42	24 - 104	430E (ER25)	389.16	**41655**
	HSK-A 100	2 - 20	160	50	24 - 136	470E (ER32)	389.16	**42055**
	HSK-A 100	3 - 26	160	63	176	472E (ER40)	389.16	**42655**
extra long	HSK-A 100	1 - 10	200	32	8 - 56	426E (ER16)	497.62	**51055**
	HSK-A 100	1 - 16	200	42	24 - 104	430E (ER25)	497.62	**51655**
	HSK-A 100	2 - 20	200	50	24 - 136	470E (ER32)	497.62	**52055**
	HSK-A 100	3 - 26	200	63	176	472E (ER40)	497.62	**52655**

Dimension LPR is 5.0 mm longer for ER16, ER25 and ER32, and 5.5 mm for ER40 when using thro' coolant lock nuts

Spare parts ER collet chucks

	 Lock nut IK		 Lock nut		 Y clamping key		 ER Mini clamping key		 Mini lock nut		 Mini IK		 Stop screw IK	
	83 950 ...		62 950 ...		83 357 ...		83 950 ...		62 950 ...		83 950 ...		82 950 ...	
Spare parts for collet	£ Y8		£ W7		£ Y8		£ Y8		£ W7		£ Y8		£ Y8/3B	
426E (ER16 mini)							49.71	**101**	46.66	**066**	112.26	**058**	5.32	**30000**
426E (ER16)	87.05	**054**	26.90	**054**	29.58	**116**								
430E (ER25)	101.40	**055**	28.01	**055**	29.58	**125**								
470E (ER32)	108.45	**056**	35.87	**65600**	43.08	**132**								
472E (ER40)	130.50	**057**	34.86	**65700**	48.80	**140**								

Accessories



ER collet

→ 268–276, 279



Coolant transfer pipe

→ 156



Others

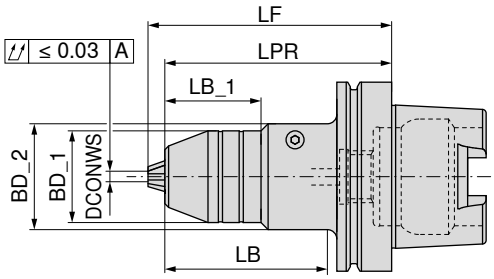
→ 284

Short drill chuck – NC 2010

- ▲ Independent of direction of rotation
- ▲ Torque Moment = 12 Nm
- ▲ also available with Balluff chip **on request**

Scope of supply:

Toolholder including clamping key SW4







G 6,3 n_{max} 10000

84 716 ...

Adapter	DCONWS mm	BD_1 mm	BD_2 mm	LB_1 mm	LB mm	LPR mm	LF mm	£ Y8	
HSK-A 63	0,5 - 13	48.5	56	50.9		126.0	116.9	730.67	**613**
HSK-A 63	2,5 - 16	51.0	56	50.9		127.5	116.9	771.88	**616**
HSK-A 100	0,5 - 13	48.5	56	50.9	86	129.0	120.0	1,038.16	**113**
HSK-A 100	2,5 - 16	51.0	56	50.9	86	130.5	120.0	1,085.55	**116**

Can be used with G 2.5 to 30,000 1/min by subsequent balancing !

Accessories

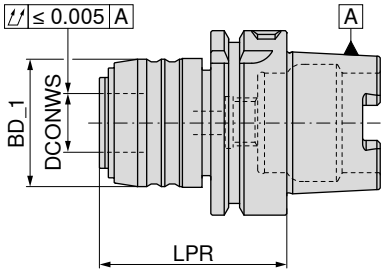


Others

→ 284

Synchro tapping chuck with minimum length compensation

▲ For collets according to DIN 6499
▲ With length compensation under tension and under compression (LZD)
▲ $p_{max.}$ = 50 bar
▲ also available with Balluff chip **on request**







Adapter	cutting range	SZID	DCONWS mm	LPR mm	BD_1 mm	LZD± mm	83 724 ... £ Y8	
HSK-A 63	M3 - M12	1	20	64	43	1,0 / 0,2	457.24	**612**
HSK-A 63	M6 - M20	2	32	97	60	1,0 / 0,2	568.72	**620**
HSK-A 100	M3 - M12	1	20	70	43	1,0 / 0,2	722.36	**112**
HSK-A 100	M6 - M20	2	32	91	60	1,0 / 0,2	854.89	**120**

Accessories



Coolant transfer pipe
→ 156

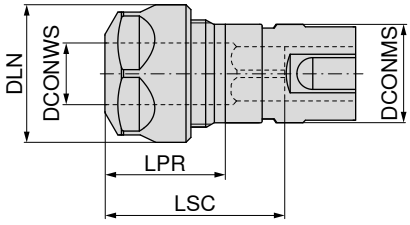


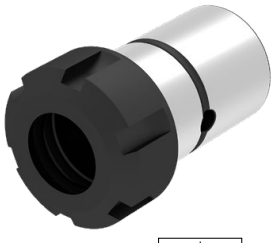
Others
→ 284

Insert for synchro quick change tapping chuck with minimum length compensation

▲ SZID = for insert size

Scope of supply:
Includes lock nut







SZID	DCONWS mm	cutting range	LPR mm	DLN mm	LSC mm	for collet	DCONMS mm	83 608 ... £ Y8	
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	247.61	**012** 1)
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	288.42	**020**

1) with 6 position lock nut

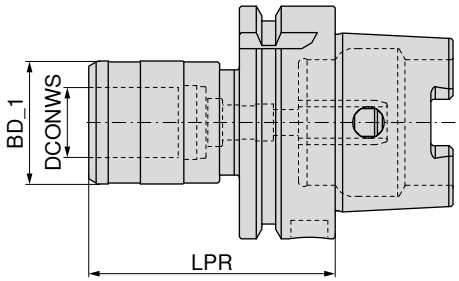
16

Spare parts for synchronous tapping chucks

		Lock nut		Lock nut IK		Lock nut		Y clamping key	
		62 950 ...		83 950 ...		62 950 ...		83 357 ...	
Spare parts for Article no.		£ W7		£ Y8		£ W7		£ Y8	
83 608 012	M22x1,5 - SW25	33.81	**044**	M22x1,5	87.05	**054**	M22x1,5	26.90	**054**	29.58	**116**
83 608 020				M32x1,5	101.40	**055**	M32x1,5	28.01	**055**	29.58	**125**

Quick change tap chuck with length compensation

▲ With length compensation under tension and compression (LZD)
▲ also available with Balluff chip **on request**







Adapter	SZID	LPR mm	BD_1 mm	DCONWS mm	LZD± mm	83 712 ... £ Y8	
HSK-A 63	01	72	41	19	7,5	1,005.08	**612**
HSK-A 63	02	110	60	31	10	1,168.75	**620**
HSK-A 100	01	80	41	19	7,5	1,695.48	**112**
HSK-A 100	02	100	60	31	10	1,490.37	**120**

Accessories

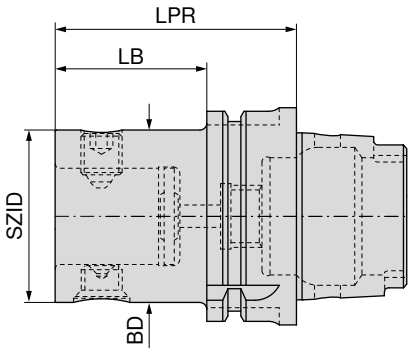

Collet
→ 288, 290–292


Coolant transfer pipe
→ 156


Others
→ 284

Adapter with ABS Connection

▲ also available with Balluff chip **on request**







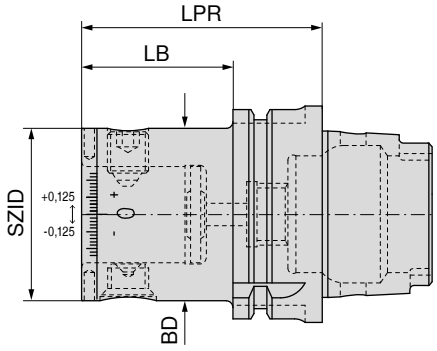
G 6,3 n_{max} 10000

Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	84 200 ... £ 3E	
HSK-A 63	A06 30120	ABS 25	25	50	24	296.78	**06390**
HSK-A 63	A06 30130	ABS 32	32	50	24	296.78	**06389**
HSK-A 63	A06 30140	ABS 40	40	60	34	296.78	**06388**
HSK-A 63	A06 30150	ABS 50	50	70	44	296.78	**06397**
HSK-A 63	A06 30160	ABS 63	63	80	54	296.78	**06396**
HSK-A 63	A06 30170	ABS 80	80	100	74	296.78	**06392**
HSK-A 100	A06 50120	ABS 25	25	60	31	327.07	**10090**
HSK-A 100	A06 50130	ABS 32	32	60	31	327.07	**10089**
HSK-A 100	A06 50140	ABS 40	40	80	51	327.07	**10088**
HSK-A 100	A06 50150	ABS 50	50	80	51	327.07	**10097**
HSK-A 100	A06 50160	ABS 63	63	80	51	327.07	**10096**
HSK-A 100	A06 50170	ABS 80	80	90	61	327.07	**10092**
HSK-A 100	A06 50180	ABS 100	100	100	71	327.07	**10091**

Eccentric adjuster with ABS Connection

▲ Adjustment ± 0.25 mm on diameter
▲ also available with Balluff chip **on request**

Scope of supply:
Eccentric adjuster with adjuster key Ø 2.8 mm





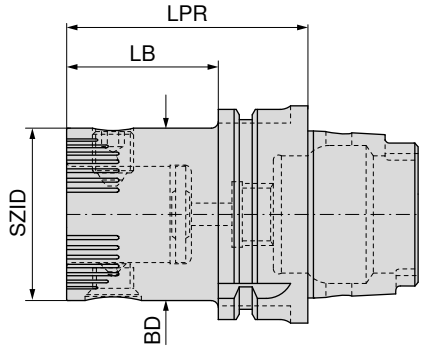


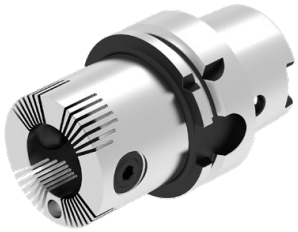
Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	84 203 ... £ W4/6A	
HSK-A 63	A06 36730	ABS 50	50	70.0	39.5	727.19	**06397**
HSK-A 100	A06 56730	ABS 50	50	75.5	46.5	826.35	**10097**
HSK-A 100	A06 56740	ABS 63	63	80.0	51.0	1,002.70	**10096**

16

Torsional vibration dampers with ABS Connection

▲ also available with Balluff chip **on request**







Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	84 206 ... £ 3E	
HSK-A 63	A06 30251	ABS 50	50	70	44	788.62	**06397**
HSK-A 63	A06 30261	ABS 63	63	80	54	821.60	**06396**
HSK-A 63	A06 30270	ABS 80	80	100	74	1,156.99	**06392**
HSK-A 100	A06 50251	ABS 50	50	80	51	860.10	**10097**
HSK-A 100	A06 50261	ABS 63	63	80	51	948.10	**10096**
HSK-A 100	A06 50270	ABS 80	80	90	61	1,090.93	**10092**


Clamping screw


Taper screw

Spare parts SZID	84 950 ... £ XX		84 950 ... £ XX	
ABS 50	11.49	**20300**	14.59	**20400**
ABS 63	10.93	**25500**	13.87	**27300**
ABS 80	13.45	**25600**	16.36	**25100**

Accessories

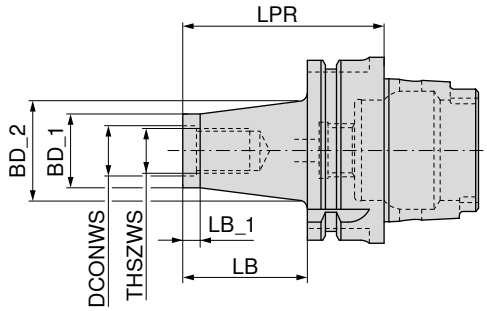

Coolant transfer pipe
→ 156


Extension
→ 187


Others
→ 284

Adapter for milling cutters with threaded end

▲ also available with Balluff chip **on request**







G 2,5 n_{max} 30000

56 714 ...

Adapter	THSZWS	DCONWS	LB	BD_1	BD_2	LB_1	LPR	£ WA	
		mm	mm	mm	mm	mm	mm		
HSK-A 63	M8	8.5	25	13.8	15	12	51	569.05	**081**
HSK-A 63	M8	8.5	50	13.8	23	12	76	575.10	**082**
HSK-A 63	M8	8.5	75	13.8	25	12	101	581.39	**083**
HSK-A 63	M8	8.5	100	13.8	30	12	126	587.46	**084**
HSK-A 63	M10	10.5	25	18.0	23	12	51	569.05	**101**
HSK-A 63	M10	10.5	50	18.0	25	12	76	575.10	**102**
HSK-A 63	M10	10.5	75	18.0	30	12	101	581.39	**103**
HSK-A 63	M10	10.5	100	18.0	35	12	126	587.46	**104**
HSK-A 63	M12	12.5	25	21.0	24	12	51	569.05	**121**
HSK-A 63	M12	12.5	50	21.0	30	12	76	575.10	**122**
HSK-A 63	M12	12.5	75	21.0	35	12	101	581.39	**123**
HSK-A 63	M12	12.5	100	21.0	38	12	126	587.46	**124**
HSK-A 63	M12	12.5	125	21.0	43	12	151	593.75	**125**
HSK-A 63	M12	12.5	150	21.0	45	12	176	599.85	**126**
HSK-A 63	M16	17.0	25	29.0	29	12	51	569.05	**161**
HSK-A 63	M16	17.0	50	29.0	34	12	76	575.10	**162**
HSK-A 63	M16	17.0	75	29.0	35	12	101	581.39	**163**
HSK-A 63	M16	17.0	100	29.0	40	12	126	587.46	**164**
HSK-A 63	M16	17.0	125	29.0	44	12	151	596.26	**165**
HSK-A 63	M16	17.0	150	29.0	48	12	176	599.85	**166**

Accessories



Extension-Reduction set
→ 257



Coolant transfer pipe
→ 156

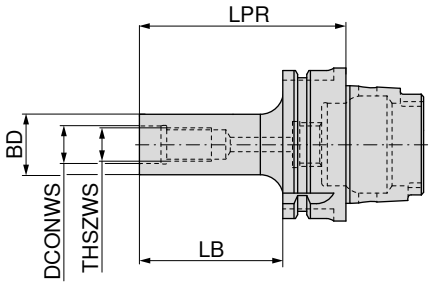


Others
→ 284

16

Adapter for milling cutters with threaded end

▲ also available with Balluff chip **on request**







G 2,5 n_{max} 25000

56 719 ...

Adapter	THSZWS	DCONWS mm	BD mm	LB mm	LPR mm	£ WA	
HSK-A 63	M8	8.5	13.8	50	76	412.83	**082**
HSK-A 63	M10	10.5	18.0	50	76	412.83	**102**
HSK-A 63	M10	10.5	18.0	100	126	474.63	**104**
HSK-A 63	M12	12.5	21.0	50	76	412.83	**122**
HSK-A 63	M12	12.5	21.0	100	126	474.63	**124**
HSK-A 63	M16	17.0	29.0	50	76	412.83	**162**
HSK-A 63	M16	17.0	29.0	100	126	474.63	**164**

Accessories



Extension-Reduction set
→ 257



Coolant transfer pipe
→ 156

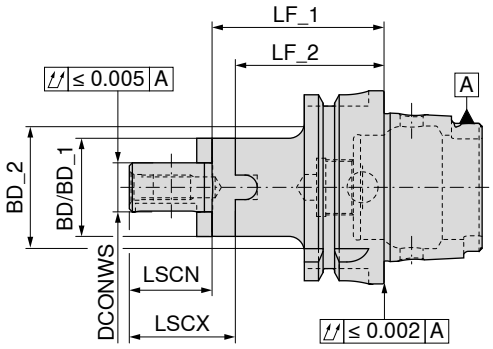


Others
→ 284

Combination shell mill adapter

▲ For milling cutters with transverse or longitudinal groove according to DIN 6358
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder with clamping screw, driving ring and dowel spring





NEW



G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LF_1 mm	LF_2 mm	BD mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	BHTA	82 744 ... £ Y8/3B	
short	HSK-A 63	16	60	50	32			27	17		165.64	**11657**
	HSK-A 63	22	60	48	40			31	19		165.64	**12257**
	HSK-A 63	27	60	48	48			33	21		165.64	**12757**
	HSK-A 63	32	60	46	58			38	24		165.64	**13257**
	HSK-A 63	40	70	56	70			41	27		165.64	**14057**
	HSK-A 100	16	60	50	32			27	17		307.15	**11655**
	HSK-A 100	22	60	48	40			31	19		307.15	**12255**
	HSK-A 100	27	60	48	48			33	21		307.15	**12755**
	HSK-A 100	32	60	46	58			38	24		307.15	**13255**
	HSK-A 100	40	70	56	70			41	27		307.15	**14055**
medium length	HSK-A 63	16	100	90	32			27	17		184.40	**21657**
	HSK-A 63	22	100	88	40			31	19		184.40	**22257**
	HSK-A 63	27	100	88	48			33	21		184.40	**22757**
	HSK-A 63	32	100	86	58			38	24		184.40	**23257**
	HSK-A 63	40	100	86	70			41	27		184.40	**24057**
extra-long	HSK-A 63	16	160	150		32	43.21	27	17	4.5°	211.42	**41657**
	HSK-A 63	22	160	148		40	47.25	31	19	3.0°	211.42	**42257**
	HSK-A 63	27	160	148	48			33	21		211.42	**42757**
	HSK-A 63	32	160	146	58			38	24		211.42	**43257**
	HSK-A 63	40	160	146	70			41	27		211.42	**44057**


Parallel key


Drive ring


clamping screw

Spare parts DCONWS		83 950 ... £ Y8/3B		83 370 ... £ Y8			83 950 ... £ Y8/3B	
16	4 x 4 x 20	4.37	**284**	16.18	**116**	M8x25	7.53	**113**
22	6 x 6 x 25	4.37	**285**	15.51	**122**	M10x25	8.50	**124**
27	7 x 7 x 25	6.94	**286**	19.35	**127**	M12x30	9.39	**125**
32	8 x 7 x 28	4.95	**287**	20.31	**132**	M16x35	11.43	**126**
40	10 x 8 x 32	5.84	**288**	34.21	**140**	M20x40 - SW17	12.61	**112**

Accessories


Milling Adapter Rings → 263


Coolant transfer pipe → 156

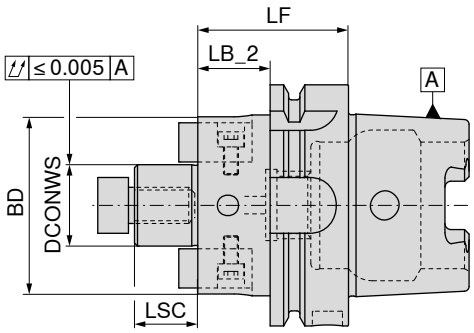

Others → 284

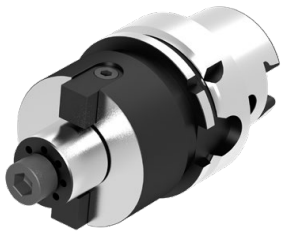
16

Shell mill adapter with reduced flange diameter

▲ Screwed drive dogs
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with retaining screw and drive dog





NEW

G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	82 315 ... £ Y8/3B	
short	HSK-A 63	22	34	60	38	19	258.15	**12257**
	HSK-A 63	27	34	60	48	21	258.15	**12757**
	HSK-A 100	22	31	60	38	19	261.62	**12255**
	HSK-A 100	27	31	60	48	21	261.62	**12755**

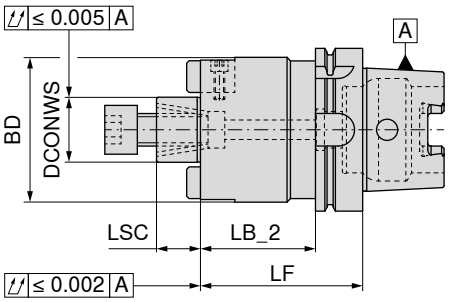
These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters.
Now they can be clamped perfectly, thanks to the adapted flange diameters.

Spare parts DCONWS		Screw for drivers 83 950 ... £ Y8/3B		Driver 83 950 ... £ Y8/3B		clamping screw 83 950 ... £ Y8/3B	
22	M4x8	0.80	**51700**	10x7x20,5	11.26	**51500**	M10x25	8.50	**124**
27	M5x8	0.98	**51800**	12x9x24,3	12.83	**51600**	M12x30	9.39	**125**

Shell mill adapter

▲ for face mills with transverse groove ISO 3937
▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder with retaining screw and drive dogs





NEW



G 2,5 n_{max} 25000

82 745 ...

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	BD_1 mm	BD_2 mm	LSC mm	£ Y8/3B	
short	HSK-A 63	16	34	60	38			17	234.64	**11657**
	HSK-A 63	22	34	60	48			19	234.64	**12257**
	HSK-A 63	27	34	60	58			21	234.64	**12757**
	HSK-A 63	32	34	60	78			24	234.64	**13257**
	HSK-A 63	40	34	70	88			27	234.64	**14057**[1)]
	HSK-A 100	16	31	60	38			17	330.16	**11655**
	HSK-A 100	22	31	60	48			19	330.16	**12255**
	HSK-A 100	27	31	60	58			21	330.16	**12755**
	HSK-A 100	32	31	60	78			24	330.16	**13255**
	HSK-A 100	40	41	70	88			27	330.16	**14055**[1)]
medium length	HSK-A 63	16	74	100		38	44.3	17	253.87	**21657**
	HSK-A 63	22	74	100		48	50.3	19	253.87	**22257**
	HSK-A 63	27	74	100	58			21	253.87	**22757**
	HSK-A 63	32	74	100	78			24	253.87	**23257**
	HSK-A 63	40	74	100	88			27	253.87	**24057**[1)]
	HSK-A 100	16	71	100		38	46.3	17	349.39	**21655**
	HSK-A 100	22	71	100		48	56.3	19	349.39	**22255**
	HSK-A 100	27	71	100		58	66.3	21	349.39	**22755**
	HSK-A 100	32	71	100		78	80.3	24	349.39	**23255**
	HSK-A 100	40	71	100	88			27	349.39	**24055**[1)]
long	HSK-A 63	16	104	130		38	44.3	17	274.60	**31657**
	HSK-A 63	22	104	130		48	50.3	19	274.60	**32257**
	HSK-A 63	27	104	130	58			21	274.60	**32757**
	HSK-A 63	32	104	130	78			24	274.60	**33257**
	HSK-A 63	40	104	130	88			27	274.60	**34057**[1)]
	HSK-A 100	16	101	130		38	46.3	17	423.80	**31655**
	HSK-A 100	22	101	130		48	56.3	19	423.80	**32255**
	HSK-A 100	27	101	130		58	66.3	21	423.80	**32755**
	HSK-A 100	32	101	130		78	80.3	24	423.80	**33255**
	HSK-A 100	40	101	130	88			27	423.80	**34055**[1)]
extra-long	HSK-A 63	16	134	160		38	44.3	17	295.91	**41657**
	HSK-A 63	22	134	160		48	50.3	19	295.91	**42257**
	HSK-A 63	27	134	160	58			21	295.91	**42757**
	HSK-A 63	32	134	160	78			24	295.91	**43257**
	HSK-A 63	40	134	160	88			27	295.91	**44057**[1)]
	HSK-A 100	16	131	160		38	46.3	17	462.43	**41655**
	HSK-A 100	22	131	160		48	56.3	19	462.43	**42255**
	HSK-A 100	27	131	160		58	66.3	21	462.43	**42755**
	HSK-A 100	32	131	160		78	80.3	24	462.43	**43255**
	HSK-A 100	40	131	160	88			27	462.43	**44055**[1)]

1) with cross screw and 4 holes M12, Pitch Circle diameter = 66.7 mm, coolant outlet on the outer diameter of the spigot (DCONWS)!

Spare parts facemill adapters



Cross nut key



Cross screw



clamping screw

Spare parts DCONWS	83 368 ... £ Y8		83 367 ... £ Y8		83 950 ... £ Y8/3B	
16	26.72	116	M8	7.10	016	M8x25	7.53	113
22	33.25	122	M10	7.90	022	M10x25	8.50	124
27	39.10	127	M12	10.10	027	M12x30	9.39	125
32	53.28	132	M16	15.86	032	M16x35	11.43	126
40	52.92	140	M20	16.97	040	M20x40 - SW17	12.61	112



Screw for drivers

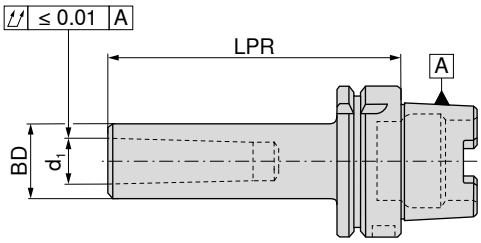


Driver

Spare parts DCONWS	83 950 ... £ Y8/3B		83 950 ... £ Y8/3B	
16	M3x8	1.29	296	8x9x17,5	18.20	120
22	M4x12	1.69	297	10x11x20,5	18.79	121
27	M5x12	1.74	136	12x13x24,3	20.72	122
32	M5x20	1.84	137	14x21x21,2	20.94	123
40	M6x16	2.09	138	15,9x16,3x19,5	27.87	295

Milling sleeve adapter for Morse taper shanks to DIN 228-2 D

▲ also available with Balluff chip **on request**





NEW



G 6,3 n_{max} 8000

82 746 ...

Adapter	d_1	LPR mm	BD mm	£ Y8/3B	
HSK-A 63	MK1	100	25	158.40	**01057**
HSK-A 63	MK2	120	32	158.40	**02057**
HSK-A 63	MK3	140	40	158.40	**03057**
HSK-A 63	MK4	160	48	158.40	**04057**
HSK-A 100	MK2	120	32	257.85	**02055**
HSK-A 100	MK3	150	40	257.85	**03055**
HSK-A 100	MK4	170	48	257.85	**04055**

Accessories



Morse taper adapter sleeve
→ 242



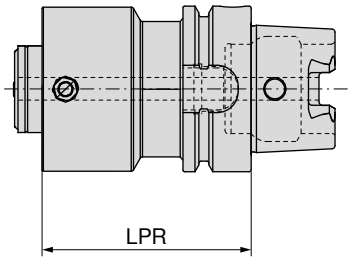
Coolant transfer pipe
→ 156



Others
→ 284

HSK-T extension

▲ for mounting HSK-T adapters according to ISO 12164-3
▲ also suitable for HSK-A and HSK-C
▲ also available with Balluff chip **on request**





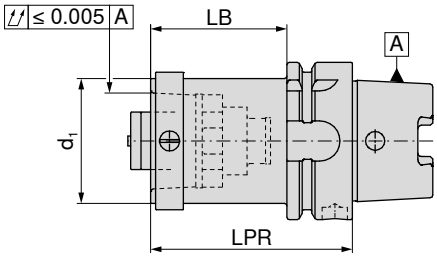


Adapter	LPR mm	£ Y8	84 621 ...
HSK-T 63	80	1,368.05	**08037**
HSK-T 63	120	1,459.17	**12037**
HSK-T 100	125	1,824.16	**12535**
HSK-T 100	160	1,938.18	**16035**
HSK-T 100	200	2,074.86	**20035**

HSK-A reduction

▲ for mounting HSK-A adapters according to ISO 12164
▲ also available with Balluff chip **on request**

Scope of supply:
with clamping cartridge and cover ring





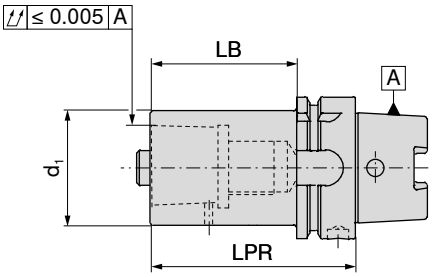


Adapter	d_1	LB mm	LPR mm	£ Y8	84 040 ...
HSK-A 63	HSK-A 40	54	80	1,189.04	**06359**
HSK-A 63	HSK-A 50	54	80	1,211.35	**06358**
HSK-A 100	HSK-A 50	51	80	1,410.13	**10058**
HSK-A 100	HSK-A 63	71	100	1,410.13	**10057**

HSK-A/PSC adapter

▲ for mounting PSC adapters according to ISO 26623-1
▲ also available with Balluff chip **on request**

Scope of supply:
with tightening screw







Adapter	d_1	LB mm	LPR mm	84 013 ... £ Y8	
HSK-A 63	PSC 32	49	75	614.55	**06387**
HSK-A 63	PSC 40	54	80	658.90	**06395**
HSK-A 63	PSC 50	64	90	658.90	**06394**
HSK-A 100	PSC 32	51	80	724.85	**10087**
HSK-A 100	PSC 40	61	90	746.91	**10095**
HSK-A 100	PSC 50	71	100	768.97	**10094**
HSK-A 100	PSC 63	81	110	879.73	**10093**
HSK-A 100	PSC 80	91	120	946.15	**10086**

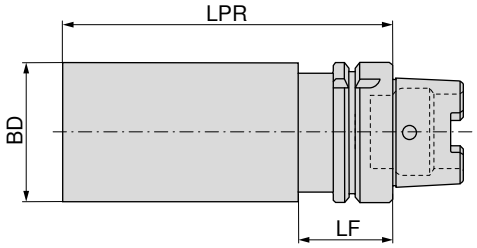

Threaded ring


tightening screw

Spare parts d_1	84 950 ... £ Y8			84 950 ... £ Y8	
PSC 32	52.21	**127**	SW8	37.89	**122**
PSC 40	52.21	**128**	SW8	42.70	**123**
PSC 50	52.21	**129**	SW10	42.70	**124**
PSC 63	104.24	**130**	SW14	47.53	**126**
PSC 80	104.24	**130**	SW14	47.53	**126**

Blank

- ▲ Material: 16MnCr5
- ▲ for production of special tools
- ▲ Taper hardened and ground
- ▲ Tool 27$^{\pm 1}$ HRC
- ▲ also available with Balluff chip **on request**





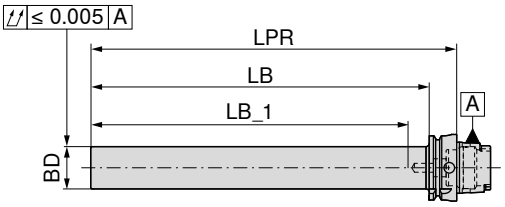
NEW



Adapter	BD mm	LPR mm	LF mm	82 747 ... £ Y8/3B	
HSK-A 63	63.0	200	42	175.03	**16357**
HSK-A 63	80.0	250	42	196.96	**18057**
HSK-A 100	63.0	200		263.01	**16355**
HSK-A 100	80.0	250		307.15	**18055**
HSK-A 100	97.5	250	45	378.50	**19755**

Test arbor

Scope of supply:
in wooden box





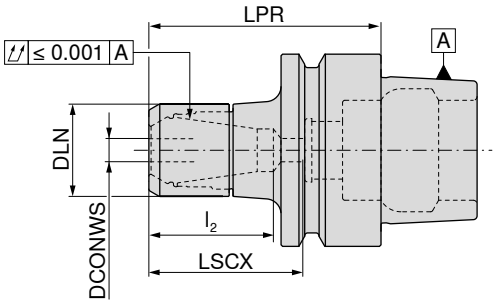


Adapter	BD mm	LPR mm	LB_1 mm	LB mm	81 746 ... £ Y8/3B	
HSK-A 63	40	346	300	320	740.88	**063**
HSK-A 100	40	349	300	320	946.08	**100**

ER precision collet chuck – Centro-P

- ▲ for standard or sealed nuts
- ▲ maximum size collet to ISO tolerance field H10
- ▲ for clamping a roll key is required
- ▲ p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop







G 2,5 n_{max} 30000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 mm	for collet	84 776 ... £ Y8	
HSK-E 40	2 - 16	60	40	39		430E (ER25)	470.81	**417**
HSK-E 50	2 - 16	70	40	49	30 - 39	430E (ER25)	518.03	**516**

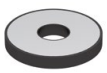
→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1
Dimension LPR when using tightening nuts with seals 4 mm longer

Spare parts for collet	 Lock nut IK 84 950 ... £ Y8		 Lock nut 84 950 ... £ Y8	
430E (ER25)	108.06	**013**	80.00	**003**

Accessories


ER collet
→ 268–276, 279


Sealing ring
→ 280


Roll key
→ 286


Roll key device
→ 286

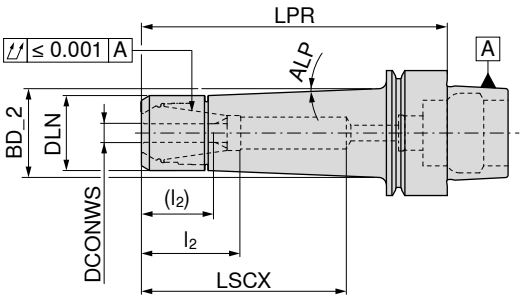

Coolant transfer pipe
→ 156


Others
→ 284

ER precision collet chuck, tapered – Centro-P

- ▲ for Mini Clamping Nuts
- ▲ Maximum clamping range covered according to ISO tolerance field H10
- ▲ Roll key required for clamping
- ▲ p_{max} = 80 bar

Scope of supply:
Holder **without** nut, **without** backstop







G 2,5 n_{max} 30000

	Adapter	DCONWS mm	LPR mm	DLN mm	BD_2 mm	LSCX mm	l_2 (l_2) mm	ALP	for collet	84 774 ... £ Y8	
short	HSK-E 25	1 - 7	35	16		22			4008E (ER11 mini)	316.67	07200
	HSK-E 32	1 - 7	50	16	17.5	31	18 - 20	4.5°	4008E (ER11 mini)	423.83	307
	HSK-E 40	1 - 7	50	16	17.5	31	18 - 20	4.5°	4008E (ER11 mini)	346.50	407
	HSK-E 25	1 - 10	45	22		30			426E (ER16 mini)	297.79	101
	HSK-E 32	1 - 10	55	22	25.8	40	28 - 32 (12 - 22)	4.5°	426E (ER16 mini)	423.83	310
	HSK-E 40	1 - 10	55	22	25.8	38	28 - 30 (12 - 20)	4.5°	426E (ER16 mini)	329.91	410
	HSK-E 50	1 - 10	60	22	25.4	39	28 - 31 (12 - 21)	4.5°	426E (ER16 mini)	318.75	510
medium length	HSK-E 40	1 - 7	100	16	25.4	64	18 - 36 (12 - 26)	4.5°	4008E (ER11 mini)	423.83	408
	HSK-E 40	1 - 10	100	22	29.0	66	28 - 48 (12 - 38)	2.5°	426E (ER16 mini)	378.28	411
	HSK-E 50	1 - 10	100	22	28.2	72	28 - 48 (12 - 38)	2.5°	426E (ER16 mini)	391.21	511

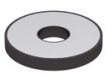
→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer

	 Mini lock nut IK		 Mini lock nut		 Stop screw 2		 Stop screw 1	
	84 950 ...		84 950 ...		83 950 ...		83 950 ...	
Spare parts for collet	£ Y8		£ Y8		£ Y8		£ Y8	
4008E (ER11 mini)			100.56	041	57.32	340	38.17	336
426E (ER16 mini)	97.92	035	80.34	034	60.14	341	40.28	337

Accessories


ER collet
→ 268–276, 279


Sealing ring
→ 280


Device
→ 285


Roll key
→ 286


Roll key device
→ 286

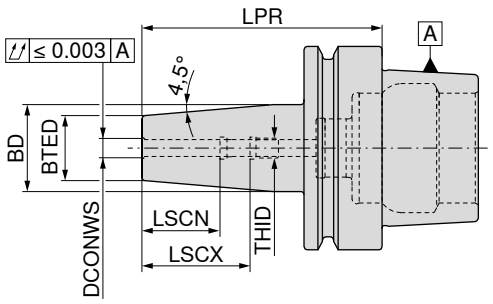

Coolant transfer pipe
→ 156


Others
→ 284

Shrink fit adapters

▲ for solid carbide and HSS shanks to h6 tolerance or better

TG









	Adapter	DCONWS mm	LPR mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	G 2,5 n_{max} 25000 **84 308 ...** £ Y8		G 2,5 n_{max} 25000 **84 309 ...** £ Y8	
short	HSK-E 40	3	60	10	15	28	12	M6	362.23	**103**		
	HSK-E 40	4	60	10	15	28	16	M6	352.97	**104**		
	HSK-E 40	5	60	10	15	30	20	M6	352.97	**105**		
	HSK-E 40	6	80	21	27	36	26	M5	297.43	**106**		
	HSK-E 40	8	80	21	27	36	26	M6	297.43	**108**		
	HSK-E 40	10	80	24	32	41	31	M8x1	297.43	**110**		
	HSK-E 40	12	90	24	32	47	37	M10x1	297.43	**112**		
	HSK-E 40	14	90	27	34	47	37	M10x1	297.43	**114**		
	HSK-E 40	16	90	27	34	50	40	M12x1	297.43	**116**		
	HSK-E 50	3	80	10	15	22	12	M6			365.99	**103**
	HSK-E 50	4	80	15	22	26	16	M6			356.71	**104**
	HSK-E 50	5	80	15	22	30	20	M6			356.71	**105**
	HSK-E 50	6	80	21	27	36	26	M5			337.24	**106**
	HSK-E 50	8	80	21	27	36	26	M6			337.24	**108**
	HSK-E 50	10	85	24	32	41	31	M8x1			337.24	**110**
	HSK-E 50	12	90	24	32	47	37	M10x1			337.24	**112**
	HSK-E 50	14	90	27	34	47	37	M10x1			337.24	**114**
	HSK-E 50	16	95	27	34	50	40	M12x1			337.24	**116**
	HSK-E 50	18	95	33	42	50	40	M12x1			337.24	**118**
	HSK-E 50	20	100	33	42	52	42	M16x1			337.24	**120**

→ Min. clamping depth, Page 312



Stop screw IK



Thro' coolant back stop screw



Stop screw IK

Spare parts **DCONWS**	**83 950 ...** £ Y7		**83 950 ...** £ Y7		**83 950 ...** £ Y7	
3 - 5	M6x14 - SW2 25.16	**417**	M5x14 - SW2 25.16	**411**		
6					M5x12,5 - SW2,5 25.16	**418**
8					M6x12,5 - SW3 25.16	**419**
10					M8x1x13,5 - SW3 25.16	**420**
12 - 14					M10x1x13,5 - SW5 25.16	**421**
16 - 18					M12x1x13,5 - SW5 25.16	**422**
20					M16x1x13,5 - SW5 29.02	**423**

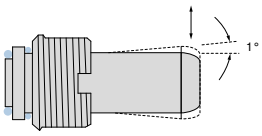
Spare part 83 950 411 only for HSK-E 32. Spare part 83 950 417 for HSK-E 40/HSK-E 50.

16

Coolant pipe – HSK

▲ use up to 100 bar

Scope of supply:
complete, including seals





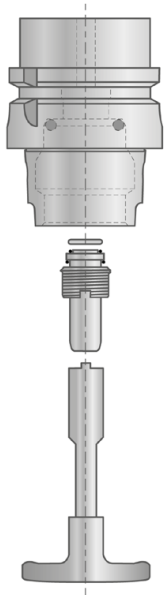
Adapter	THOD	83 760 ... £ Y8	
HSK 32	M10 x 1	25.26	032
HSK 40	M12 x 1	25.26	040
HSK 50	M16 x 1	25.26	050
HSK 63	M18 x 1	13.79	063
HSK 80	M20 x 1,5	27.66	080
HSK 100	M24 x 1,5	22.55	100

Key – HSK



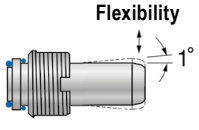
Adapter	83 758 ... £ Y8	
HSK 32	43.49	032
HSK 40	43.87	040
HSK 50	47.58	050
HSK 63	29.60	063
HSK 80	56.04	080
HSK 100	55.56	100

Coolant pipe for HSK tools



The coolant pipe is ideally mounted in vertical direction – from the bottom to the top. In this manner the sealing ring is prevented from being compressed during locating which would cause the loss of its sealing function. After mounting, the coolant pipe can be moved only to a minimum degree according to DIN (± 1°).

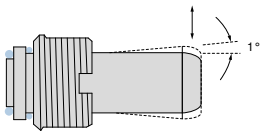
Flexibility



Coolant transfer pipe with strainer – HSK

▲ 75 µ filter screen, usable up to 80 bar

Scope of supply:
Complete, including sealing rings and filter screen





NEW

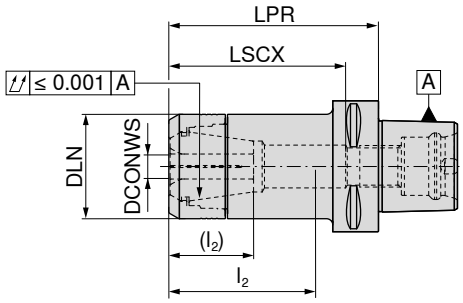
Adapter	THOD	83 760 ... £ Y8	
HSK 63	M18 x 1	60.41	16300
HSK 100	M24 x 1,5	41.93	20000

For usage with micro tools with thro' coolant, improved tool life due to reduced contamination of the coolant hole

ER precision collet chuck – Centro-P

- ▲ for standard or sealed nuts
- ▲ maximum size collet to ISO tolerance field H10
- ▲ for clamping a roll key is required
- ▲ p_{max} = 80 bar
- ▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** nut, **without** backstop







G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	DLN mm	LSCX mm	l_2 (l_2) mm	for collet	**84 112 ...** £ Y8	
PSC 40	1 - 10	55	30	47	29 - 38	426E (ER16)	542.47	**402**
PSC 50	1 - 10	60	30	47	29 - 38	426E (ER16)	542.47	**501**
PSC 50	1 - 10	100	30	87	29 - 51 (29 - 37)	426E (ER16)	580.51	**502**
PSC 50	1 - 16	60	40	48		430E (ER25)	542.47	**505**
PSC 50	2 - 20	60	50	49		470E (ER32)	542.47	**507**
PSC 63	1 - 10	60	30	44		426E (ER16)	519.60	**601**
PSC 63	1 - 10	100	30	83	29 - 53 (25 - 39)	426E (ER16)	557.68	**602**
PSC 63	1 - 16	60	40	38		430E (ER25)	519.60	**605**
PSC 63	1 - 16	100	40	78	36 - 62 (30 - 45)	430E (ER25)	557.68	**606**
PSC 63	1 - 16	130	40	99	34 - 70 (30 - 50)	430E (ER25)	608.30	**607**
PSC 63	1 - 16	160	40	118	34 - 70 (30 - 50)	430E (ER25)	709.73	**608**
PSC 63	2 - 20	60	50	42		470E (ER32)	519.60	**609**
PSC 63	2 - 20	100	50	79	45 - 63 (25 - 45)	470E (ER32)	557.68	**610**
PSC 63	2 - 20	130	50	99	45 - 63 (25 - 53)	470E (ER32)	608.30	**611**
PSC 63	3 - 26	65	63	51		472E (ER40)	582.98	**612**

→ Transmittable torque moments, Page 313

LSCX = Clamping depth without back stop screw for shanks
l_2 = With back stop screw 1, Dimension in brackets (l_2) = With back stop screw 2
Dimension LPR when using tightening nuts with seals 4 mm longer


Lock nut IK


Lock nut


Stop screw 2


Stop screw 1

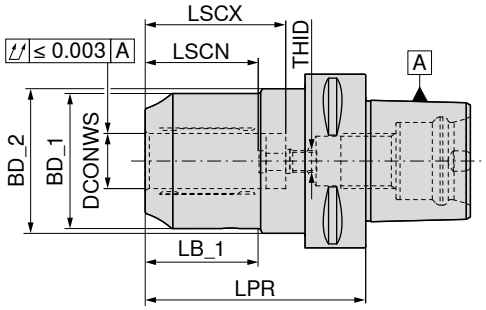
Spare parts for collet	**84 950 ...** £ Y8		**84 950 ...** £ Y8		**83 950 ...**	£ Y8		**83 950 ...**	£ Y8	
426E (ER16)	96.95	**011**	72.00	**001**	M11x1 - SW6	60.14	**341**	M11x1 - SW6	40.28	**337**
430E (ER25)	108.06	**013**	80.00	**003**	M18x1,5 - SW6	42.31	**432**	M18x1,5 - SW6	30.17	**431**
470E (ER32)	115.55	**015**	88.00	**005**	M22x1,5 - SW6	35.73	**402**	M22x1,5 - SW6	26.03	**401**
472E (ER40)	158.03	**017**	128.02	**007**				M28x1,5 - SW6	36.47	**400**

16

HyPower – Complus

▲ High pressure chuck, short and stable version
▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with backstop screw and pressure screw







G 2,5 n_{max} 25000

Adapter	DCONWS mm	LPR mm	LB_1 mm	BD_1 mm	BD_2 mm	LSCX mm	LSCN mm	THID	84 108 ... £ Y8	
PSC 63	20	80	41	49	52.5	51	41	M8x1	912.41	**62000**

→ Min. clamping depth, Page 312

		Cylindrical screw 83 950 ...		Clamping key – T 80 397 ...		Pressure screw 83 950 ...		Stop screw IK 83 950 ...	
Spare parts for Article no.		£ Y7			£ Y7		£ Y7		£ Y7	
84 108 62000	M5x5 - SW2,5	3.85	**157**	SW5	8.11	**050**	M10x1x14	11.52	**429**	M16x1x13,5 - SW8	29.02	**424**

Accessories


Reduction sleeve → 282


Coolant transfer pipe → 176

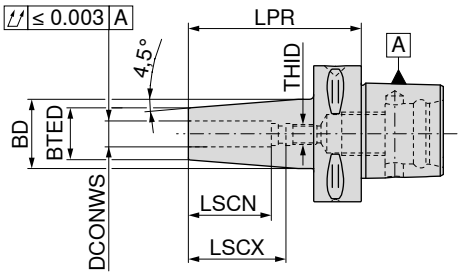

Others → 284

Shrink adapters

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** IK back stop screw

TG







G 6,3 n_{max} 15000

84 104 ...

	Adapter	LPR mm	DCONWS mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	£ Y8	
short	PSC 32	65	6	21	27	36	26	M5	333.66	**306**
	PSC 32	65	8	21	27	36	26	M6	333.66	**308**
	PSC 32	70	10	24	32	41	31	M8x1	333.66	**310**
	PSC 32	75	12	24	32	47	37	M10x1	333.66	**312**
	PSC 40	75	6	21	27	36	26	M5	340.02	**406**
	PSC 40	75	8	21	27	36	26	M6	340.02	**408**
	PSC 40	75	10	24	32	41	31	M8x1	340.02	**410**
	PSC 40	75	12	24	32	47	37	M10x1	340.02	**412**
	PSC 40	80	14	27	34	47	37	M10x1	340.02	**414**
	PSC 40	80	16	27	34	50	40	M12x1	340.02	**416**
	PSC 40	80	18	33	42	50	40	M12x1	340.02	**418**
	PSC 40	85	20	33	42	52	42	M16x1	340.02	**420**
	PSC 50	65	3	12	17				421.44	**503**
	PSC 50	65	4	12	17				421.44	**504**
	PSC 50	65	5	12	17				421.44	**505**
	PSC 50	75	6	21	30	36	26	M5	349.84	**506**
	PSC 50	75	8	21	30	36	26	M6	349.84	**508**
	PSC 50	75	10	24	33	41	31	M8x1	349.84	**510**
	PSC 50	75	12	24	33	47	37	M10x1	349.84	**512**
	PSC 50	80	14	27	34	47	37	M10x1	349.84	**514**
	PSC 50	80	16	27	34	50	40	M12x1	349.84	**516**
	PSC 50	80	18	33	42	50	40	M12x1	349.84	**518**
	PSC 50	85	20	33	42	52	42	M16x1	349.84	**520**
	PSC 50	90	25	44	53	58	48	M16x1	349.84	**525**
	PSC 63	80	3	12	17				519.15	**603**
	PSC 63	80	4	12	17				519.15	**604**
	PSC 63	80	5	12	17				519.15	**605**
	PSC 63	80	6	21	27	36	26	M5	437.76	**606**
	PSC 63	80	8	21	27	36	26	M6	437.76	**608**
	PSC 63	80	10	24	32	41	31	M8x1	437.76	**610**
	PSC 63	80	12	24	32	47	37	M10x1	437.76	**612**
	PSC 63	85	14	27	34	47	37	M10x1	437.76	**614**
	PSC 63	85	16	27	34	50	40	M12x1	437.76	**616**
	PSC 63	85	18	33	42	50	40	M12x1	437.76	**618**
	PSC 63	85	20	33	42	52	42	M16x1	437.76	**620**
	PSC 63	90	25	44	53	58	48	M16x1	437.76	**625**
	PSC 63	95	32	44	53	61	51	M16x1	437.76	**632**
	PSC 80	85	6	21	27	36	26	M5	470.38	**806**
	PSC 80	85	8	21	27	36	26	M6	470.38	**808**
	PSC 80	85	10	24	32	41	31	M8x1	470.38	**810**
	PSC 80	85	12	24	32	47	37	M10x1	470.38	**812**
	PSC 80	90	14	27	34	47	37	M10x1	470.38	**814**
	PSC 80	90	16	27	34	50	40	M12x1	470.38	**816**
	PSC 80	90	18	33	42	50	40	M12x1	470.38	**818**
	PSC 80	90	20	33	42	52	42	M16x1	470.38	**820**
	PSC 80	95	25	44	53	58	48	M16x1	470.38	**825**
	PSC 80	100	32	44	53	61	51	M16x1	470.38	**832**

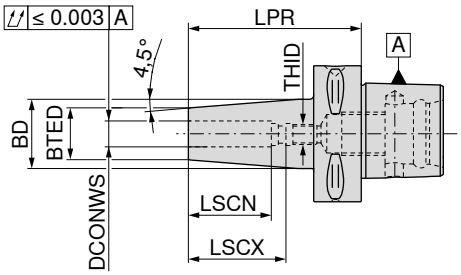
→ Min. clamping depth, Page 312

Shrink adapters

▲ for solid carbide and HSS shanks with h6 tolerance or better
▲ also available with Balluff chip **on request**

Scope of supply:
Holder **without** IK back stop screw

TG









	Adapter	LPR mm	DCONWS mm	BTED mm	BD mm	LSCX mm	LSCN mm	THID	G 6,3 n_{max} 15000 **84 105 ...** £ Y8		G 6,3 n_{max} 15000 **84 106 ...** £ Y8	
medium length	PSC 50	120	6	21	32	36	26	M5	421.44	**506**		
	PSC 50	120	8	21	32	36	26	M6	421.44	**508**		
	PSC 50	120	10	24	34	41	31	M8x1	421.44	**510**		
	PSC 50	120	12	24	34	47	37	M10x1	421.44	**512**		
	PSC 50	120	14	27	36	47	37	M10x1	421.44	**514**		
	PSC 50	120	16	27	36	50	40	M12x1	421.44	**516**		
	PSC 50	120	18	33	42	50	40	M12x1	421.44	**518**		
	PSC 50	120	20	33	42	52	42	M16x1	421.44	**520**		
	PSC 50	120	25	44	53	58	48	M16x1	421.44	**525**		
	PSC 63	120	6	21	32	36	26	M5	519.15	**606**		
	PSC 63	120	8	21	32	36	26	M6	519.15	**608**		
	PSC 63	120	10	24	32	41	31	M8x1	519.15	**610**		
	PSC 63	120	12	24	32	47	37	M10x1	519.15	**612**		
	PSC 63	120	14	27	36	47	37	M10x1	519.15	**614**		
	PSC 63	120	16	27	36	50	40	M12x1	519.15	**616**		
	PSC 63	120	18	33	44	50	40	M12x1	519.15	**618**		
	PSC 63	120	20	33	44	52	42	M16x1	519.15	**620**		
	PSC 63	120	25	44	53	58	48	M16x1	519.15	**625**		
	PSC 63	120	32	44	53	61	51	M16x1	519.15	**632**		
	PSC 80	120	6	21	32	36	26	M5	561.40	**806**		
	PSC 80	120	8	21	32	36	26	M6	561.40	**808**		
	PSC 80	120	10	24	34	41	31	M8x1	561.40	**810**		
	PSC 80	120	12	24	34	47	37	M10x1	561.40	**812**		
	PSC 80	120	14	27	36	47	37	M10x1	561.40	**814**		
	PSC 80	120	16	27	36	50	40	M12x1	561.40	**816**		
	PSC 80	120	18	33	44	50	40	M12x1	561.40	**818**		
	PSC 80	120	20	33	44	52	42	M16x1	561.40	**820**		
	PSC 80	120	25	44	53	58	48	M16x1	561.40	**825**		
	PSC 80	120	32	44	53	61	51	M16x1	561.40	**832**		
extra-long	PSC 63	160	6	21	32	36	26	M5			567.92	**606**
	PSC 63	160	8	21	32	36	26	M6			567.92	**608**
	PSC 63	160	10	24	34	41	31	M8x1			567.92	**610**
	PSC 63	160	12	24	34	47	37	M10x1			567.92	**612**
	PSC 63	160	14	27	36	47	37	M10x1			567.92	**614**
	PSC 63	160	16	27	36	50	40	M12x1			567.92	**616**
	PSC 63	160	18	33	44	50	40	M12x1			567.92	**618**
	PSC 63	160	20	33	44	52	42	M16x1			567.92	**620**
	PSC 63	160	25	44	53	58	48	M16x1			567.92	**625**
	PSC 63	160	32	44	53	61	51	M16x1			567.92	**632**

→ Min. clamping depth, Page 312

Spare parts heat shrink adapter



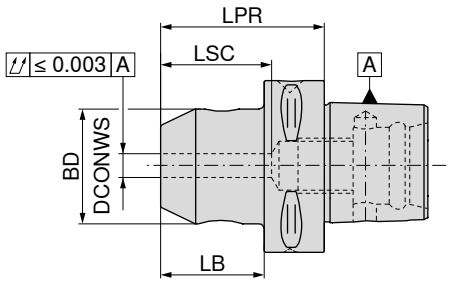
Backstop screw IK

84 950 ...

Spare parts DCONWS	£ Y8	
6	16.94	**140**
8	16.94	**141**
10	16.94	**142**
12 - 14	16.94	**143**
16 - 18	16.94	**144**
20 - 32	16.94	**145**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**







G 6,3 n_{max} 15000

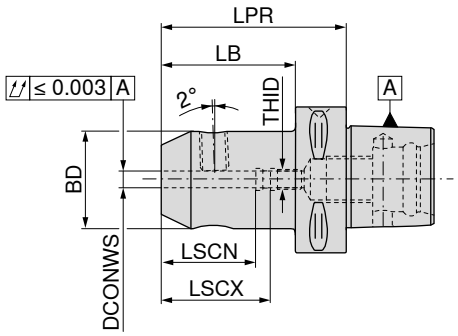
84 100 ...

Adapter	DCONWS mm	LPR mm	BD mm	LB mm	LSC mm	£ Y8	
PSC 32	6	45	25	30	35	274.95	**306**
PSC 32	8	45	28	30	35	274.95	**308**
PSC 32	10	50	35	35	39	274.95	**310**
PSC 32	12	55	42	40	44	274.95	**312**
PSC 40	6	50	25	30	35	301.06	**406**
PSC 40	8	50	28	30	35	301.06	**408**
PSC 40	10	50	35	30	39	301.06	**410**
PSC 40	12	55	42	35	44	301.06	**412**
PSC 40	14	55	44	35	44	301.06	**414**
PSC 40	16	55	48	35	47	301.06	**416**
PSC 50	6	50	25	30	35	307.58	**506**
PSC 50	8	50	28	30	35	307.58	**508**
PSC 50	10	55	35	35	39	307.58	**510**
PSC 50	12	60	42	40	44	307.58	**512**
PSC 50	14	60	44	40	44	307.58	**514**
PSC 50	16	60	48	40	47	307.58	**516**
PSC 50	18	60	50	40	47	307.58	**518**
PSC 50	20	60	52	40	47	307.58	**520**
PSC 50	25	80	65	60	54	307.58	**525** 1)
PSC 63	6	55	25	33	35	340.02	**606**
PSC 63	8	55	28	33	35	340.02	**608**
PSC 63	10	60	35	38	39	340.02	**610**
PSC 63	12	60	42	38	44	340.02	**612**
PSC 63	14	60	44	38	44	340.02	**614**
PSC 63	16	65	48	43	47	340.02	**616**
PSC 63	18	65	50	43	47	340.02	**618**
PSC 63	20	65	52	43	49	340.02	**620**
PSC 63	25	80	65	58	54	340.02	**625** 1)
PSC 63	32	90	72	68	58	340.02	**632** 1)
PSC 63	40	100	80	78	75	340.02	**640** 1)
PSC 80	6	70	25	40	35	372.67	**806**
PSC 80	8	70	28	40	35	372.67	**808**
PSC 80	10	70	35	40	39	372.67	**810**
PSC 80	12	70	42	40	44	372.67	**812**
PSC 80	14	70	44	40	44	372.67	**814**
PSC 80	16	70	48	50	47	372.67	**816**
PSC 80	18	70	50	40	47	372.67	**818**
PSC 80	20	70	52	40	49	372.67	**820**
PSC 80	25	80	65	50	54	372.67	**825** 1)
PSC 80	32	80	72	50	58	372.67	**832** 1)
PSC 80	40	110	80	80	75	372.67	**840** 1)
PSC 80	50	120	100	90	83	372.67	**850** 1)

1) Version with two grubscrews

Cylindrical Shank Adapter (Whistle Notch)

▲ For shanks according to DIN 6535 HE / 1835 E with angled clamping flat
▲ also available with Balluff chip **on request**







G 6,3 n_{max} 15000

Adapter	DCONWS mm	LPR mm	BD mm	LB mm	LSCX mm	LSCN mm	THID	84 102 ... £ Y8	
PSC 32	6	70	25	55	38	28	M5	274.95	**306**
PSC 32	8	70	28	55	38	28	M6	274.95	**308**
PSC 32	10	70	35	55	41	31	M8	274.95	**310**
PSC 32	12	75	42	60	47	37	M10	274.95	**312**
PSC 40	6	70	25	50	38	28	M5	301.06	**406**
PSC 40	8	70	28	50	38	28	M6	301.06	**408**
PSC 40	10	70	35	50	41	31	M8	301.06	**410**
PSC 40	12	75	42	55	47	37	M10	301.06	**412**
PSC 40	14	75	44	55	47	37	M10	301.06	**414**
PSC 50	6	70	25	50	38	28	M5	307.58	**506**
PSC 50	8	70	28	50	38	28	M6	307.58	**508**
PSC 50	10	70	35	50	41	31	M8	307.58	**510**
PSC 50	12	75	42	55	47	37	M10	307.58	**512**
PSC 50	14	75	44	55	47	37	M10	307.58	**514**
PSC 50	16	80	48	60	50	40	M12	307.58	**516**
PSC 50	18	80	50	60	50	40	M12	307.58	**518**
PSC 50	20	85	52	65	52	42	M16	307.58	**520**
PSC 63	6	75	25	53	38	28	M5	340.02	**606**
PSC 63	8	75	28	53	38	28	M6	340.02	**608**
PSC 63	10	75	35	53	41	31	M8	340.02	**610**
PSC 63	12	80	42	58	47	37	M10	340.02	**612**
PSC 63	14	80	44	58	47	37	M10	340.02	**614**
PSC 63	16	80	48	58	50	40	M12	340.02	**616**
PSC 63	18	80	50	58	50	40	M12	340.02	**618**
PSC 63	20	85	52	63	52	42	M16	340.02	**620**
PSC 63	25	90	65	68	58	48	M16	340.02	**625** 1)
PSC 63	32	95	72	73	61	51	M16	340.02	**632** 1)
PSC 80	6	65	25	35	38	28	M5	372.67	**806**
PSC 80	8	65	28	35	38	28	M6	372.67	**808**
PSC 80	10	65	35	35	41	31	M8	372.67	**810**
PSC 80	12	70	42	40	47	37	M10	372.67	**812**
PSC 80	14	70	44	40	47	37	M10	372.67	**814**
PSC 80	16	75	48	45	50	40	M12	372.67	**816**
PSC 80	18	75	50	45	50	40	M12	372.67	**818**
PSC 80	20	80	52	50	52	42	M16	372.67	**820**
PSC 80	25	90	65	60	58	48	M16	372.67	**825** 1)
PSC 80	32	95	72	65	61	51	M16	372.67	**832** 1)

1) Version with two grubscrews

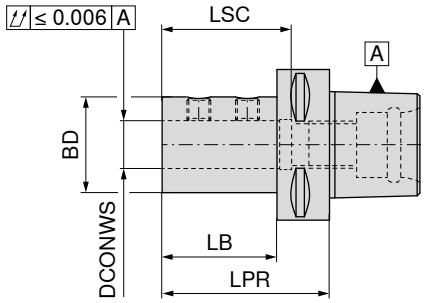

Grubscrew


Backstop screw IK

Spare parts DCONWS	62 950 ... £ W7		84 950 ... £ Y8	
6	M6x10	1.16 **006**	M5	16.94 **146**
8	M8x10	1.16 **008**	M6	16.94 **147**
10	M10x12	2.22 **010**	M8	16.94 **148**
12 - 14	M12x16	1.76 **012**	M10	16.94 **149**
16 - 18	M14x16	2.18 **016**	M12	16.94 **150**
20	M16x16	2.32 **020**	M16	16.94 **151**
25	M18x2x20	4.48 **025**	M16	16.94 **151**
32	M20x2x20	4.68 **032**	M16	16.94 **151**

Indexable insert drill adapter ISO 26623-1 PSC

- ▲ Run-out ≤ 0.005 mm
- ▲ max. speed 5,000 rpm
- ▲ Also available with Balluff chip **on request**







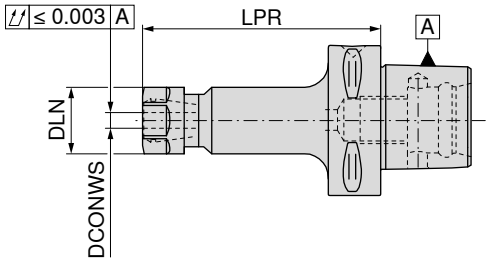
Adapter	DCONWS mm	LPR mm	BD mm	LB mm	LSC mm	84 128 ... £ Y8	
PSC 32	16	60	36	45	49	454.06	**316**
PSC 32	20	60	40	45	54	454.06	**320**
PSC 40	16	60	36	40	49	470.38	**416**
PSC 40	20	60	40	40	54	470.38	**420**
PSC 40	25	70	45	50	59	470.38	**425**
PSC 50	16	65	36	45	49	502.84	**516**
PSC 50	20	65	40	45	54	502.84	**520**
PSC 50	25	70	45	50	59	502.84	**525**
PSC 50	32	75	52	55	63	502.84	**532**
PSC 63	16	70	36	48	49	502.84	**616**
PSC 63	20	70	40	48	54	502.84	**620**
PSC 63	25	75	45	53	59	502.84	**625**
PSC 63	32	75	52	53	63	502.84	**632**
PSC 63	40	85	65	63	73	502.84	**640**
PSC 63	50	115	75	93	83	502.84	**650**
PSC 80	16	80	36	50	49	600.56	**816**
PSC 80	20	80	40	50	54	600.56	**820**
PSC 80	25	85	45	55	59	600.56	**825**
PSC 80	32	90	52	60	63	600.56	**832**
PSC 80	40	95	65	65	73	600.56	**840**
PSC 80	50	100	75	70	83	600.56	**850**


Grubscrew

Spare parts DCONWS		83 950 ... £ Y8	
16 - 20	M10x1x10	9.05	**180**
25 - 32	M12x1x12	9.05	**181**
40 - 50	M16x1x13	8.08	**182**

ER Collet chuck

▲ also available with Balluff chip **on request**







G 6,3 n_{max} 15000

84 114 ...

Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	£ Y8	
PSC 32	1 - 10	45	28	8 - 56	426E (ER16)	242.49	**304**
PSC 40	1 - 10	55	28	8 - 56	426E (ER16)	258.81	**404**
PSC 50	1 - 10	60	28	8 - 56	426E (ER16)	274.95	**504**
PSC 50	1 - 10	100	28	8 - 56	426E (ER16)	323.90	**506**
PSC 63	1 - 10	60	28	8 - 56	426E (ER16)	274.95	**604**
PSC 63	1 - 10	100	28	8 - 56	426E (ER16)	323.90	**606**
PSC 80	1 - 10	100	28	8 - 56	426E (ER16)	356.35	**806**
PSC 80	1 - 10	60	28	8 - 56	426E (ER16)	307.58	**804**



Lock nut

62 950 ...

Spare parts for collet		£ W7	
426E (ER16)	M22x1,5 - SW25	33.81	**044**

Accessories

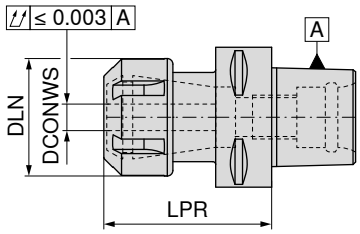


ER collet

→ 268–276, 279

ER Collet chuck

▲ also available with Balluff chip **on request**







G 6,3 n_{max} 15000

84 115 ...

Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	£ Y8	
PSC 32	1 - 13	45	34	16 - 80	428E (ER20)	242.49	**306** 1)
PSC 40	1 - 13	55	34	16 - 80	428E (ER20)	258.81	**404** 1)
PSC 40	1 - 16	55	42	24 - 104	430E (ER25)	258.81	**406**
PSC 40	2 - 20	55	50	24 - 136	470E (ER32)	258.81	**408**
PSC 50	1 - 13	60	34	16 - 80	428E (ER20)	274.95	**502** 1)
PSC 50	1 - 13	100	34	16 - 80	428E (ER20)	340.02	**504** 1)
PSC 50	1 - 16	60	42	24 - 104	430E (ER25)	274.95	**506**
PSC 50	1 - 16	100	42	24 - 104	430E (ER25)	340.02	**508**
PSC 50	2 - 20	60	50	24 - 136	470E (ER32)	291.27	**510**
PSC 50	2 - 20	100	50	24 - 136	470E (ER32)	356.35	**512**
PSC 50	3 - 26	65	63	176	472E (ER40)	301.06	**514**
PSC 50	3 - 26	100	63	176	472E (ER40)	366.14	**516**
PSC 63	1 - 13	60	34	16 - 80	428E (ER20)	274.95	**602** 1)
PSC 63	1 - 13	100	34	16 - 80	428E (ER20)	340.02	**604** 1)
PSC 63	1 - 16	60	42	24 - 104	430E (ER25)	274.95	**606**
PSC 63	1 - 16	100	42	24 - 104	430E (ER25)	340.02	**608**
PSC 63	2 - 20	60	50	24 - 136	470E (ER32)	291.27	**610**
PSC 63	2 - 20	100	50	24 - 136	470E (ER32)	356.35	**612**
PSC 63	3 - 26	65	63	176	472E (ER40)	301.06	**614**
PSC 63	3 - 26	100	63	176	472E (ER40)	366.14	**616**
PSC 80	1 - 13	65	34	16 - 80	428E (ER20)	372.67	**802** 1)
PSC 80	1 - 13	100	34	16 - 80	428E (ER20)	486.51	**804** 1)
PSC 80	1 - 16	70	42	24 - 104	430E (ER25)	372.67	**806**
PSC 80	1 - 16	100	42	24 - 104	430E (ER25)	486.51	**808**
PSC 80	2 - 20	70	50	24 - 136	470E (ER32)	372.67	**810**
PSC 80	2 - 20	100	50	24 - 136	470E (ER32)	486.51	**812**
PSC 80	3 - 26	80	63	176	472E (ER40)	372.67	**814**
PSC 80	3 - 26	100	63	176	472E (ER40)	486.51	**816**

1) with 6 position lock nut

Dimension LPR is 5.0 mm longer for ER16, ER25 and ER32, and 5.5 mm for ER40 when using thro' coolant lock nuts

		Lock nut		Lock nut IK		Lock nut		Y clamping key	
		62 950 ...		**83 950 ...**		**62 950 ...**		**83 357 ...**	
Spare parts for collet		£ W7		£ Y8		£ W7		£ Y8	
428E (ER20)	M25x1,5 - SW30	27.26	**045**	M25x1,5	98.88	**053**		42.89	**12000**
430E (ER25)				M32x1,5	101.40	**055**	M32x1,5	28.01 **055**	29.58	**125**
470E (ER32)				M40x1,5	108.45	**056**	M40x1,5	35.87 **65600**	43.08	**132**
472E (ER40)				M50x1,5	130.50	**057**	M50x1,5	34.86 **65700**	48.80	**140**

Accessories



ER collet

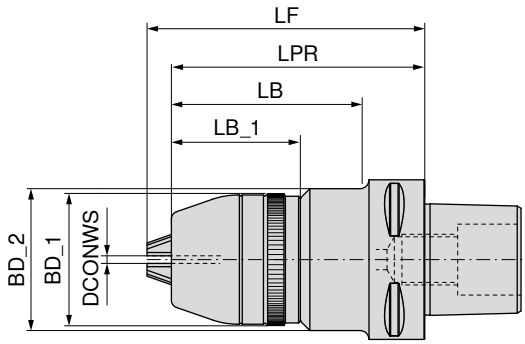
→ 268–276, 278–279

Short drill chuck – NC 2010

- ▲ Independent of direction of rotation
- ▲ Torque Moment = 12 Nm
- ▲ also available with Balluff chip **on request**

Scope of supply:

Toolholder including clamping key SW4







G 2,5 n_{max} 12000

84 111 ...

Adapter	DCONWS mm	BD_1 mm	BD_2 mm	LB_1 mm	LB mm	LPR mm	LF mm	£ Y8	
PSC 40	0,5 - 13	48.5	56	50.90	78.0	100	109.0	1,156.77	**01395**
PSC 40	2,5 - 16	51.0	56	52.15	78.0	100	110.5	1,187.15	**01695**
PSC 50	0,5 - 13	48.5	56	50.90	77.0	100	109.0	1,180.49	**01394**
PSC 50	2,5 - 16	51.0	56	52.15	77.0	100	110.5	1,211.40	**01694**
PSC 63	0,5 - 13	48.5	56	50.90	74.5	100	109.0	1,204.47	**01393**
PSC 63	2,5 - 16	51.0	56	52.15	74.5	100	110.5	1,236.17	**01693**

Can be used with G 2.5 to 30,000 1/min by subsequent balancing !

Accessories

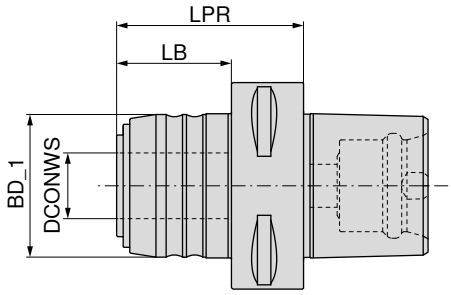


Others

→ 284

Synchronised quick change tap chuck with minimal length compensation

▲ For collets according to DIN 6499
▲ With length compensation under tension and under compression (LZD)
▲ $p_{max.}$ = 50 bar
▲ also available with Balluff chip **on request**







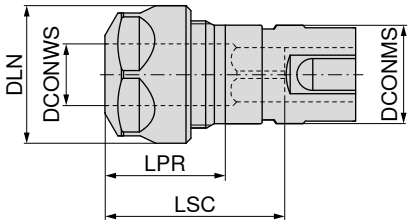
84 140 ...

Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LB mm	LZD± mm	£ Y8	
PSC 63	M3 - M12	1	57	43	20	35	1,0 / 0,2	1,111.45	**612**
PSC 63	M6 - M20	2	77	60	32	55	1,0 / 0,2	1,249.85	**620**

Insert for synchro quick change tapping chuck with minimum length compensation

▲ SZID = for insert size

Scope of supply:
Includes lock nut







83 608 ...

SZID	DCONWS mm	cutting range	LPR mm	DLN mm	LSC mm	for collet	DCONMS mm	£ Y8	
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	247.61	**012** [1]
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	288.42	**020**

1) with 6 position lock nut

Spare parts insert for synchro quick change tapping chuck with minimum length compensation


Lock nut


Lock nut IK

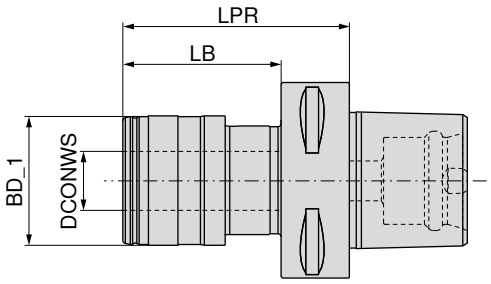

Lock nut


Y clamping key

Spare parts for Article no.		62 950 ... £ W7		83 950 ... £ Y8		62 950 ... £ W7		83 357 ... £ Y8	
83 608 012	M22x1,5 - SW25	33.81	044	M22x1,5	87.05	054	M22x1,5	26.90	054	29.58	116
83 608 020				M32x1,5	101.40	055	M32x1,5	28.01	055	29.58	125

Quick change tap chuck with length compensation

▲ With length compensation under tension and compression (LZD)
▲ also available with Balluff chip **on request**







Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LB mm	LZD± mm	84 142 ... £ Y8	
PSC 63	M3 - M12	01	73	41	19	51	7,5	1,153.41	612
PSC 63	M6 - M20	02	97	60	31	75	10	1,296.01	620

Accessories

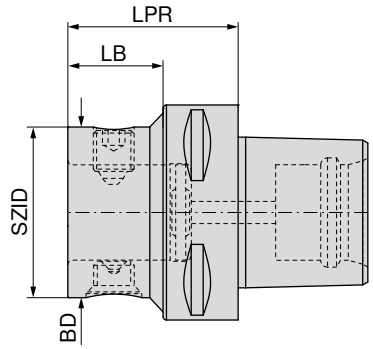

Collet

→ 288–292

16

Adapter with ABS Connection

▲ also available with Balluff chip **on request**







Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	84 215 ... £ Y8/3K	
PSC 40	A69 04050	ABS 50	50	50	30	1,820.91	**04097**
PSC 50	A69 05050	ABS 50	50	50	30	1,172.53	**05097**
PSC 63	A69 06050	ABS 50	50	50	28	1,218.26	**06397**
PSC 63	A69 06060	ABS 63	63	60	36	1,258.78	**06396**
PSC 80	A69 08050	ABS 50	50	50	23	1,726.34	**08097**
PSC 80	A69 08060	ABS 63	63	60	30	1,820.91	**08096**
PSC 80	A69 08070	ABS 80	80	80	50	1,926.10	**08092**

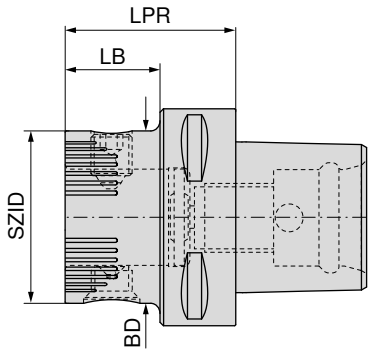

Clamping screw


Taper screw

Spare parts SZID	84 950 ... £ XX		84 950 ... £ XX	
ABS 50	11.49	**20300**	14.59	**20400**
ABS 63	10.93	**25500**	13.87	**27300**
ABS 80	13.45	**25600**	16.36	**25100**

Torsional vibration damper with ABS connection

▲ also available with Balluff chip **on request**





NEW



Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	84 206 ... £ 3E	
PSC 50	A69 05060	ABS 50	50	50	30	814.28	**05094**
PSC 63	A69 06070	ABS 50	50	50	28	844.78	**05093**
PSC 63	A69 06080	ABS 63	63	60	38	922.78	**06393**
PSC 80	A69 08090	ABS 50	50	50	23	1,150.24	**05086**
PSC 80	A69 08100	ABS 63	63	60	30	1,262.79	**06386**
PSC 80	A69 08110	ABS 80	80	80	50	1,384.33	**08086**


Clamping screw


Taper screw

Spare parts SZID	84 950 ... £ XX		84 950 ... £ XX	
ABS 50	11.49	**20300**	14.59	**20400**
ABS 63	10.93	**25500**	13.87	**27300**
ABS 80	13.45	**25600**	16.36	**25100**

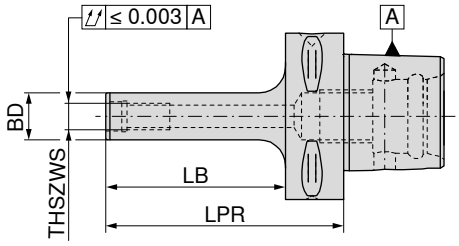
Accessories


Coolant transfer pipe
→ 176


Others
→ 284

Adapter for screw-in milling cutter

▲ also available with Balluff chip **on request**







G 2,5 n_{max} 20000

84 110 ...

Adapter	THSZWS	LPR mm	BD mm	LB mm	£ Y8	
PSC 32	M8	60	13	45	372.67	**302**
PSC 32	M10	70	18	55	372.67	**306**
PSC 40	M8	70	13	50	382.45	**402**
PSC 40	M10	80	18	60	382.45	**405**
PSC 40	M12	80	21	60	382.45	**408**
PSC 50	M8	70	13	50	388.96	**502**
PSC 50	M10	80	18	60	388.96	**505**
PSC 50	M12	80	21	60	388.96	**508**
PSC 50	M16	80	29	60	388.96	**512**
PSC 63	M8	70	13	48	421.44	**602**
PSC 63	M10	90	18	68	421.44	**605**
PSC 63	M12	100	21	78	421.44	**608**
PSC 63	M16	100	29	78	421.44	**612**

Accessories



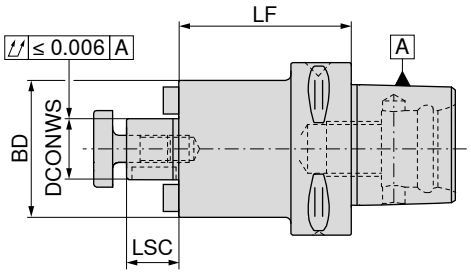
Coolant transfer pipe

→ 176

Shell mill adapters

▲ for cutters with longitudinal or transverse groove
▲ also available with Balluff chip **on request**

Scope of supply:
Holder with clamping screw and drive key







G 6,3 n_{max} 15000

Adapter	DCONWS mm	LF mm	BD mm	LSC mm	84 122 ... £ Y8	
PSC 40	16	28	40	17	291.27	**401**
PSC 40	16	63	40	17	307.58	**402**
PSC 40	22	40	50	19	291.27	**411**
PSC 40	22	63	50	19	307.58	**412**
PSC 50	16	28	40	17	291.27	**501**
PSC 50	16	63	40	17	307.58	**502**
PSC 50	22	28	50	19	291.27	**511**
PSC 50	22	63	50	19	307.58	**512**
PSC 50	27	32	50	21	291.27	**521**
PSC 50	27	63	50	21	307.58	**522**
PSC 50	32	40	63	24	291.27	**531**
PSC 50	32	63	63	24	307.58	**532**
PSC 63	16	63	40	17	323.90	**602**
PSC 63	22	28	63	19	307.58	**611**
PSC 63	22	63	50	19	323.90	**612**
PSC 63	27	28	58	21	307.58	**621**
PSC 63	27	63	58	21	323.90	**622**
PSC 63	32	22	63	24	307.58	**631**
PSC 63	32	86	63	24	323.90	**632**
PSC 63	40	40	70	27	356.35	**641**
PSC 80	16	63	40	17	382.45	**802**
PSC 80	22	30	50	19	367.86	**811**
PSC 80	22	63	50	19	382.45	**812**
PSC 80	27	30	58	21	367.86	**821**
PSC 80	27	63	58	21	382.45	**822**
PSC 80	32	30	63	24	367.86	**831**
PSC 80	32	86	63	24	382.45	**832**
PSC 80	40	40	70	27	367.86	**841**


drive key


drive dog


Cross nut key


Cross screw

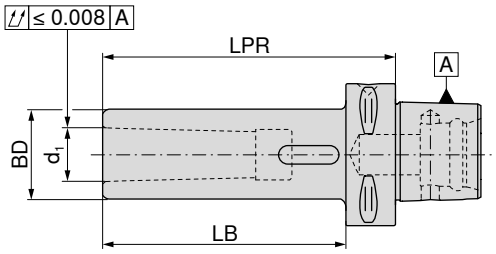

clamping screw

Spare parts DCONWS	84 950 ... £ Y8		84 950 ... £ Y8		83 368 ... £ Y8			83 367 ... £ Y8			83 950 ... £ Y8/3B	
16	6.37	**108**	14.44	**113**	26.72	**116**	M8	7.10	**016**	M8x25	7.53	**113**
22	6.37	**109**	16.94	**114**	33.25	**122**	M10	7.90	**022**	M10x25	8.50	**124**
27	6.37	**110**	18.33	**115**	39.10	**127**	M12	10.10	**027**	M12x30	9.39	**125**
32	6.37	**111**	20.80	**116**	53.28	**132**	M16	15.86	**032**	M16x35	11.43	**126**
40	6.37	**112**	23.14	**117**	52.92	**140**	M20	16.97	**040**	M20x40 - SW17	12.61	**112**

16

Taper sleeve DIN 6383 for DIN 228-2D Morse taper shanks

▲ also available with Balluff chip **on request**



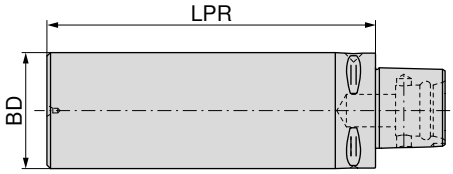




Adapter	d_1	LPR mm	BD mm	LB mm	84 126 ... £ Y8	
PSC 40	MK2	110	32	90	307.58	**402**
PSC 40	MK3	130	40	119	323.90	**403**
PSC 50	MK2	110	32	90	323.90	**502**
PSC 50	MK3	130	40	110	340.02	**503**
PSC 50	MK4	150	48	132	356.35	**504**
PSC 63	MK2	110	32	88	323.90	**602**
PSC 63	MK3	130	40	108	340.02	**603**
PSC 63	MK4	150	48	128	356.35	**604**
PSC 80	MK2	120	32	90	372.67	**802**
PSC 80	MK3	140	40	110	405.13	**803**
PSC 80	MK4	160	48	130	437.76	**804**

Blank

- ▲ Material: 25CrMoV4
- ▲ for production of special tools
- ▲ Taper hardened and ground
- ▲ Special tool area in soft state
- ▲ also available with Balluff chip **on request**



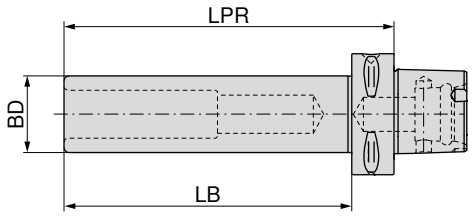




Adapter	BD mm	LPR mm	84 134 ... £ Y8	
PSC 40	40	95	226.16	**402**
PSC 40	40	120	242.49	**403**
PSC 40	60	165	258.81	**404**
PSC 40	80	75	291.27	**405**
PSC 40	80	120	307.58	**406**
PSC 40	100	85	323.90	**408**
PSC 50	50	125	258.81	**502**
PSC 50	50	150	274.95	**503**
PSC 50	75	175	307.58	**504**
PSC 50	90	80	323.90	**506**
PSC 50	95	150	340.02	**508**
PSC 50	110	90	323.90	**510**
PSC 63	63	180	307.58	**602**
PSC 63	75	195	323.90	**604**
PSC 63	110	85	323.90	**606**
PSC 63	120	180	486.51	**608**
PSC 63	130	95	372.67	**610**
PSC 80	80	200	372.67	**802**
PSC 80	120	160	372.67	**804**
PSC 80	130	90	356.35	**806**
PSC 80	145	200	405.13	**808**

Test bar

▲ also available with Balluff chip **on request**







Adapter	LPR mm	BD mm	LB mm	84 136 ... £ Y8	
PSC 32	175	25	160	1,096.08	030
PSC 40	180	25	160	1,215.69	040
PSC 50	235	32	215	1,298.66	050
PSC 63	322	40	300	1,366.99	060
PSC 80	330	40	300	1,640.39	080

Coolant pipe – PSC

Scope of supply:
complete, including seals



Adapter	THOD	84 116 ... £ Y8	
PSC 40	M14 x 1,5	57.55	04000
PSC 50	M16 x 1,5	60.50	05000
PSC 63	M20 x 2,0	63.47	06300
PSC 80	M20 x 2,0	79.09	08000

Key – PSC

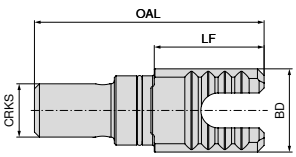


Adapter	84 117 ... £ Y8	
PSC 40	51.69	04000
PSC 50	55.37	05000
PSC 63	59.14	06300
PSC 80	79.97	08000

Pull stud for PSC adapter

▲ for front clamping

Scope of supply:
including O-Ring





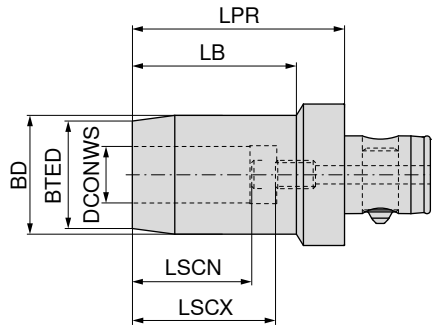
NEW

Adapter	LF mm	OAL mm	BD mm	CRKS	83 235 ... £ Y8	
PSC 40	26.3	56	20	M14x1,5	131.28	04000
PSC 50	33.0	69	25	M16x1,5	131.28	05000
PSC 63	33.0	79	31	M20x2	185.34	06300

HyTens – Fit

▲ Hydraulic chuck with ABS connection
▲ for solid carbide and HSS shanks to h6 tolerance or better

Scope of supply:
Base body including backstop screw





NEW



Adapter	DCONWS mm	BTED mm	BD mm	LPR mm	LB mm	LSCX mm	LSCN mm	£ Y8	84 253 ...
ABS 40	6	22	26	55	36.5	37	27	962.91	**00688**
ABS 40	8	24	28	60	42.0	37	27	962.91	**00888**
ABS 40	10	26	30	65	47.5	41	31	962.91	**01088**
ABS 40	12	28	32	65	48.0	46	36	962.91	**01288**
ABS 50	6	22	26	55	33.5	37	27	1,078.35	**00697**
ABS 50	8	24	28	55	34.0	37	27	1,078.35	**00897**
ABS 50	10	26	30	65	45.0	41	31	1,078.35	**01097**
ABS 50	12	28	32	65	45.5	46	36	1,078.35	**01297**
ABS 50	14	30	34	65	46.0	46	36	1,078.35	**01497**
ABS 50	16	34	38	70	52.0	49	39	1,078.35	**01697**
ABS 50	18	36	40	70	52.5	49	39	1,078.35	**01897**
ABS 50	20	38	42	75	58.0	51	41	1,078.35	**02097**
ABS 63	20	38	42	78	56.0	51	41	1,370.15	**02096**
ABS 63	25	53	57	85	60.0	57	47	1,370.15	**02596**
ABS 63	32	60	64	90	61.0	61	51	1,370.15	**03296**



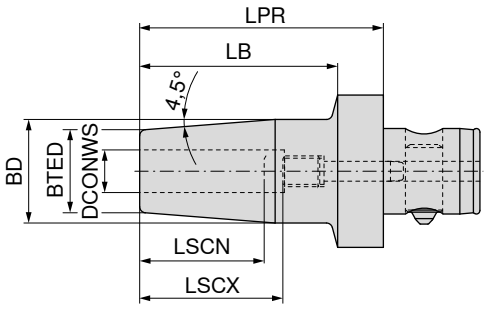
Stop screw IK

Spare parts DCONWS		£ Y7	83 950 ...
6	M5x12,5 - SW2,5	25.16	**418**
8	M6x12,5 - SW3	25.16	**419**
10	M8x1x13,5 - SW3	25.16	**420**
12	M10x1x13,5 - SW5	25.16	**421**
14	M10x1x13,5 - SW5	25.16	**421**
16	M10x1x13,5 - SW5	25.16	**421**
18	M10x1x13,5 - SW5	25.16	**421**
20	M16x1x13,5 - SW5	29.02	**423**
25	M16x1x13,5 - SW5	29.02	**423**
32	M16x1x13,5 - SW5	29.02	**423**

For an overview of the ABS spare parts, take a look at **page 314**.

Heat shrink adapter 4.5° with ABS connection

▲ for solid carbide and HSS shanks to h6 tolerance or better







G 6,3 n_{max} 15000

Adapter	KOMET no.	DCONWS mm	LPR mm	BD mm	BTED mm	LB mm	LSCX mm	LSCN mm	84 222 ... £ 3E	
ABS 32	A32 26040	6	70	27	21	56	36	26	541.36	**00689**
ABS 32	A32 26050	8	70	27	21	56	36	26	280.25	**00889**
ABS 32	A32 26061	10	70	32	24	56	42	32	390.20	**01089**
ABS 32	A32 26071	12	80	32	24	66	47	37	310.52	**01289**
ABS 40	A32 36050	8	70	27	21	56	36	26	401.23	**00888**
ABS 40	A32 36061	10	70	32	24	56	42	32	313.21	**01088**
ABS 40	A32 36071	12	80	32	24	66	47	37	395.72	**01288**
ABS 40	A32 36091	16	90	34	27	76	50	40	508.38	**01688**
ABS 50	A32 46040	6	75	27	21	56	36	26	302.30	**00697**
ABS 50	A32 46050	8	75	27	21	56	36	26	373.76	**00897**
ABS 50	A32 46061	10	80	32	24	61	42	32	368.25	**01097**
ABS 50	A32 46071	12	80	32	24	61	47	37	310.52	**01297**
ABS 50	A32 46081	14	80	34	27	61	47	37	373.76	**01497**
ABS 50	A32 46091	16	85	34	27	66	50	40	357.23	**01697**
ABS 50	A32 46101	18	85	42	33	66	50	40	305.00	**01897**
ABS 50	A32 46111	20	90	42	33	71	52	42	272.04	**02097**
ABS 63	A32 56111	20	90	42	33	71	52	42	343.50	**02096**
ABS 63	A32 56121	25	95	53	44	76	58	48	349.00	**02596**
ABS 63	A32 56131	32	95	53	44	76	58	48	461.68	**03296**



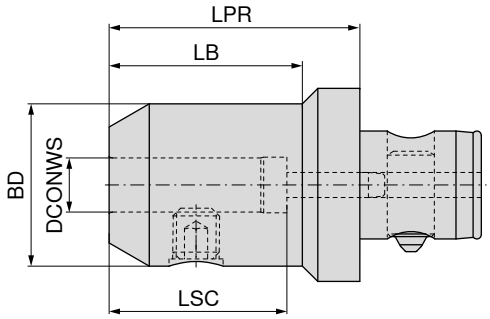
Backstop screw

Spare parts DCONWS		84 950 ... £ W7/6B	
6	M5x18	5.38	**21400**
8	M6x20	5.38	**21500**
10	M8x1x20	3.98	**21600**
12	M10x1x20	5.00	**21700**
14	M10x1x20	5.00	**21700**
16	M12x1x20	6.91	**21800**
18	M12x1x20	6.91	**21800**
20	M8x1x20	8.96	**21900**
25	M8x1x20	8.96	**21900**
32	M8x1x20	8.96	**21900**

For an overview of the ABS spare parts, take a look at **page 314**.

Cylindrical shank adapter (Weldon) with ABS connection

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat







Adapter	KOMET no.	DCONWS mm	LPR mm	BD mm	LB mm	LSC mm	84 221 ... £ 3E	
ABS 50	A32 40010	6	45	25.0	27	40	200.57	**00697**
ABS 50	A32 40020	8	45	28.0	27	40	200.57	**00897**
ABS 50	A32 40030	10	55	35.0	37	44	200.57	**01097**
ABS 50	A32 40040	12	65	42.0	50	49	225.31	**01297**
ABS 50	A32 40080	14	65	44.0	50	49	217.10	**01497**
ABS 50	A32 40050	16	65	48.0	50	52	222.62	**01697**
ABS 50	A32 40090	18	65	49.9	50	52	250.08	**01897**
ABS 50	A32 40060	20	65	52.0	50	54	239.05	**02097**
ABS 50	A32 40070	25	75	65.0	60	60	228.14	**02597**[1)]
ABS 63	A32 50040	12	65	42.0	50	49	321.55	**01296**
ABS 63	A32 50100	14	65	44.0	50	49	343.50	**01496**
ABS 63	A32 50050	16	65	48.0	50	52	294.09	**01696**
ABS 63	A32 50110	18	65	50.0	50	52	302.30	**01896**
ABS 63	A32 50060	20	65	52.0	45	54	252.79	**02096**
ABS 63	A32 50070	25	75	65.0	60	60	250.08	**02596**[1)]
ABS 63	A32 50080	32	80	72.0	65	64	255.60	**03296**[1)]
ABS 80	A32 60060	20	65	52.0	45	54	360.04	**02092**
ABS 80	A32 60070	25	75	65.0	55	60	349.00	**02592**[1)]
ABS 80	A32 60080	32	80	72.0	66	64	261.12	**03292**[1)]

1) Version with two grubscrews



Grubscrew

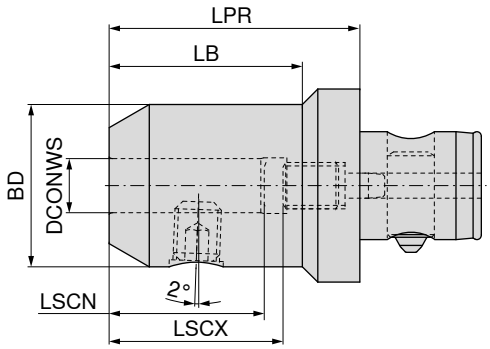
Spare parts DCONWS		62 950 ... £ W7	
6	M6x10	1.16	**006**
8	M8x10	1.16	**008**
10	M10x12	2.22	**010**
12	M12x16	1.76	**012**
14	M12x16	1.76	**012**
16	M14x16	2.18	**016**
18	M14x16	2.18	**016**
20	M16x16	2.32	**020**
25	M18x2x20	4.48	**025**
32	M20x2x20	4.68	**032**

For an overview of the ABS spare parts, take a look at **page 314**.

16

Cylindrical shank adapter (Whistle Notch) with ABS connection

▲ For shanks according to DIN 6535 HE / 1835 E with angled clamping flat







Adapter	KOMET no.	DCONWS mm	LPR mm	LB mm	BD mm	LSCX mm	LSCN mm	84 220 ... £ 3E	
ABS 25	A30 10601	6	55	40	24.9	36	26	222.62	**00690**
ABS 25	A30 10801	8	55	40	28.0	36	26	236.35	**00890**
ABS 25	A30 11001	10	60	45	35.0	40	30	222.62	**01090**
ABS 32	A30 20601	6	55	40	25.0	36	26	228.14	**00689**
ABS 32	A30 20801	8	55	40	28.0	36	26	228.14	**00889**
ABS 32	A30 20901	9	55	40	28.0	36	26	247.27	**00989**
ABS 32	A30 21001	10	60	45	35.0	40	30	208.89	**01089**
ABS 32	A30 21201	12	65	50	42.0	45	35	230.83	**01289**
ABS 32	A30 21401	14	65		42.0	45	35	313.21	**01489**
ABS 40	A30 30601	6	55	35	25.0	36	26	316.04	**00688**
ABS 40	A30 30801	8	55	35	28.0	36	26	261.12	**00888**
ABS 40	A30 31001	10	60	45	35.0	40	30	285.77	**01088**
ABS 40	A30 31201	12	65	50	42.0	45	35	239.05	**01288**
ABS 40	A30 31401	14	65	50	42.0	45	35	329.77	**01488**
ABS 40	A30 31601	16	70	55	48.0	48	38	307.82	**01688**
ABS 40	A30 31801	18	70	55	48.0	48	38	327.07	**01888**
ABS 50	A30 40601	6	55	30	25.0	36	26	228.14	**00697**
ABS 50	A30 40801	8	55	30	28.0	36	26	244.57	**00897**
ABS 50	A30 41001	10	60	40	35.0	40	30	225.31	**01097**
ABS 50	A30 41201	12	65	50	42.0	45	35	239.05	**01297**
ABS 50	A30 41301	13	65	50	42.0	45	35	393.01	**01397**
ABS 50	A30 41401	14	65	50	42.0	45	35	272.04	**01497**
ABS 50	A30 41601	16	70	55	48.0	48	38	252.79	**01697**
ABS 50	A30 41801	18	70	55	48.0	48	38	299.49	**01897**
ABS 50	A30 42002	20	75	60	52.0	50	40	283.05	**02097**
ABS 50	A30 42202	22	75	60	52.0	50	40	393.01	**02297**
ABS 50	A30 42502	25	75	60	52.0	50	40	272.04	**02597**[1)]
ABS 63	A30 51001	10	60	35	35.0	40	30	335.29	**01096**
ABS 63	A30 51201	12	65	45	42.0	45	35	294.09	**01296**
ABS 63	A30 51401	14	65	45	42.0	45	35	346.20	**01496**
ABS 63	A30 51601	16	70	50	48.0	48	38	327.07	**01696**
ABS 63	A30 51801	18	70	50	48.0	48	38	354.54	**01896**
ABS 63	A30 52001	20	75	55	52.0	50	40	313.21	**02096**
ABS 63	A30 52501	25	80	65	65.0	56	46	272.04	**02596**[1)]
ABS 63	A30 52801	28	80	65	65.0	56	46	873.82	**02896**[1)]
ABS 80	A30 62501	25	80	60	65.0	56	46	305.00	**02592**[1)]
ABS 80	A30 63201	32	90	70	72.0	60	50	373.76	**03292**[1)]

1) Version with two grubscrews

Spare parts
cylindrical shank adapter (Whistle Notch) with ABS connection


Grubscrew

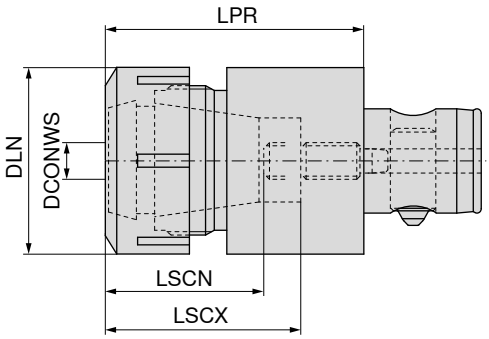

Backstop screw

		62 950 ...			84 950 ...	
Spare parts DCONWS		£ W7			£ W7/6B	
6	M6x10	1.16	**006**	M5x16	3.98	**20500**
8	M8x10	1.16	**008**	M6x16 - SW2,5	3.98	**20600**
9	M8x10	1.16	**008**	M8x1x16 - SW3	3.98	**20800**
10	M10x12	2.22	**010**	M8x1x16 - SW2,5	3.98	**20700**
12	M12x16	1.76	**012**	M10x1x18 - SW3	5.00	**20900**
13	M12x16	1.76	**012**	M12x1x17 - SW3	6.91	**21000**
14	M12x16	1.76	**012**	M12x1x17 - SW3	6.91	**21000**
16	M14x16	2.18	**016**	M14x1x19 - SW4	8.33	**21100**
18	M14x16	2.18	**016**	M14x1x19 - SW4	8.33	**21100**
20	M16x16	2.32	**020**	M16x1x21 - SW5	8.96	**21200**
22	M16x16	2.32	**020**	M16x1x21 - SW5	8.96	**21200**
25	M16x16	2.32	**020**	M16x1x21 - SW5	8.96	**21200**
28	M18x2x20	4.48	**025**	M16x1x21 - SW5	8.96	**21200**
32	M20x2x20	4.68	**032**	M20x1x27 - SW8	13.71	**21300**

For an overview of the ABS spare parts, take a look at **page 314**.

ER collet chuck with ABS connection

Scope of supply:
Holder with lock nut and adjustable back stop







Adapter	KOMET no.	for collet	DCONWS mm	LPR mm	DLN mm	LSCX mm	LSCN mm	84 224 ... £ 3E	
ABS 25	A33 11120	426E (ER16)	1 - 10	40.1	28	31	28	248.06	**01690**[1)]
ABS 32	A33 12130	428E (ER20)	1 - 13	52.5	34	39	35	272.48	**02089**[1)]
ABS 40	A33 13141	430E (ER25)	1 - 16	62.0	42	46	43	290.93	**02588**
ABS 50	A33 14151	470E (ER32)	2 - 20	69.3	50	51	48	336.17	**03297**
ABS 63	A33 15161	472E (ER40)	3 - 26	78.3	63	55	52	331.57	**04096**

1) with 6 position lock nut


Lock nut


Lock nut IK


Lock nut

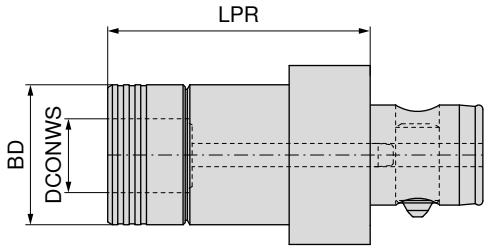

Backstop screw

Spare parts for collet	62 950 ...	£ W7		83 950 ...	£ Y8		62 950 ...	£ W7		84 950 ...	£ W7/6B	
426E (ER16)	M22x1,5 - SW25	33.81	**044**	M22x1,5	87.05	**054**				M5x8 - SW2	3.98	**22500**
428E (ER20)	M25x1,5 - SW30	27.26	**045**	M25x1,5	98.88	**053**				M6x12 - SW2,5	3.98	**22000**
430E (ER25)				M32x1,5	101.40	**055**	M32x1,5	28.01	**055**	M8x1x14 - SW4	4.35	**22600**
470E (ER32)				M40x1,5	108.45	**056**	M40x1,5	35.87	**65600**	M10x1x14 - SW5	5.00	**22700**
472E (ER40)				M50x1,5	130.50	**057**	M50x1,5	34.86	**65700**	M12x1x18 - SW8	6.91	**22800**

For an overview of the ABS spare parts, take a look at **page 314**.

Quick change tapping chuck with length compensation

▲ With length compensation under tension and compression (LZD)





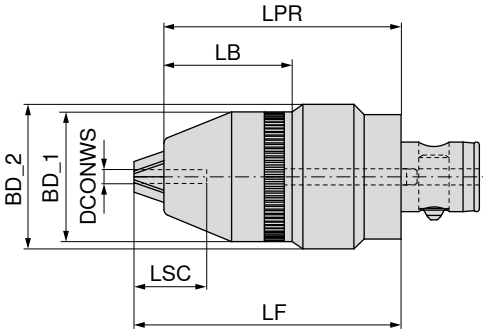


Adapter	KOMET no.	DCONWS mm	BD mm	LPR mm	SZID	84 225 ... £ 3E	
ABS 32	A34 32060	19	39	69	01	1,149.12	**01989**
ABS 40	A34 33060	19	39	73	01	1,489.01	**01988**
ABS 50	A34 34060	19	39	72	01	1,410.23	**01997**
ABS 50	A34 34070	31	60	98	02	1,728.73	**03197**
ABS 63	A34 35070	31	60	111	02	1,744.49	**03196**

Short drill chuck

Scope of supply:

Toolholder including clamping key SW4







G 6,3 n_{max} 10000

Adapter	DCONWS mm	BD_1 mm	BD_2 mm	LPR mm	LSC mm	LF mm	LB mm	84 247 ... £ Y8	
ABS 50	0,5 - 13	49	57.5	95	29	104.0	51.5	1,370.74	**01397**
ABS 50	2,5 - 16	52	57.5	95	29	105.5	52.0	1,392.03	**01697**

Accessories

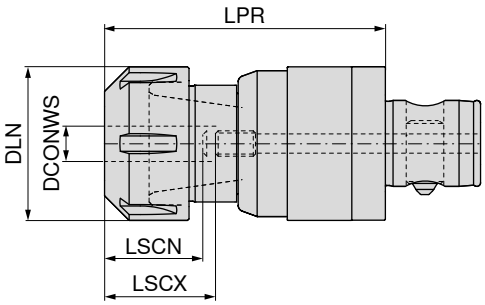




Collet	Pull studs	Others
→ 288–292	→ 58	→ 284

16

Synchro tapping shuck with ABS connection







Adapter	KOMET no.	for collet	DCONWS mm	LPR mm	DLN mm	LSCX mm	LSCN mm	84 226 ... £ Y8/3K	
ABS 32	50795131002000	ER 20	1 - 13	78.0	34	42	29	1,615.44	**02089**
ABS 50	50795135002000	ER 20	1 - 13	85.0	34	42	29	1,615.44	**02097**
ABS 50	50795135003200	ER 32	2 - 20	90.5	50	45	31	1,772.05	**03297**

For an overview of the ABS spare parts, take a look at **page 314**.

Accessories

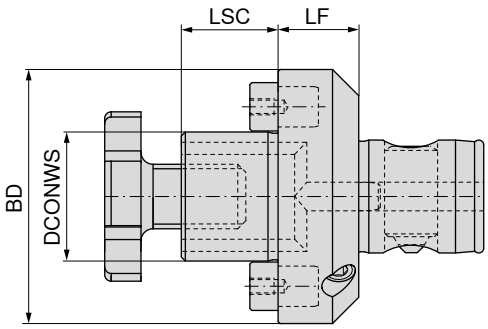


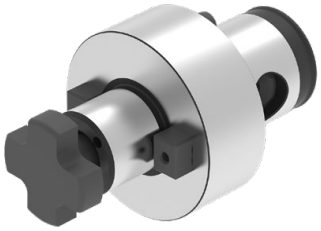
ER collet

→ 268–276, 278–279

Shell mill adapter with ABS connection

Scope of supply:
Base body including drive dogs and retaining screw









Adapter	KOMET no.	DCONWS mm	LSC mm	LF mm	BD mm	84 228 ... £ 3E		84 228 ... £ 3E	
ABS 50	A40 24023	16	17	20	50			345.40	**01697**
ABS 50	A40 24034	22	19	20	50			329.20	**02297**
ABS 50	A40 24043	27	21	20	50			352.39	**02797**
ABS 50	A40 24053	32	24	20	63			388.40	**03297**
ABS 63	A40 25032	22	19	22	63			398.76	**02296**
ABS 63	A40 25042	27	21	22	63			420.82	**02796**
ABS 63	A40 25052	32	24	22	63			433.54	**03296**
ABS 63	A40 25062	40	27	22	80			447.48	**04096**
ABS 80	A40 26042	27	21	25	80			437.01	**02792**
ABS 80	A40 26052	32	24	25	80			441.63	**03292**
ABS 80	A40 26062	40	27	25	80			446.36	**04092**
ABS 80	A40 16062	40	30	43	88	581.99	**14092**		
ABS 100	A40 27052	32	24	25	100			575.01	**03291**
ABS 100	A40 17062	40	30	38	88	494.97	**14091**		
ABS 100	A40 27062	40	27	25	100			500.85	**04091**
ABS 100	A40 17072	60	40	56	130	631.84	**06091**		


Drive dog


Driver


Cross screw

Spare parts DCONWS	84 950 ... £ W7/6B		83 950 ... £ Y8/3B		83 367 ... £ Y8	
16					7.10	**016**
22	43.73	**22900**			7.90	**022**
27	46.17	**23000**			10.10	**027**
32	43.73	**23100**			15.86	**032**
40					16.97	**040**
40			27.87	**295**		
60			31.42	**298**		

For an overview of the ABS spare parts, take a look at **page 314**.

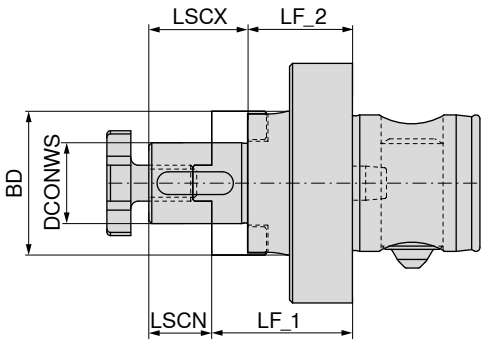
16

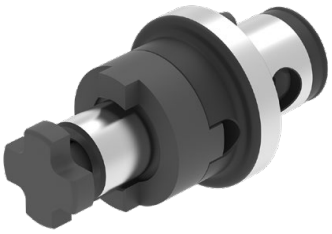
Combination shell mill adapter with ABS connection

▲ For milling cutters with transverse or longitudinal groove according to DIN 6358

Scope of supply:

Base body including retaining screw, drive ring and drive key







Adapter	KOMET no.	DCONWS mm	BD mm	LF_1 mm	LF_2 mm	LSCX mm	LSCN mm	84 229 ... £ 3E	
ABS 50	A40 04022	16	32	32	22	27	17	267.76	**01697**
ABS 50	A40 04032	22	40	34	22	31	19	258.53	**02297**
ABS 63	A40 05021	16	32	36	26	27	17	375.57	**01696**
ABS 63	A40 05031	22	40	38	26	31	19	421.94	**02296**
ABS 63	A40 05041	27	48	38	26	33	21	328.07	**02796**
ABS 80	A40 06031	22	40	45	33	31	19	493.86	**02292**
ABS 80	A40 06041	27	48	45	33	33	21	444.01	**02792**
ABS 80	A40 06051	32	58	47	33	38	24	370.97	**03292**
ABS 80	A40 06061	40	70	47	33	41	27	390.65	**04092**


Parallel key

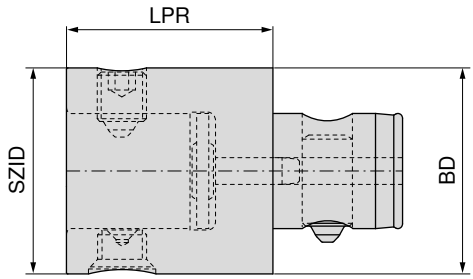

Drive ring


Cross screw

Spare parts DCONWS		83 950 ... £ Y8/3B		83 370 ... £ Y8			83 367 ... £ Y8	
16	4 x 4 x 20	4.37	**284**	16.18	**116**	M8	7.10	**016**
22	6 x 6 x 25	4.37	**285**	15.51	**122**	M10	7.90	**022**
27	7 x 7 x 25	6.94	**286**	19.35	**127**	M12	10.10	**027**
32	8 x 7 x 28	4.95	**287**	20.31	**132**	M16	15.86	**032**
40	10 x 8 x 32	5.84	**288**	34.21	**140**	M20	16.97	**040**

For an overview of the ABS spare parts, take a look at **page 314**.

Extension with ABS Connection







Adapter	KOMET no.	SZID	BD mm	LPR mm	84 209 ... £ 3E	
ABS 25	A20 00020	ABS 25	25	45	272.48	**04590**
ABS 25	A20 00220	ABS 25	25	60	272.48	**06090**
ABS 32	A20 00530	ABS 32	32	35	288.23	**03589**
ABS 32	A20 00030	ABS 32	32	50	288.23	**05089**
ABS 32	A20 00230	ABS 32	32	70	288.23	**07089**
ABS 40	A20 00540	ABS 40	40	40	303.87	**04088**
ABS 40	A20 00040	ABS 40	40	60	303.87	**06088**
ABS 40	A20 00240	ABS 40	40	90	303.87	**09088**
ABS 50	A20 00550	ABS 50	50	50	338.79	**05097**
ABS 50	A20 00050	ABS 50	50	65	338.79	**06597**
ABS 50	A20 00250	ABS 50	50	100	338.79	**10097**
ABS 50	A20 00150	ABS 50	50	150	338.79	**15097**
ABS 63	A20 00560	ABS 63	63	60	383.34	**06096**
ABS 63	A20 00060	ABS 63	63	85	383.34	**08596**
ABS 63	A20 00260	ABS 63	63	125	383.34	**12596**
ABS 63	A20 00160	ABS 63	63	190	383.34	**19096**
ABS 80	A20 00570	ABS 80	80	70	452.10	**07092**
ABS 80	A20 00070	ABS 80	80	85	452.10	**08592**
ABS 80	A20 00270	ABS 80	80	125	471.35	**12592**
ABS 80	A20 00170	ABS 80	80	240	471.35	**24092**
ABS 100	A20 00580	ABS 100	100	85	503.89	**08591**
ABS 100	A20 00080	ABS 100	100	125	503.89	**12591**
ABS 100	A20 00280	ABS 100	100	160	530.45	**16091**
ABS 125	A20 00090	ABS 125	125	160	596.72	**16085**
ABS 125	A20 00290	ABS 125	125	200	629.37	**20085**

	 Clamping screw		 Clamping screw		 Positioning pin		 Pendulum bolt		 Coolant pipe		 Taper screw	
	62 950 ...		84 950 ...		84 950 ...		84 950 ...		84 950 ...		84 950 ...	
Spare parts	£		£		£		£		£		£	
Adapter	XX		XX		XX		XX		XX		XX	
ABS 25			7.55	**26800**	0.44	**23600**	24.97	**26000**	7.64	**24400**	10.93	**27000**
ABS 32	12.60	**13989**			8.60	**23700**	18.57	**26100**	7.92	**24500**	10.93	**27100**
ABS 40			8.56	**26900**	8.60	**23800**	26.07	**26200**	7.92	**24600**	11.37	**27200**
ABS 50			11.49	**20300**	12.47	**20200**	34.10	**20000**	8.79	**20100**	14.59	**20400**
ABS 63			10.93	**25500**	9.55	**23900**	30.39	**26300**	8.55	**24700**	13.87	**27300**
ABS 80			13.45	**25600**	10.01	**24000**	32.75	**26400**	8.90	**24800**	16.36	**25100**
ABS 100			16.56	**25700**	11.71	**24100**	37.64	**26500**	10.00	**24900**	18.17	**25200**
ABS 125			28.30	**25800**	22.60	**24200**	57.60	**26600**	11.14	**25000**	29.39	**25300**

For an overview of the ABS spare parts, take a look at **page 314**.

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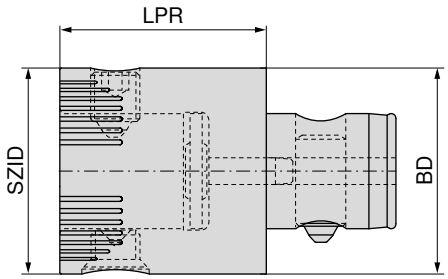
Torsional vibration dampers with ABS Connection

Scope of supply:
Base body with sealing disc







Adapter	KOMET no.	SZID	BD mm	LPR mm	84 216 ... £ 3E	
ABS 50	A20 00651	ABS 50	50	50	665.05	**05097**
ABS 63	A20 00661	ABS 63	63	60	832.62	**06096**
ABS 80	A20 00670	ABS 80	80	70	832.62	**07092**


Clamping screw


Taper screw

Spare parts Adapter	84 950 ... £ XX		84 950 ... £ XX	
ABS 50	11.49	**20300**	14.59	**20400**
ABS 63	10.93	**25500**	13.87	**27300**
ABS 80	13.45	**25600**	16.36	**25100**

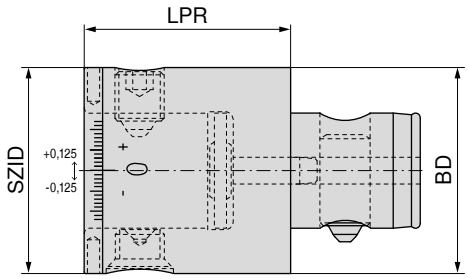
For an overview of the ABS spare parts, take a look at **page 314**.

Eccentric adjuster with ABS Connection

▲ Adjustment ± 0.25 mm on diameter

Scope of supply:

Eccentric adjuster with adjuster key Ø 2.8 mm







Adapter	KOMET no.	SZID	BD mm	LPR mm	84 217 ... £ W4/6A	
ABS 50	A20 00620	ABS 50	50	50	716.24	**05097**
ABS 63	A20 00630	ABS 63	63	60	774.11	**06096**


Clamping screw

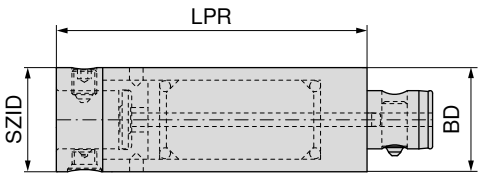

Taper screw

Spare parts Adapter	84 950 ... £ XX		84 950 ... £ XX	
ABS 50	11.49	**20300**	14.59	**20400**
ABS 63	10.93	**25500**	13.87	**27300**

For an overview of the ABS spare parts, take a look at **page 314**.

Damping element with ABS connection

- ▲ The specially mounted damping core enables perfect machining results even with longer tool overhangs
- ▲ Reduction in machining times due to optimum machining parameters
- ▲ Damped machining and therefore perfect surface qualities
- ▲ Protection of the machine spindle and increased tool service life







Adapter	KOMET no.	SZID	BD mm	LPR mm	RPMX 1/min.	84 218 ... £ 3E	
ABS 40	A20 01240	ABS 40	40	120	8000	1,348.32	**12088**
ABS 50	A20 01250	ABS 50	50	150	6300	1,566.67	**15097**
ABS 63	A20 01260	ABS 63	63	190	5000	2,048.37	**19096**
ABS 80	A20 01270	ABS 80	80	240	4000	2,853.08	**24092**

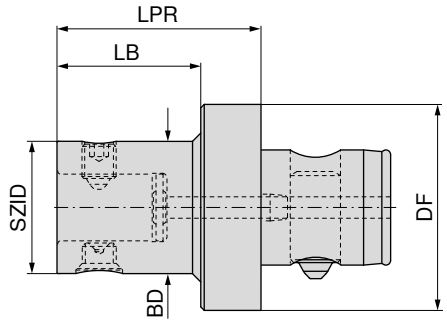

Clamping screw

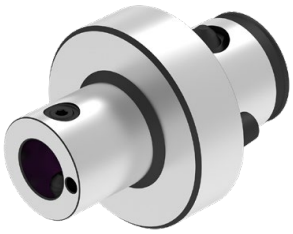

Taper screw

Spare parts Adapter	84 950 ... £ XX		84 950 ... £ XX	
ABS 40	8.56	**26900**	11.37	**27200**
ABS 50	11.49	**20300**	14.59	**20400**
ABS 63	10.93	**25500**	13.87	**27300**
ABS 80	13.45	**25600**	16.36	**25100**

For an overview of the ABS spare parts, take a look at **page 314**.

Reduction with ABS connection







Adapter	KOMET no.	SZID	BD mm	DF mm	LPR mm	LB mm	84 219 ... £ 3E	
ABS 32	A20 10120	ABS 25	25	32	40	30	305.00	**03290**
ABS 40	A20 10220	ABS 25	25	40	40	28	321.89	**04090**
ABS 40	A20 10230	ABS 32	32	40	40	28	321.89	**04089**
ABS 50	A20 10320	ABS 25	25	50	50	35	349.68	**05090**
ABS 50	A20 10330	ABS 32	32	50	50	35	349.68	**05089**
ABS 50	A20 10340	ABS 40	40	50	50	35	349.68	**05088**
ABS 63	A20 10420	ABS 25	25	63	60	40	391.77	**06390**
ABS 63	A20 10430	ABS 32	32	63	60	40	391.77	**06389**
ABS 63	A20 10440	ABS 40	40	63	60	40	391.77	**06388**
ABS 63	A20 10450	ABS 50	50	63	60	40	391.77	**06397**
ABS 80	A20 10530	ABS 32	32	80	60	35	463.02	**08089**
ABS 80	A20 10540	ABS 40	40	80	60	35	463.02	**08088**
ABS 80	A20 10550	ABS 50	50	80	60	35	463.02	**08097**
ABS 80	A20 10560	ABS 63	63	80	60	35	463.02	**08096**
ABS 100	A20 10650	ABS 50	50	100	80	50	505.23	**10097**
ABS 100	A20 10660	ABS 63	63	100	80	50	505.23	**10096**
ABS 100	A20 10670	ABS 80	80	100	80	50	505.23	**10092**
ABS 125	A20 10770	ABS 80	80	125	100	50	558.23	**12592**
ABS 125	A20 10780	ABS 100	100	125	100	50	558.23	**12591**


Clamping screw


Clamping screw


Taper screw

Spare parts SZID	62 950 ... £ XX		84 950 ... £ XX		84 950 ... £ XX	
ABS 25			7.55	**26800**	10.93	**27000**
ABS 32	12.60	**13989**			10.93	**27100**
ABS 40			8.56	**26900**	11.37	**27200**
ABS 50			11.49	**20300**	14.59	**20400**
ABS 63			10.93	**25500**	13.87	**27300**
ABS 80			13.45	**25600**	16.36	**25100**
ABS 100			16.56	**25700**	18.17	**25200**

For an overview of the ABS spare parts, take a look at **page 314**.

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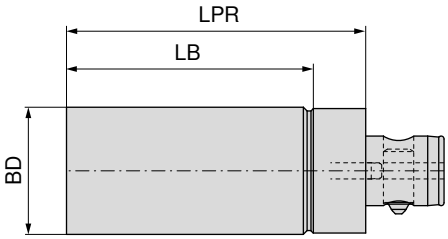
Blank with ABS connection

▲ Connection area hardened and ground
▲ Dimension BD x dimension LB = unhardened area for further processing



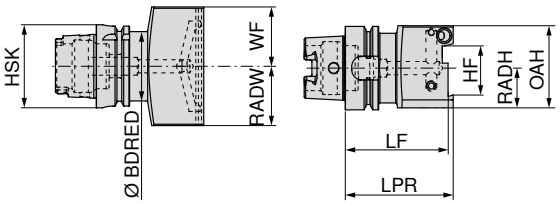




Adapter	KOMET no.	LPR mm	BD mm	LB mm	84 230 ... £ W4/6A	
ABS 25	B10 01011	70	26	55	157.41	**02690**
ABS 32	B10 02011	80	33	65	165.92	**03389**
ABS 40	B10 03011	100	41	82	193.76	**04188**
ABS 50	B10 04011	120	51	99	188.91	**05197**
ABS 63	B10 05011	150	64	124	238.55	**06496**
ABS 80	B10 06011	180	81	145	369.35	**08192**
ABS 100	B10 07011	200	101	158	486.81	**10191**

For an overview of the ABS spare parts, take a look at **page 314**.

MonoClamp – HSK-T parting blade holder GX/LX/FX/SX with DirectCooling



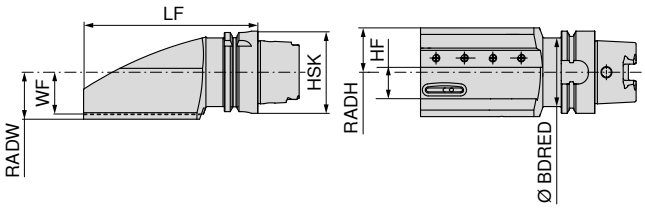


NEW
Direct Cooling
radial

74 586 ...

Adapter	LPR mm	LF mm	BDRED mm	WF mm	HF mm	OAH mm	RADW mm	RADH mm	for parting blades	£ 2D/80	
HSK-T 63	84.0	80	52.6	45	26	62	45	30	XLCF N 26...	471.61	**02637**
HSK-T 63	85.5	80	52.6	45	32	68	45	34	XLCF N 32...	471.61	**03237**

MonoClamp – HSK-T parting blade holder GX/LX/FX/SX with DirectCooling





Illustrations show right-hand versions

NEW
Direct Cooling
Left-hand

74 585 ...

NEW
Direct Cooling
Right-hand

74 584 ...

Adapter	LF mm	BDRED mm	WF mm	HF mm	RADW mm	RADH mm	for parting blades	£ 2D/80		£ 2D/80	
HSK-T 63	155	52.6	32	26	36.0	34	XLCF R/L 26...	471.61	**02637**	471.61	**02637**
HSK-T 63	155	52.6	32	32	37.5	35	XLCF R/L 32...	471.61	**03237**	471.61	**03237**


O-Ring


O-Ring


Clamping wedge


clamping screw

70 950 ... | **70 950 ...** | **70 950 ...** | **70 950 ...**

Spare parts for parting blades		£ 2A/28			£ 2A/28		£ 2A/28			£ 2A/28	
XLCF R/L 26...	19x2,5	5.21	**293**	23x2,5	5.21	**292**	75.17	**860**	M6x12	2.70	**861**
XLCF R/L 32...	19x2,5	5.21	**293**	23x2,5	5.21	**292**	75.17	**860**	M6x12	2.70	**861**

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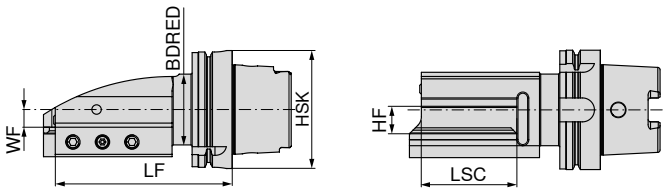
HSK-T square shank holder 0° with DirectCooling

▲ Suitable for stationary tool holder HF = 20 / 25 / 32 mm
▲ These HF values can be achieved by removing the mounting adapter and clamping block



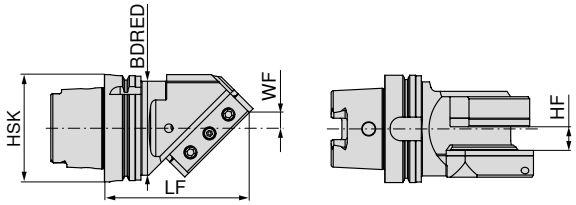


Illustrations show right-hand versions

Adapter	LF	BDRED	WF	LSC	HF	NEW Direct Cooling Left-hand 74 571 ... £ 2D/80		NEW Direct Cooling Right-hand 74 570 ... £ 2D/80	
	mm	mm	mm	mm	mm				
HSK-T 63	145	52.6	15	80	20 / 25 / 32	368.74	**02537**	368.74	**02537**
HSK-T 100	150	60.0	15	80	20 / 25 / 32	486.92	**02535**	486.92	**02535**

HSK-T square shank holder 45° with DirectCooling

▲ Suitable for stationary tool holder HF = 20 / 25 / 32 mm
▲ These HF values can be achieved by removing the mounting adapter and clamping block



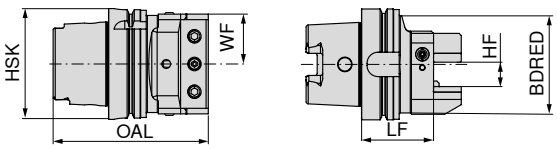


Illustrations show right-hand versions

Adapter	LF	BDRED	WF	HF	NEW Direct Cooling Left-hand 74 573 ... £ 2D/80		NEW Direct Cooling Right-hand 74 572 ... £ 2D/80	
	mm	mm	mm	mm				
HSK-T 63	130	52.6	14.6	20 / 25 / 32	368.74	**02537**	368.74	**02537**
HSK-T 100	135	87.6	14.6	20 / 25 / 32	501.15	**02535**	501.15	**02535**

HSK-T square shank holder 90° with DirectCooling

▲ Suitable for stationary tool holder HF = 20 / 25 / 32 mm
▲ These HF values can be achieved by removing the mounting adapter and clamping block





Adapter	LF	BDRED	WF	OAL	HF	NEW Direct Cooling Neutral 74 575 ... £ 2D/80	
	mm	mm	mm	mm	mm		
HSK-T 63	60	52.6	45	117	20 / 25 / 32	368.74	**02537**
HSK-T 100	65	87.6	45	140	20 / 25 / 32	486.92	**02535**

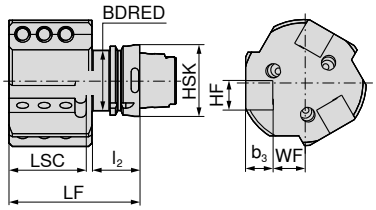
Spare parts HSK-T square shank holders with DirectCooling


Cylindrical screw


Clamping screw

			83 950 ...			**62 950 ...**	
Spare parts			£			£	
Adapter			Y7			W7/6B	
HSK-T 63	M5x5 - SW2,5	3.85	**157**	M12x16 - SW6	1.28	**51100**
HSK-T 100	M5x5 - SW2,5	3.85	**157**	M12x16 - SW6	1.28	**51100**

HSK-T square shank adapter 3-face 0°




Left-hand

74 576 ...

ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	LSC mm	b_3 mm	HF mm	£ 2D/80	
HSK T63 SH3 L 00 2525	HSK-T 63	115	42	53	28	68	25	25	980.76	**525**
HSK T100 SH3 L 00 2525	HSK-T 100	120	45	88	33	70	25	25	1,390.23	**725**


Protection plugs

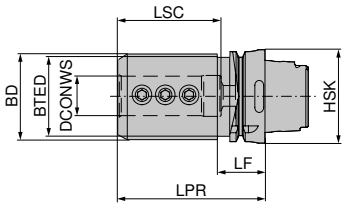

Nozzle


Hollow key with nose


Grubscrew

			70 950 ...			**70 950 ...**		**70 950 ...**		**70 950 ...**	
Spare parts			£			£		£		£	
Adapter			2A/28			2A/28		2A/28		2A/28	
HSK-T 63	UNJF 7/16"-20	24.46	**05600**	UNJF 7/16"-20	35.18	**05500**	54.39	**05700**	M12x1,75x25	2.71	**851**
HSK-T 100	UNJF 7/16"-20	24.46	**05600**	UNJF 7/16"-20	35.18	**05500**	54.39	**05700**	M12x1,75x25	2.71	**851**

HSK-T Boring bar holder

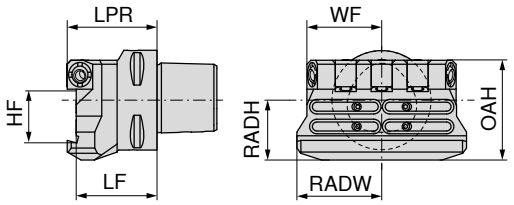




74 577 ...

ISO designation	Adapter	LPR mm	DCONWS mm	BD mm	LSC mm	LF mm	BTED mm	£ 2D/80	
HSK T63 BH08 80	HSK-T 63	80	8	32	41			417.85	**508**
HSK T63 BH10 80	HSK-T 63	80	10	40	41			417.85	**510**
HSK T63 BH12 80	HSK-T 63	80	12	40	41			417.85	**512**
HSK T63 BH16 80	HSK-T 63	80	16	40	51			417.85	**516**
HSK T63 BH20 80	HSK-T 63	80	20	50	51			417.85	**520**
HSK T63 BH25 90	HSK-T 63	90	25	53	61			417.85	**525**
HSK T63 BH32 95	HSK-T 63	95	32	68	61	42	53	417.85	**532**
HSK T100 BH20 90	HSK-T 100	90	20	55	56			532.46	**720**
HSK T100 BH25 95	HSK-T 100	95	25	55	61			532.46	**725**
HSK T100 BH32 110	HSK-T 100	110	32	68	61			532.46	**732**
HSK T100 BH40 120	HSK-T 100	120	40	83	81			532.46	**740**
HSK T100 BH50 125	HSK-T 100	125	50	98	91	45	88	532.46	**750**

MonoClamp – PSC parting blade holder GX/LX/FX/SX with DirectCooling

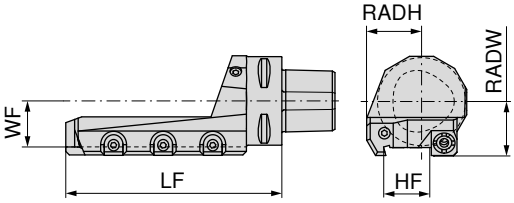




NEW
Direct Cooling
radial

Adapter	LF mm	LPR mm	WF mm	HF mm	OAH mm	RADW mm	RADH mm	for parting blades	84 617 ... £ Y8	
PSC 40	40.5	45	37.5	26	50	42.5	30	XLCF N 26...	1,345.87	**62695**
PSC 50	40.5	45	37.5	26	50	42.5	30	XLCF N 26...	1,345.87	**62694**
PSC 63	45.5	50	40.0	32	57	45.0	35	XLCF N 32...	1,508.67	**63293**

MonoClamp – PSC parting blade holder GX/LX/FX/SX with DirectCooling



Diagrams show right hand versions



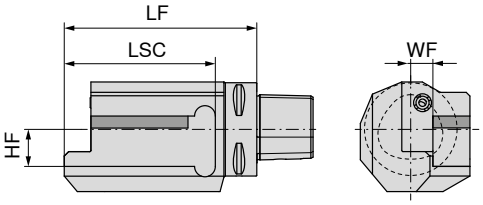
NEW
Direct Cooling
Left-hand

NEW
Direct Cooling
Right-hand

Adapter	LF mm	WF mm	HF mm	RADW mm	RADH mm	for parting blades	84 617 ... £ Y8		84 617 ... £ Y8	
PSC 40	122	21	26	25.5	31	XLCF N 26...	1,345.87	**32695**	1,345.87	**22695**
PSC 50	122	26	26	30.5	31	XLCF N 26...	1,345.87	**32694**	1,345.87	**22694**
PSC 63	160	32	32	36.5	37	XLCF N 32...	1,508.67	**33293**	1,508.67	**23293**

PSC square shank holder 0° with DirectCooling

▲ Suitable for tool holders with PSC 63 – HF = 20 / 25 mm / PSC 80 – HF = 25 mm
▲ These HF values can be achieved by removing the clamping block



Diagrams show right hand versions



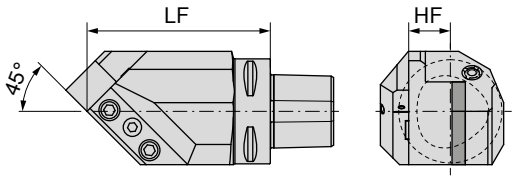
NEW
Direct Cooling
Left-hand

NEW
Direct Cooling
Right-hand

Adapter	LF mm	WF mm	LSC mm	HF mm	84 616 ... £ Y8		84 616 ... £ Y8	
PSC 63	130	15	102	20 / 25	1,010.40	**32593**	1,010.40	**22593**
PSC 80	130	20	102	25	1,127.05	**32586**	1,127.05	**22586**

PSC square shank holder 45° with DirectCooling

▲ Suitable for tool holders with PSC 50 – HF = 20 mm / PSC 63 – HF = 20 / 25 mm
▲ These HF values can be achieved by removing the clamping block



Diagrams show right hand versions

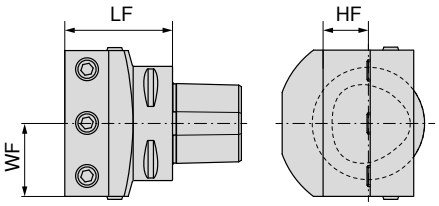


NEW Direct Cooling — Left-hand
NEW Direct Cooling — Right-hand

Adapter	LF mm	HF mm	84 616 ... £ Y8		84 616 ... £ Y8	
PSC 50	85	20	1,061.80	12094	1,061.80	02094
PSC 63	110	20 / 25	1,340.62	12593	1,340.62	02593

PSC square shank holder 90° with DirectCooling

▲ Suitable for tool holders with PSC 40 – HF = 20 mm / PSC 63 HF = 20 / 25 mm
▲ These HF values can be achieved by removing the clamping block



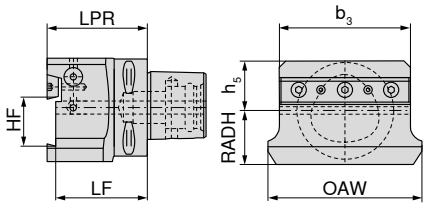


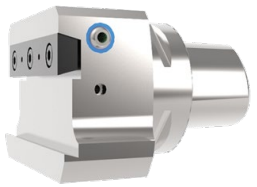
NEW Direct Cooling — Neutral

Adapter	LF mm	WF mm	HF mm	84 616 ... £ Y8	
PSC 40	55	40	20	972.84	62095
PSC 63	71	40	20 / 25	1,010.40	62593

16

Radial parting blade holder, right / left

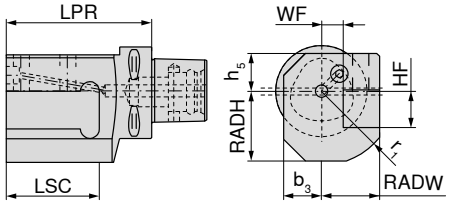




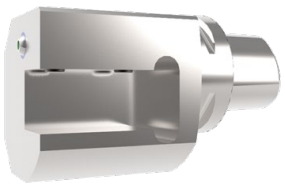
Neutral

Adapter	HF	LPR	OAW	b_3	h_5	RADH	LF	84 132 ... £ Y8	
	mm	mm	mm	mm	mm	mm	mm		
PSC 63	26	65	91	75	30	30	60	519.15	**626**
PSC 63	32	65	100	85	32	35	60	519.15	**632**

Square section adapter, single face

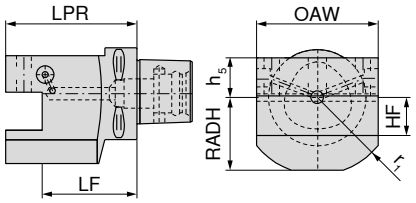


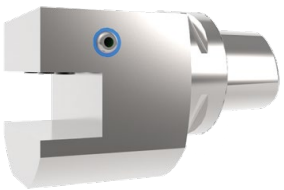
Illustrations show right-hand versions



Adapter	HF	LPR	b_3	RADW	r_1	WF	h_5	RADH	LSC	Left-hand 84 611 ... £ Y8		Right-hand 84 610 ... £ Y8	
	mm	mm	mm	mm	mm	mm	mm	mm	mm				
PSC 50	20	80	26	35	45	15	26	43	53	421.44	**520**	421.44	**520**
PSC 50	25	90	26	40	51	15	26	48	64	421.44	**525**	421.44	**525**
PSC 50	32	115	26	47	61	15	26	55	90	421.44	**532**	421.44	**532**
PSC 63	20	90	26	35	45	15	26	43	53	486.51	**620**	486.51	**620**
PSC 63	25	100	26	40	51	15	26	48	64	486.51	**625**	486.51	**625**
PSC 63	32	125	26	47	61	15	26	55	90	486.51	**632**	486.51	**632**
PSC 80	20	90	26	35	45	15	26	43	53	584.25	**820**	584.25	**820**
PSC 80	25	100	26	40	51	15	26	48	64	584.25	**825**	584.25	**825**
PSC 80	32	125	26	47	61	15	26	55	90	584.25	**832**	584.25	**832**

Radial square section tool holders 90°

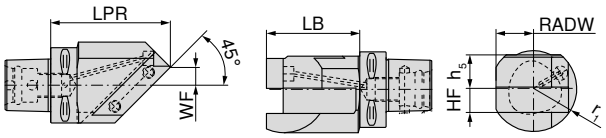


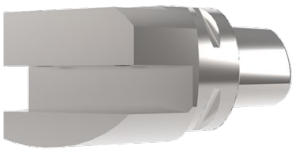


Neutral

Adapter	HF	LPR	OAW	r_1	RADH	h_5	LF	84 602 ... £ Y8	
	mm	mm	mm	mm	mm	mm	mm		
PSC 50	20	70	70	45	43	26	50	421.44	**520**
PSC 50	25	80	80	51	48	26	55	437.76	**525**
PSC 50	32	90	90	61	55	26	58	470.38	**532**
PSC 63	20	80	70	45	43	26	60	486.51	**620**
PSC 63	25	90	80	51	48	26	65	519.15	**625**
PSC 63	32	100	90	61	55	26	68	551.60	**632**
PSC 80	20	80	70	45	43	26	60	519.15	**820**
PSC 80	25	90	80	51	48	26	65	551.60	**825**
PSC 80	32	100	90	61	55	26	68	584.25	**832**

Square section adapter 45°

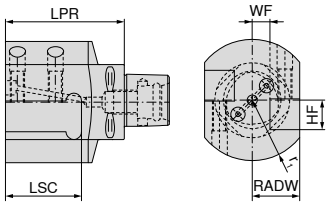


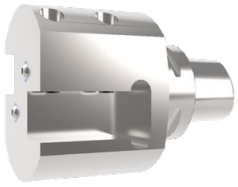


Illustrations show right-hand versions

Adapter	HF	LPR	RADW	r_1	WF	h_5	LB	Left-hand 84 605 ... £ Y8		Right-hand 84 604 ... £ Y8	
	mm	mm	mm	mm	mm	mm	mm				
PSC 50	20	100	31	36	15	26	80	421.44	**520**	421.44	**520**
PSC 63	20	100	32	36	15	28	78	502.84	**620**	502.84	**620**
PSC 80	32	135	45	70	17	40	105	567.92	**832**	567.92	**832**

Square section adapter, double face

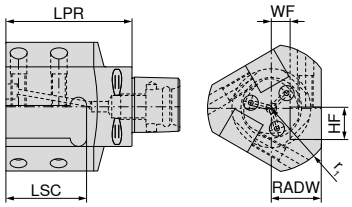


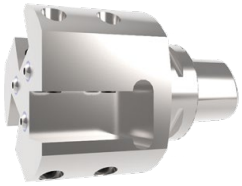


Illustrations show right-hand versions

Adapter	HF	LPR	RADW	r_1	WF	LSC	Left-hand 84 613 ... £ Y8		Right-hand 84 612 ... £ Y8	
	mm	mm	mm	mm	mm	mm				
PSC 50	20	80	35	45	15	53	714.42	**520**	714.42	**520**
PSC 50	25	90	40	51	15	64	730.72	**525**	730.72	**525**
PSC 50	32	115	47	61	15	90	746.88	**532**	746.88	**532**
PSC 63	20	90	35	45	15	53	746.88	**620**	746.88	**620**
PSC 63	25	100	40	51	15	64	763.20	**625**	763.20	**625**
PSC 63	32	125	47	61	15	90	779.50	**632**	779.50	**632**
PSC 80	20	90	35	45	15	53	893.35	**820**	893.35	**820**
PSC 80	25	100	40	51	15	64	909.69	**825**	909.69	**825**
PSC 80	32	125	47	61	15	90	926.00	**832**	926.00	**832**

Square section adapter, triple face

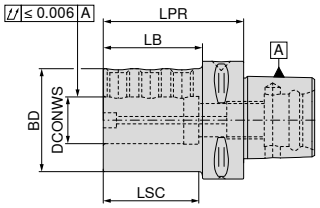




Illustrations show right-hand versions

Adapter	HF	LPR	RADW	r_1	WF	LSC	Left-hand 84 615 ... £ Y8		Right-hand 84 614 ... £ Y8	
	mm	mm	mm	mm	mm	mm				
PSC 50	20	80	35	45	15	53	958.44	**520**	958.44	**520**
PSC 50	25	90	40	51	15	64	974.77	**525**	974.77	**525**
PSC 50	32	115	47	61	15	90	1,007.37	**532**	1,007.37	**532**
PSC 63	20	90	35	45	15	53	1,121.24	**620**	1,121.24	**620**
PSC 63	25	100	40	51	15	64	1,170.02	**625**	1,170.02	**625**
PSC 63	32	125	47	61	15	90	1,202.66	**632**	1,202.66	**632**
PSC 80	20	90	35	45	15	53	1,349.12	**820**	1,349.12	**820**
PSC 80	25	100	40	51	15	64	1,381.60	**825**	1,381.60	**825**
PSC 80	32	125	47	61	15	90	1,414.22	**832**	1,414.22	**832**

Boring bar holder







Adapter	DCONWS mm	LPR mm	BD mm	LB mm	LSC mm	84 130 ... £ Y8	
PSC 50	6	70	40	50	40	372.67	**506**
PSC 50	8	70	44	50	40	372.67	**508**
PSC 50	10	70	44	50	45	372.67	**510**
PSC 50	12	70	44	50	45	372.67	**512**
PSC 50	16	75	44	55	45	372.67	**516**
PSC 50	20	75	50	75	51	372.67	**520**
PSC 50	25	80	55	50	51	372.67	**525**
PSC 50	32	90	63	70	60	372.67	**532**
PSC 63	6	75	40	53	40	372.67	**606**
PSC 63	8	75	44	53	40	372.67	**608**
PSC 63	10	75	44	53	45	372.67	**610**
PSC 63	12	75	44	53	45	372.67	**612**
PSC 63	16	75	44	53	45	372.67	**616**
PSC 63	20	75	50	53	51	372.67	**620**
PSC 63	25	75	55	53	51	372.67	**625**
PSC 63	32	75	72	52	60	372.67	**632**
PSC 63	40	105	70	82	90	372.67	**640**

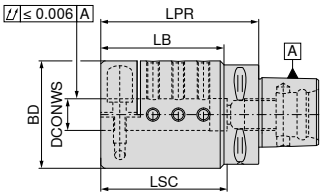


Grubscrew

Spare parts DCONWS		84 950 ... £ Y8	
6	M6x16	8.58	**153**
8	M8x16	8.58	**154**
10	M10x16	8.58	**155**
12 - 40	M12x14	8.58	**156**

Boring bar adapter, split version

▲ vibration-damped
▲ ideally suited for large overhangs





Adapter	DCONWS mm	LPR mm	BD mm	LB mm	LSC mm	84 131 ... £ Y8	
PSC 63	6	80	40	58	60	454.06	**606**
PSC 63	8	85	45	63	65	454.06	**608**
PSC 63	10	85	50	63	65	454.06	**610**
PSC 63	12	100	63	78	80	454.06	**612**
PSC 63	16	100	63	78	80	454.06	**616**
PSC 63	20	100	68	78	80	454.06	**620**
PSC 63	25	100	68	78	80	454.06	**625**
PSC 63	32	100	72	78	80	454.06	**632**

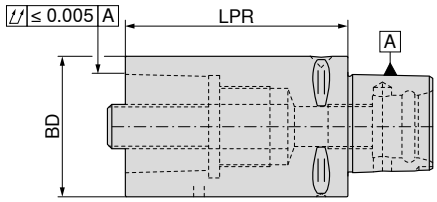

Grubscrew


Grubscrew

Spare parts DCONWS		83 950 ... £ Y8			84 950 ... £ Y8	
8	M6x20	4.36	**462**			
10				M6x16	8.58	**153**
12 - 20	M8x20	4.36	**468**			
25	M8x25	4.36	**467**			
32	M10x20	4.36	**471**			

Extension, axial clamping

▲ Run-out ≤ 0.002 mm
▲ max. speed 8,000 rpm





Adapter	BD mm	LPR mm	84 620 ... £ Y8	
PSC 32	32	60	307.58	**301**
PSC 32	32	80	307.58	**302**
PSC 40	40	60	323.90	**401**
PSC 40	40	80	323.90	**402**
PSC 50	50	80	340.02	**501**
PSC 50	50	100	340.02	**502**
PSC 63	63	100	356.35	**601**
PSC 63	63	140	356.35	**602**
PSC 80	80	100	372.67	**801**
PSC 80	80	125	372.67	**802**



Threaded ring



tightening screw

Spare parts Adapter	84 950 ... £ Y8			84 950 ... £ Y8	
PSC 32	52.21	**127**	SW8	37.89	**122**
PSC 40	52.21	**128**	SW8	42.70	**123**
PSC 50	52.21	**129**	SW10	42.70	**124**
PSC 63	104.24	**130**	SW14	47.53	**126**
PSC 80	104.24	**130**	SW14	47.53	**126**

Accessories

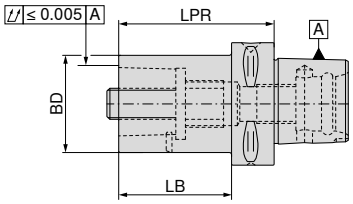


Hollow nose keys

→ 204

Cylindrical reduction

▲ Run-out ≤ 0.002 mm
▲ max. speed 8,000 rpm



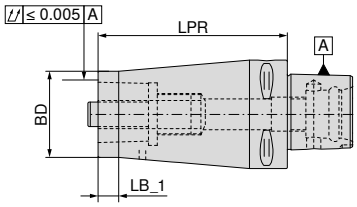


Adapter	BD mm	LPR mm	LB mm	84 624 ... £ Y8	
PSC 40	32	55	35	291.27	**403**
PSC 50	32	60	40	323.90	**503**
PSC 50	40	65	45	323.90	**504**
PSC 63	32	70	48	340.02	**603**
PSC 63	40	80	58	340.02	**604**
PSC 63	50	80	58	340.02	**605**
PSC 80	32	60	30	356.35	**803**
PSC 80	40	70	40	356.35	**804**
PSC 80	50	80	50	356.35	**805**
PSC 80	63	80	50	356.35	**806**
PSC 80X	63	80	48	470.38	**816** 1)
PSC 80X	80	100	68	470.38	**818** 1)

1) PSC 80X = variant with enlarged flange diameter of 100 mm / standard flange diameter PSC 80 = 80 mm

Tapered reduction

▲ Run-out ≤ 0.002 mm
▲ max. speed 8,000 rpm





Adapter	BD mm	LPR mm	LB_1 mm	84 625 ... £ Y8	
PSC 40	32	70	12	291.27	**403**
PSC 50	40	85	12	323.90	**504**
PSC 63	50	110	12	340.02	**605**
PSC 80	63	120	12	372.67	**806**
PSC 80X	80	150	12	470.38	**818** 1)

1) PSC 80X = variant with enlarged flange diameter of 100 mm / standard flange diameter PSC 80 = 80 mm


Threaded ring


tightening screw

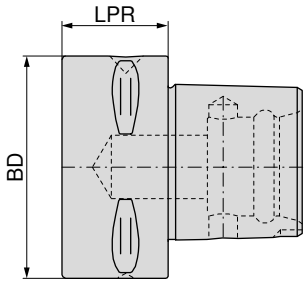
Spare parts Adapter	84 950 ... £ Y8			84 950 ... £ Y8	
PSC 40	52.21	**128**	SW8	42.70	**123**
PSC 50	52.21	**129**	SW10	42.70	**124**
PSC 63	104.24	**130**	SW14	47.53	**126**
PSC 80	104.24	**130**	SW14	47.53	**126**
PSC 80X	104.24	**130**	SW14	47.53	**126**

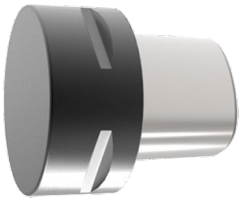
Accessories


Hollow nose keys
→ 204

16

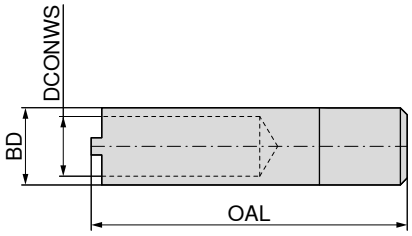
Sealing plugs





Adapter	BD mm	LPR mm	84 135 ... £ Y8	
PSC 40	40	28	162.79	**040**
PSC 50	50	28	162.79	**050**
PSC 63	63	30	192.02	**060**
PSC 80	80	38	208.31	**080**

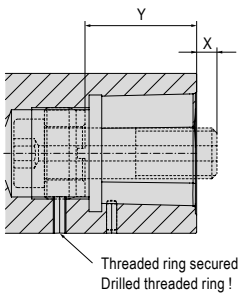
Hollow nose key for clamping screw for PSC extensions and reductions





Adapter	BD mm	OAL mm	DCONWS mm	84 651 ... £ Y8	
PSC 32	16	80	12.5	84.77	**032**
PSC 40	20	80	15.0	89.48	**040**
PSC 50	22	90	17.0	89.48	**050**
PSC 63/80/80X	34	110	21.0	98.86	**063**

Installation instructions: clamping screw for PSC extensions and reductions

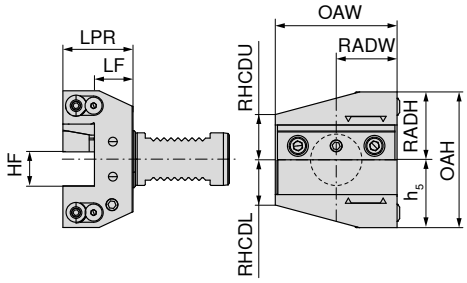


X = Screw leading edge
Y = Threaded ring insertion depth

Adapter	X mm	Y mm
PSC 32	5	24
PSC 40	5	29
PSC 50	6	36
PSC 63	8	44
PSC 80	0	53
PSC 80X	0	53

Radial square section tool holder with DirectCooling – B1 / B2 / B3 / B4

- ▲ Double tooth profile for normal and overhead applications
- ▲ The clamping rails can be attached at the top or bottom (left or right application).
- ▲ for turning tool holders with DirectCooling
- ▲ can be used up to 100 bar





NEW

Direct Cooling

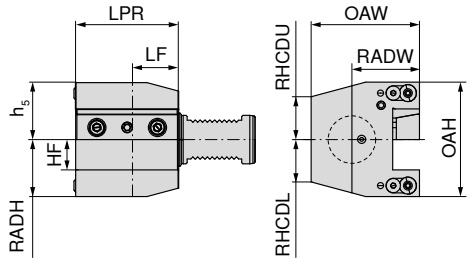
double

82 245 ...

Adapter	HF $_{0/-0,1}$ mm	LF $_{0/+0,5}$ mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	£ Y8	
VDI 20	16	16	30	55	30	30.0	30	60	22	22	417.90	**01629**
VDI 20	16	26	40	55	30	30.0	30	60	22	22	417.90	**51629**
VDI 25	16	16	30	55	30	30.0	30	60	22	22	417.90	**01628**
VDI 30	20	22	40	70	39	35.0	39	78	26	26	417.90	**02027**
VDI 40	25	22	44	85	47	42.5	47	94	33	33	493.00	**02526**
VDI 50	25	22	44	98	55	50.0	55	110	42	42	614.28	**02525**

Axial square section tool holder with DirectCooling – C1 / C2 / C3 / C4

- ▲ Double tooth profile for normal and overhead applications
- ▲ The clamping rails can be attached at the top or bottom (left or right application).
- ▲ for turning tool holders with DirectCooling
- ▲ can be used up to 100 bar





NEW

Direct Cooling

double

82 246 ...

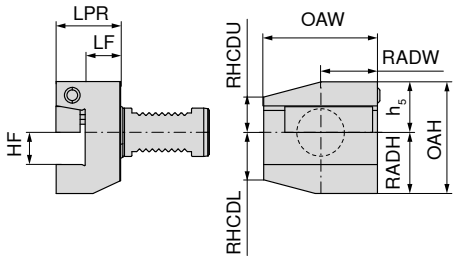
Adapter	HF $_{0/-0,1}$ mm	LF mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	£ Y8	
VDI 30	20	30	70	74	39	39.0	39	78	26	26	480.69	**02027**
VDI 40	25	30	85	94	47	52.5	47	94	35	35	572.66	**02526**
VDI 50	25	30	85	105	50	63.0	50	100	42	42	731.38	**02525**

You can find spare parts on → **Page 264+265**

16

Radial square section tool holder with DirectCooling – B1 / B4

▲ Double tooth profile for normal and overhead applications
▲ for turning tool holders with DirectCooling
▲ can be used up to 100 bar





NEW

Direct Cooling

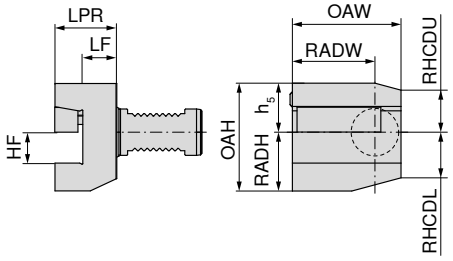
double

82 247 ...

Adapter	HF $_{0/-0,1}$ mm	LF $_{0/+0,5}$ mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	£ Y8	
VDI 30	20	22	40	70.0	38	35.0	31.5	69.5	29.5	22	321.73	**02027**
VDI 40	25	22	44	85.0	48	42.5	38.0	86.0	35.0	30	380.34	**02526**
VDI 50	25	22	44	92.5	48	50.0	43.0	91.0	43.0	30	472.20	**02525**

Radial square section tool holder with DirectCooling – B2 / B3

▲ Double tooth profile for normal and overhead applications
▲ for turning tool holders with DirectCooling
▲ can be used up to 100 bar





NEW

Direct Cooling

double

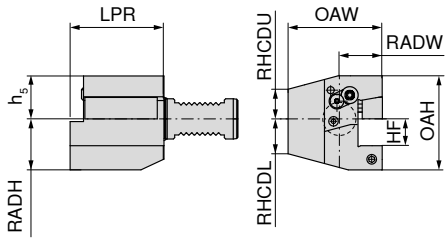
82 247 ...

Adapter	HF $_{0/-0,1}$ mm	LF $_{0/+0,5}$ mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	£ Y8	
VDI 30	20	22	40	70.0	38	35.0	31.5	69.5	29.5	27	321.73	**12027**
VDI 40	25	22	44	85.0	48	42.5	38.0	86.0	35.0	30	380.34	**12526**
VDI 50	25	22	44	92.5	48	50.0	43.0	91.0	35.0	38	472.20	**12525**

You can find spare parts on → **Page 264+265**

Axial square section tool holder with DirectCooling – C1 / C4

▲ Double tooth profile for normal and overhead applications
▲ for turning tool holders with DirectCooling
▲ can be used up to 100 bar





NEW

Direct Cooling

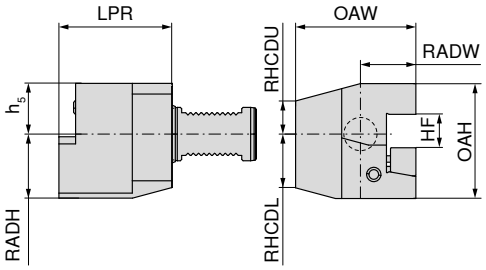
double

82 248 ...

Adapter	HF $_{0/-0,1}$ mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	£ Y8	
VDI 30	20	70	70.0	38	35.0	32	70	26	22	367.79	**02027**
VDI 40	25	85	85.0	48	42.5	38	86	35	30	438.84	**02526**
VDI 50	25	85	90.5	48	48.0	44	92	42	35	559.99	**02525**

Axial square section tool holder with DirectCooling – C2 / C3

▲ Double tooth profile for normal and overhead applications
▲ for turning tool holders with DirectCooling
▲ can be used up to 100 bar





NEW

Direct Cooling

double

82 248 ...

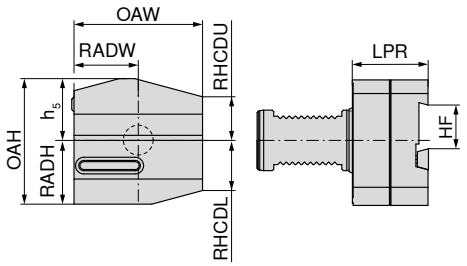
Adapter	HF $_{0/-0,1}$ mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	£ Y8	
VDI 30	20	70	76	38	41.0	32	70	26	26	367.79	**12027**
VDI 40	25	85	90	48	47.5	38	86	35	30	438.84	**12526**
VDI 50	25	85	95	48	52.5	44	92	42	37	559.99	**12525**

16

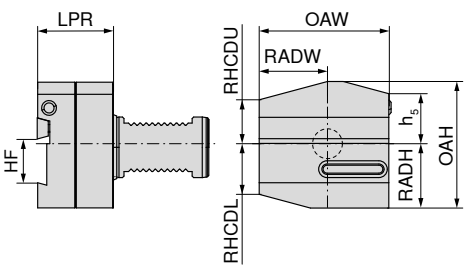
You can find spare parts on → **Page 264+265**

Parting blade holder for parting blades with DirectCooling

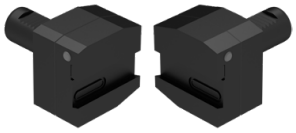
▲ Double tooth profile for normal and overhead applications
▲ for parting blades with DirectCooling
▲ can be used up to 100 bar



left



right



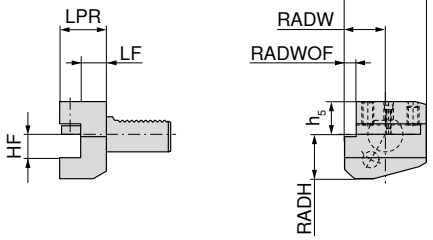
NEW Direct Cooling

NEW Direct Cooling

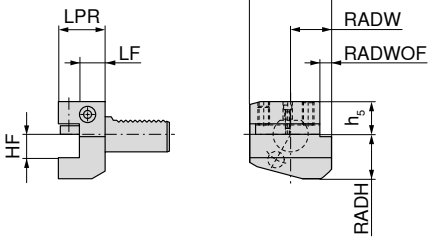
Adapter	HF mm	LPR mm	OAW mm	RADH mm	RADW mm	h_5 mm	OAH mm	RHCDL mm	RHCDU mm	Left-hand 82 249 ... £ Y8		Right-hand 82 249 ... £ Y8	
VDI 30	26	50	70	37	35.0	32	69	30	25	806.61	**12627**	806.61	**02627**
VDI 40	32	50	85	40	42.5	43	83	31	31	906.97	**13226**	906.97	**03226**
VDI 40	26	50	85	40	42.5	43	83	31	31	906.97	**12626**	906.97	**02626**
VDI 50	32	50	100	45	50.0	43	88	37	35	1,082.30	**13225**	1,082.30	**03225**

You can find spare parts on → **Page 264+265**

Radial tool holders, short



B2



B1



B2

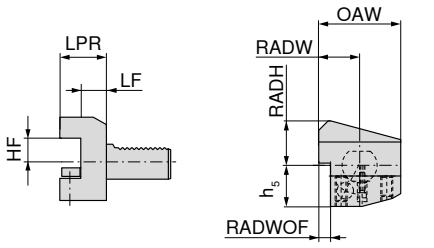


B1

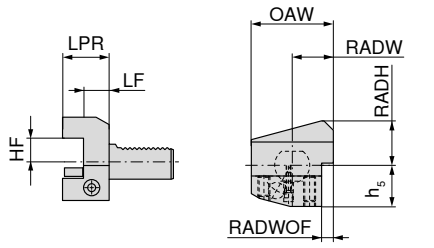
Adapter	HF $_{0/-0,1}$ mm	OAW mm	RADW mm	RADWOF mm	h_5 mm	RADH mm	LF $_{0/+0,5}$ mm	LPR mm	Left-hand 82 189 ... £ Y8		Right-hand 82 185 ... £ Y8	
VDI 16	12	42	23.0	5.0	20.0	22	13.0	24	327.32	**160**	235.29	**160**
VDI 20	16	55	30.0	7.0	25.0	30	26.0	40	261.83	**201**	247.41	**201**
VDI 20	16	55	30.0	7.0	25.0	30	16.0	30	200.87	**200**	214.43	**200**
VDI 20	16	55	30.0	7.0	25.0	30	18.0	30	730.85	**202** 1)	698.55	**202** 1)
VDI 20	16	55	30.0	7.0	25.0	30	25.5	40			618.20	**203** 1)
VDI 30	20	70	35.0	10.0	28.0	38	18.5	40	217.51	**300**	197.20	**300**
VDI 30	20	70	35.0	10.0	28.0	38	42.0	60	343.91	**301**	326.38	**301**
VDI 30	20	70	35.0	10.0	28.0	35	32.0	50			1,521.33	**302** 1)
VDI 40	25	85	42.5	12.5	32.5	48	18.5	44	220.41	**400**	201.23	**400**
VDI 50	32	100	50.0	16.0	35.0	60	30.0	55	341.74	**500**	336.13	**500**

1) Height adjustable +/- 1 mm

Radial tool holders, overhead, short



B4



B3



B4



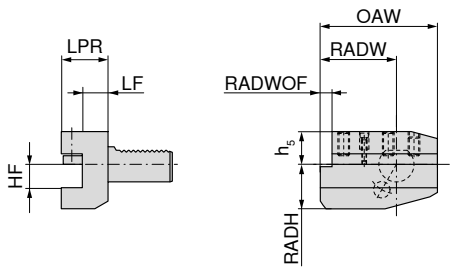
B3

Adapter	HF $_{0/-0,1}$ mm	OAW mm	RADW mm	RADWOF mm	h_5 mm	RADH mm	LF $_{0/+0,5}$ mm	LPR mm	Left-hand 82 196 ... £ Y8		Right-hand 82 193 ... £ Y8	
VDI 16	12	42	23.0	5.0	20.0	22	13.0	24			248.04	**160**
VDI 20	16	55	30.0	7.0	25.0	30	26.0	40	466.64	**201**	311.29	**201**
VDI 20	16	55	30.0	7.0	25.0	30	18.5	30	913.96	**202** 1)	755.74	**202** 1)
VDI 20	16	55	30.0	7.0	25.0	30	26.0	40	1,217.63	**203** 1)	793.19	**203** 1)
VDI 30	20	70	35.0	10.0	35.0	38	18.5	40	220.41	**300**	203.19	**300**
VDI 40	25	85	42.5	12.5	42.5	48	18.5	44	226.41	**400**	214.88	**400**
VDI 50	32	100	50.0	16.0	50.0	60	30.0	55	401.59	**500**	341.74	**500**

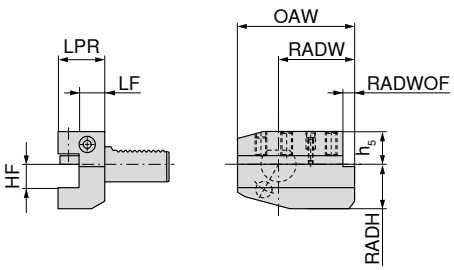
1) Height adjustable +/- 1 mm

You can find spare parts on → **Page 266**

Radial tool holders, long



B6



B5



B6

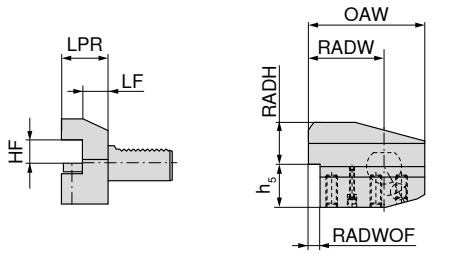


B5

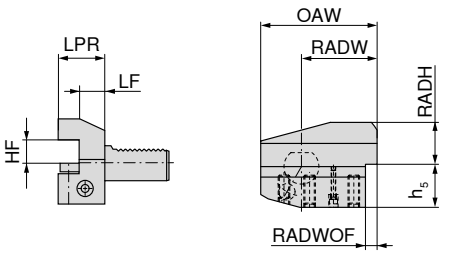
Adapter	$HF_{0/-0,1}$ mm	OAW mm	RADW mm	RADWOF mm	h_5 mm	RADH mm	$LF_{0/+0,5}$ mm	LPR mm	Left-hand 82 202 ... £ Y8		Right-hand 82 199 ... £ Y8	
VDI 20	16	75	50.0	7.0	25.0	30	26.0	40	376.96	**201**	345.43	**201**
VDI 20	16	75	50.0	7.0	25.0	30	18.0	30			887.62	**202** [1]
VDI 30	20	100	65.0	10.0	28.0	38	18.5	40	254.85	**300**	247.71	**300**
VDI 40	25	118	75.5	12.5	32.5	48	18.5	44	252.92	**400**	257.97	**400**
VDI 50	32	130	80.0	16.0	35.0	60	30.0	55	478.43	**500**	472.71	**500**

1) Height adjustable +/- 1 mm

Radial tool holders, overhead, long



B8



B7



B8



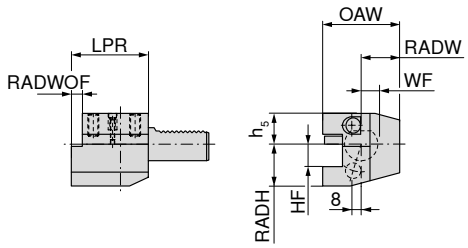
B7

Adapter	$HF_{0/-0,1}$ mm	OAW mm	RADW mm	RADWOF mm	h_5 mm	RADH mm	$LF_{0/+0,5}$ mm	LPR mm	Left-hand 82 208 ... £ Y8		Right-hand 82 205 ... £ Y8	
VDI 20	16	75	50.0	7.0	25.0	30	16.0	30	357.99	**200**	288.64	**200**
VDI 20	16	75	50.0	7.0	25.0	30	18.0	30			873.49	**202** [1]
VDI 30	20	100	65.0	10.0	35.0	38	42.0	60			376.45	**301**
VDI 30	20	100	65.0	10.0	35.0	38	18.5	40	291.23	**300**	254.85	**300**
VDI 40	25	118	75.5	12.5	42.5	48	18.5	44	282.52	**400**	282.52	**400**
VDI 50	32	130	80.0	16.0	50.0	60	30.0	55	459.60	**500**	480.78	**500**

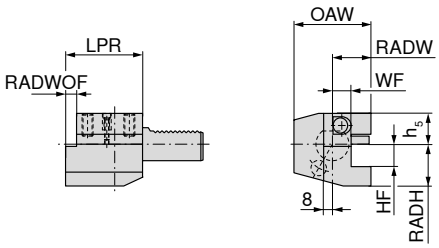
1) Height adjustable +/- 1 mm

You can find spare parts on → **Page 266**

Axial tool holders



C2



C1



C2

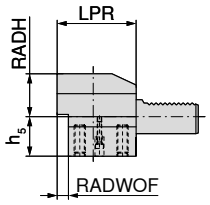


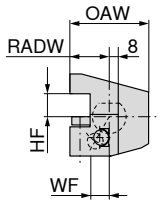
C1

Adapter	HF 0/-0,1 mm	OAW mm	RADW mm	WF 0/+0,3 mm	h_5 mm	RADH mm	LPR mm	Left-hand 82 214 ... £ Y8		Right-hand 82 211 ... £ Y8	
VDI 16	12	43	24.0	13.0	20.0	22	44			322.58	**160**
VDI 20	16	65	40.0	25.5	25.0	30	50			903.88	**202** [1]
VDI 20	16	65	40.0	26.0	25.0	30	50	250.61	**200**	253.70	**201**
VDI 30	20	76	41.0	23.0	28.0	38	70	243.81	**300**		
VDI 30	20	70	35.0	17.0	28.0	38	70			228.74	**300**
VDI 40	25	85	42.5	20.5	32.5	48	85			266.09	**400**
VDI 40	25	90	47.5	25.5	32.5	48	85	269.18	**400**		
VDI 50	32	105	55.0	30.5	35.0	60	100	486.36	**500**		
VDI 50	32	100	50.0	25.5	35.0	60	100			387.97	**500**

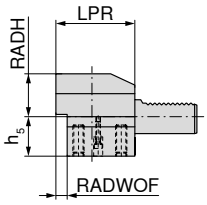
1) Height adjustable +/- 1 mm

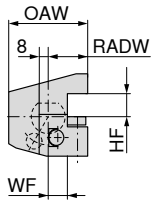
Axial tool holders, overhead





C4





C3



C4



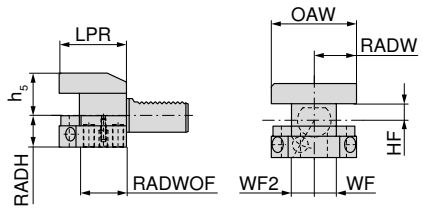
C3

Adapter	HF 0/-0,1 mm	OAW mm	RADW mm	WF 0/+0,3 mm	h_5 mm	RADH mm	LPR mm	Left-hand 82 220 ... £ Y8		Right-hand 82 217 ... £ Y8	
VDI 16	12	43	24.0	13.0	20.0	22	44			290.70	**160**
VDI 20	16	65	40.0	25.5	30.0	25	50			1,165.47	**202** [1]
VDI 20	16	65	40.0	26.0	25.0	30	50	268.22	**200**	306.52	**201**
VDI 20	16	65	40.0	25.5	25.0	30	50	941.22	**201** [1]		
VDI 30	20	70	35.0	17.0	35.0	38	70			233.60	**300**
VDI 30	20	76	41.0	23.0	35.0	38	70	245.76	**300**		
VDI 40	25	85	42.5	20.5	42.5	48	85			269.18	**400**
VDI 40	25	90	47.5	25.5	42.5	48	85	269.18	**400**		
VDI 50	32	100	50.0	25.5	50.0	60	100			394.76	**500**
VDI 50	32	105	55.0	30.5	50.0	60	100	336.13	**500**		

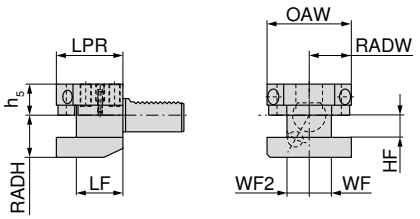
1) Height adjustable +/- 1 mm

You can find spare parts on → **Page 266**

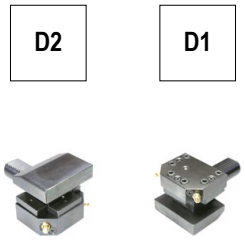
Multiple tool holders



D2



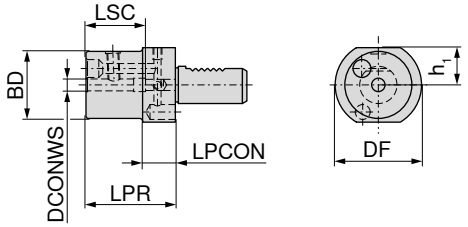
D1



Adapter	HF $_{0/-0,1}$ mm	RADW mm	WF $_{0/+0,3}$ mm	WF2 $_{0/+0,3}$ mm	OAW mm	h_5 mm	RADH mm	LF $_{0/+0,5}$ mm	LPR mm	82 224 ... £ Y8		82 222 ... £ Y8	
VDI 30	20	35.0	17.0	23.0	76	28.0	38	42	60			537.77	**300**
VDI 30	20	35.0	17.0	23.0	76	35.0	38	42	60	537.77	**300**		
VDI 40	25	42.5	20.5	25.5	90	32.5	48	50	72			563.11	**400**
VDI 40	25	42.5	20.5	25.5	90	42.5	48	50	72	563.11	**400**		

Cylindrical tool holders

▲ for tools with cylindircal shank to DIN 6535 and DIN 1835 Form E (Whistle Notch)
▲ Coolant supply either centrally through the tool or via the adjustable ball spray nozzles





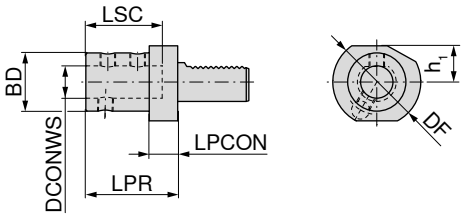


Cooling through nozzle

Adapter	DCONWS mm	DF mm	BD mm	h_1 mm	LPR mm	LPCON mm	LSC mm	83 269 ... £ Y8	
VDI 20	6	50	45	23.0	60	22	40	361.28	**206**
VDI 20	8	50	45	23.0	60	22	40	345.20	**208**
VDI 20	10	50	45	23.0	60	22	44	345.20	**210**
VDI 20	12	50	45	23.0	60	22	49	345.20	**212**
VDI 20	14	50	45	23.0	62	22	49	345.20	**214**
VDI 20	16	50	45	23.0	67	22	52	333.60	**216**
VDI 20	18	50	45	23.0	67	22	52	333.60	**218**
VDI 20	20	50	45	23.0	67	22	52	333.60	**220**
VDI 30	6	68	52	28.0	67	22	35	373.08	**306**
VDI 30	8	68	52	28.0	67	22	35	357.22	**308**
VDI 30	10	68	52	28.0	67	22	39	357.22	**310**
VDI 30	12	68	52	28.0	67	22	44	357.22	**312**
VDI 30	14	68	52	28.0	67	22	44	344.85	**314**
VDI 30	16	68	52	28.0	67	22	47	343.29	**316**
VDI 30	18	68	52	28.0	67	22	47	357.22	**318**
VDI 30	20	68	52	28.0	67	22	52	343.29	**320**
VDI 40	6	83	52	32.5	67	22	35	416.62	**406**
VDI 40	8	83	52	32.5	67	22	35	400.77	**408**
VDI 40	10	83	52	32.5	67	22	39	400.77	**410**
VDI 40	12	83	52	32.5	67	22	44	400.77	**412**
VDI 40	14	83	52	32.5	67	22	44	400.77	**414**
VDI 40	16	83	52	32.5	67	22	47	387.03	**416**
VDI 40	18	83	52	32.5	67	22	47	387.03	**418**
VDI 40	20	83	52	32.5	67	22	52	387.03	**420**

Cylindrical tool holders for indexable insert drills

▲ for drilling tools with internal coolant supply



E1





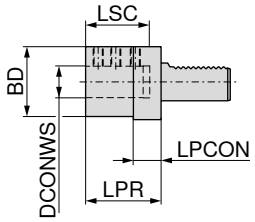
AD

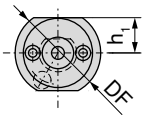
Adapter	DCONWS $_{H6}$ mm	DF mm	BD mm	h_1 mm	LPR mm	LPCON mm	LSC mm	82 274 ... £ Y8	
VDI 20	16	50	36	23.0	67	18	54	191.98	**200**
VDI 20	20	50	40	23.0	67	18	54	191.98	**201**
VDI 20	25	50	45	23.0	71	18	59	191.98	**202**
VDI 30	16	68	36	28.0	67	22	54	177.85	**300**
VDI 30	20	68	40	28.0	67	22	54	177.85	**301**
VDI 30	25	68	45	28.0	71	22	59	177.85	**302**
VDI 30	32	68	52	28.0	75	22	63	177.85	**303**
VDI 30	40	68	60	28.0	87	22	73	258.21	**304**
VDI 40	16	83	36	32.5	67	22	54	201.23	**400**
VDI 40	20	83	40	32.5	67	22	54	201.23	**401**
VDI 40	25	83	45	32.5	75	22	59	201.23	**402**
VDI 40	32	83	52	32.5	75	22	63	201.23	**403**
VDI 40	40	83	60	32.5	90	22	73	201.23	**404**
VDI 50	20	98	40	35.0	80	30	54	284.26	**500**
VDI 50	25	98	45	35.0	80	30	59	284.26	**501**
VDI 50	32	98	52	35.0	80	30	63	284.26	**502**
VDI 50	40	98	60	35.0	90	30	73	284.26	**503**
VDI 50	50	98	70	35.0	100	30	83	257.29	**504**

You can find spare parts on → **Page 266**

Boring bar holder

▲ for turning tools with cylindrical shank
▲ Coolant supply either through the tool or via the ball-shaped spray nozzle





E2





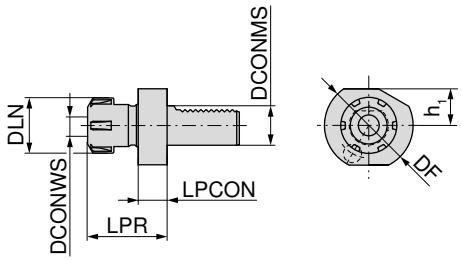
Cooling through nozzle

Adapter	DCONWS $_{H7}$ mm	DF mm	BD mm	h_1 mm	LPR mm	LPCON mm	LSC mm	82 268 ... £ Y8	
VDI 16	6	40	32	18.0	44	13	34	291.00	**160** 1)
VDI 16	8	40	32	18.0	44	13	34	222.08	**161** 1)
VDI 16	10	40	32	18.0	44	13	34	222.08	**162** 1)
VDI 16	12	40	40	18.0	44	13	34	222.08	**163** 1)
VDI 16	16	40	40	18.0	44	13	34	222.08	**164** 1)
VDI 20	8	50	40	23.0	50	18	41	206.47	**200**
VDI 20	10	50	40	23.0	50	18	41	206.47	**201**
VDI 20	12	50	40	23.0	50	18	41	206.47	**202**
VDI 20	16	50	40	23.0	50	18	41	206.47	**203**
VDI 20	20	50	50	23.0	50	18	41	206.47	**204**
VDI 20	25	50	50	23.0	60	18	51	206.47	**205**
VDI 30	8	68	55	28.0	60	22	51	201.23	**300**
VDI 30	10	68	55	28.0	60	22	51	201.23	**301**
VDI 30	12	68	55	28.0	60	22	51	201.23	**302**
VDI 30	16	68	55	28.0	60	22	51	201.23	**303**
VDI 30	20	68	55	28.0	60	22	51	201.23	**304**
VDI 30	25	68	55	28.0	60	22	51	201.23	**305**
VDI 30	32	68	68	28.0	75	22	61	201.23	**306**
VDI 40	8	83	55	32.5	75	22	61	205.14	**400**
VDI 40	10	83	55	32.5	75	22	61	205.14	**401**
VDI 40	12	83	55	32.5	75	22	61	205.14	**402**
VDI 40	16	83	55	32.5	75	22	61	205.14	**403**
VDI 40	20	83	55	32.5	75	22	61	205.14	**404**
VDI 40	25	83	55	32.5	75	22	61	205.14	**405**
VDI 40	32	83	83	32.5	75	22	61	205.14	**406**
VDI 40	40	83	83	32.5	90	22	76	205.14	**407**
VDI 50	12	98	68	35.0	90	30	76	295.49	**500**
VDI 50	16	98	68	35.0	90	30	76	295.49	**501**
VDI 50	20	98	68	35.0	90	30	76	295.49	**502**
VDI 50	25	98	68	35.0	90	30	76	283.31	**503**
VDI 50	32	98	68	35.0	90	30	76	283.31	**504**
VDI 50	40	98	98	35.0	90	30	76	283.31	**505**
VDI 50	50	98	98	35.0	100	30	86	283.31	**506**

1) Coolant supply through pipe joint

You can find spare parts on → **Page 266**

ER Collet chucks



E4



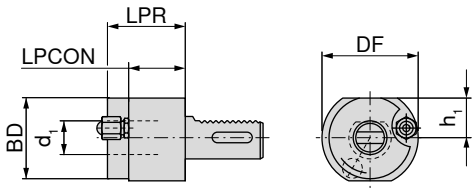
82 286 ...

Adapter	DCONWS mm	DF mm	DLN mm	h_1 mm	LPR mm	LPCON mm	for collet	£ Y8	
VDI 16	1 - 10	40	28	18.0	43.5	14	426E (ER16)	339.24	**160**
VDI 16	1 - 13	40	34	18.0	44.0	14	428E (ER20)	335.69	**161**
VDI 20	1 - 16	50	42	23.0	57.0	18	430E (ER25)	276.34	**202**
VDI 20	2 - 20	50	50	23.0	62.0	18	470E (ER32)	288.92	**203**
VDI 30	1 - 16	68	42	28.0	57.0	22	430E (ER25)	272.77	**300**
VDI 30	2 - 20	68	50	28.0	75.0	22	470E (ER32)	273.02	**301**
VDI 40	1 - 16	83	42	32.5	75.0	22	430E (ER25)	295.76	**400**
VDI 40	2 - 20	83	50	32.5	75.0	22	470E (ER32)	295.76	**401**
VDI 40	3 - 26	83	63	32.5	75.0	22	472E (ER40)	290.46	**402**
VDI 50	2 - 20	94	50	35.0	75.0	30	470E (ER32)	430.76	**500**
VDI 50	3 - 26	94	63	35.0	63.0	30	472E (ER40)	430.76	**501**

ER collets can be found on → **Pages 268–279**.

Morse taper adapters

▲ For taper shanks with ejector tang



F1

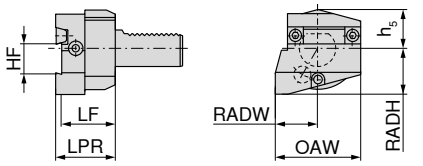


82 277 ...

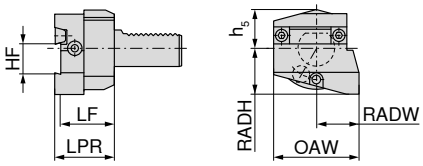
Adapter	d_1	BD mm	DF mm	h_1 mm	LPR mm	LPCON mm	£ Y8	
VDI 20	MK1		50	23.0	23		204.79	**200**
VDI 20	MK2		50	23.0	87		204.79	**201**
VDI 30	MK1		68	28.0	27		201.03	**300**
VDI 30	MK2		68	28.0	27		202.43	**301**
VDI 30	MK3	58	68	28.0	55	40	202.43	**302**
VDI 40	MK2	55	83	32.5	36	22	206.10	**401**
VDI 40	MK3	58	83	32.5	36	22	206.10	**402**
VDI 40	MK4	68	83	32.5	80	22	206.10	**403**
VDI 50	MK2	55	98	35.0	36	30	312.53	**500**
VDI 50	MK3	58	98	35.0	36	30	312.53	**501**
VDI 50	MK4	68	98	35.0	50	30	312.53	**502**

Parting blade holders, height adjustable

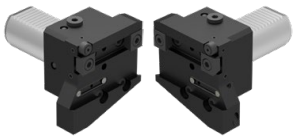
▲ Vertical adjustment ± 1 mm
▲ Suitable for internal cooling through the parting blade (DC)
▲ axially parallel, adjustable external coolant supply



left



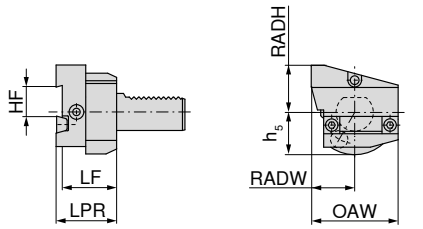
right



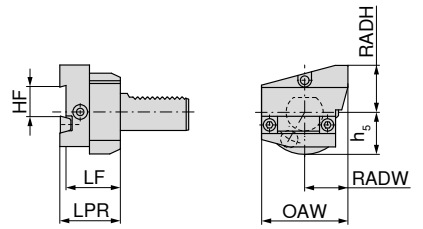
Adapter	OAW mm	RADW mm	HF mm	h_5 mm	RADH mm	LF mm	LPR mm	Left-hand 82 237 ... £ Y8		Right-hand 82 236 ... £ Y8	
VDI 30	70	35.0	26	28.0	38	44	49	722.93	**300**	722.93	**300**
VDI 30	70	35.0	32	30.5	38	44	49	916.67	**302**	916.67	**302**
VDI 40	73	42.5	26	32.0	48	44	49	949.67	**040**	949.67	**040**
VDI 40	85	42.5	32	32.0	48	44	49	854.33	**400**	744.91	**400**

Parting blade holders, height adjustable, overhead

▲ Vertical adjustment ± 1 mm
▲ Suitable for internal cooling through the parting blade (DC)
▲ axially parallel, adjustable external coolant supply



left



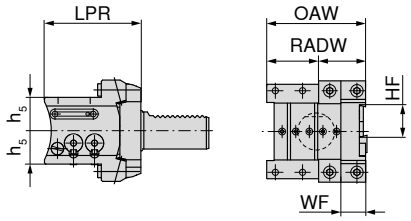
right



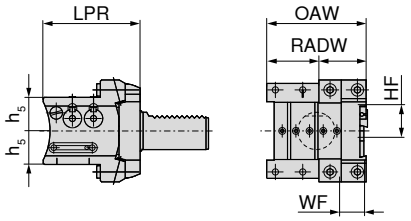
Adapter	OAW mm	RADW mm	HF mm	h_5 mm	RADH mm	LF mm	LPR mm	Left-hand 82 243 ... £ Y8		Right-hand 82 242 ... £ Y8	
VDI 30	70	35.0	26	34.0	38	44	49	1,086.70	**300**	1,086.70	**300**
VDI 30	70	35.0	32	30.5	38	44	49	916.67	**302**	1,027.83	**302**
VDI 40	73	42.5	26	32.0	48	44	49	949.67	**040**	949.67	**040**
VDI 40	85	42.5	32	32.0	48	44	49	743.86	**400**	743.86	**400**

Parting blade holders, height adjustable

▲ Vertical adjustment ± 1 mm
▲ Suitable for internal cooling through the parting blade (DC)
▲ axially parallel, adjustable external coolant supply



Universal-overhead



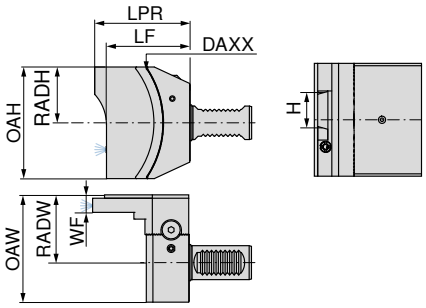
Universal



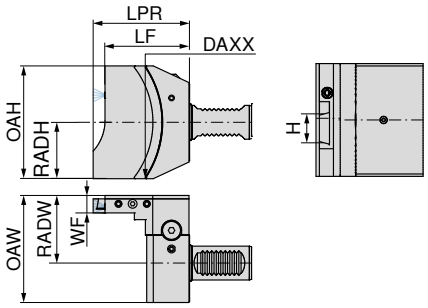
Adapter	OAW mm	RADW mm	HF mm	h_5 mm	WF mm	LPR mm	Universal-overhead 82 244 ... £ Y8		Universal 82 238 ... £ Y8	
VDI 30	80	40	26	27	20	78	1,460.06	**300**	1,460.06	**300**
VDI 40	80	40	26	27	20	88	1,620.04	**400**	1,620.04	**400**
VDI 40	80	40	32	32	20	88	1,620.04	**402**	1,620.04	**402**

Parting blade holder

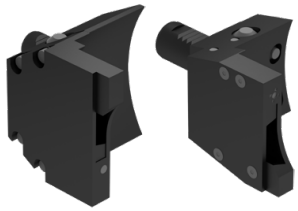
▲ doubles = reciprocally interlocked VDI shank



double – overhead



double



Adapter	LPR mm	LF mm	OAH mm	RADH mm	OAW mm	RADW mm	WF mm	DAXX mm	H mm	double – overhead 83 227 ... £ Y7		double 83 226 ... £ Y7	
VDI 20	85.5	75	94	47	85	60	15.5	176	26	1,573.90	**02629**[1)]	1,573.90	**02629**[1)]
VDI 30	85.5	75	100	50	95	60	15.5	176	32	1,573.90	**03227**[1)]	1,573.90	**03227**[1)]
VDI 30	85.5	75	100	50	95	60	15.5	176	26	1,573.90	**02627**[1)]	1,573.90	**02627**[1)]
VDI 40	88.5	78	100	50	95	60	15.5	176	32	1,697.23	**03226**[1)]	1,697.23	**03226**[1)]
VDI 40	88.5	78	100	50	95	60	15.5	176	26	1,697.23	**02626**[1)]	1,697.23	**02626**[1)]

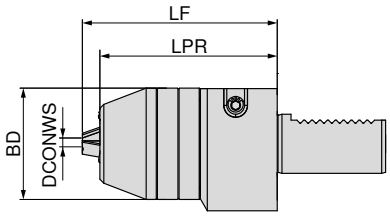
1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

Short drill chuck – NC 2010

▲ Coolant supply via 3 adjustable ball-shaped spray nozzles in the housing
▲ Independent of direction of rotation

Scope of supply:
Basic body including chuck key SW 4



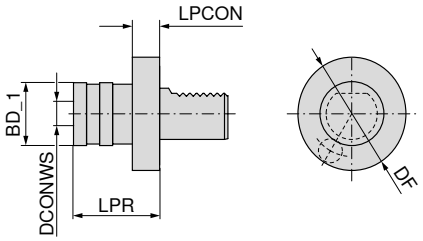


Adapter	DCONWS mm	BD mm	LPR mm	LF mm	£ Y8	84 297 ...
VDI 20	0,5 - 10	48.5	40	50	712.86	**210** [1]
VDI 30	0,5 - 13	56.5	90	99	718.30	**313**
VDI 30	2,5 - 16	56.5	90	99	762.22	**316**
VDI 40	0,5 - 13	56.5	90	99	718.30	**413**
VDI 40	2,5 - 16	56.5	90	99	762.22	**416**

1) Without Through Coolant

Quick-change tap chucks GSF

▲ LZD = Length compensation under tension and compression





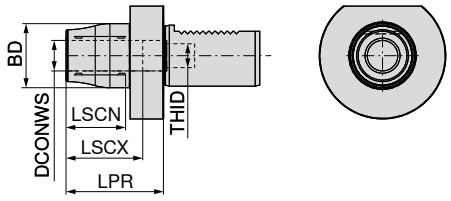
Adapter	cutting range	SZID	DCONWS mm	BD_1 mm	LPR mm	LZD± mm	83 307 ... £ Y8	
VDI 20	M3 - M12	01	19	38	55	9	792.04	**112**
VDI 30	M3 - M12	01	19	38	55	9	607.21	**312**
VDI 40	M3 - M12	01	19	38	55	9	680.38	**412**
VDI 20	M6 - M20	02	31	55	77	15	865.16	**120**
VDI 30	M6 - M20	02	31	55	77	15	802.47	**320**
VDI 40	M6 - M20	02	31	55	77	15	837.46	**420**

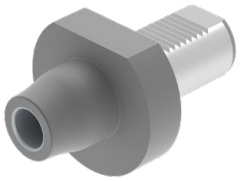
Quick change adapters can be found on → **Page 288–292**.

HyTens – Turn

▲ Hydraulic chuck
▲ For the hydraulic clamping of cylindrical tool shanks tol. h6, boring bars and cylindrical tool holders tol. h7, g6 in fixed base holders
▲ One screw for locking the boring bar
▲ High-precision clamping with a repeatability of 3 µm

Scope of supply:
Base body with backstop screw and pressure screw







AD

Adapter	DCONWS mm	BD mm	LPR mm	LSCX mm	LSCN mm	THID	83 402 ... £ Y8	
VDI 30	20	42	64	51	41	M16x1	992.43	**02027**
VDI 40	20	42	64	51	41	M16x1	1,036.55	**02026**



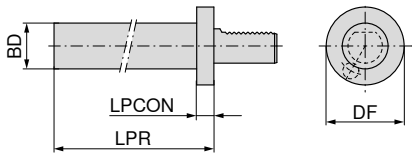
Stop screw IK

Spare parts DCONWS		83 950 ... £ Y7	
20	M16x1x31 - SW5	32.78	**48700**

16

Test arbors

▲ Radial run-out ≤ 0.02 mm

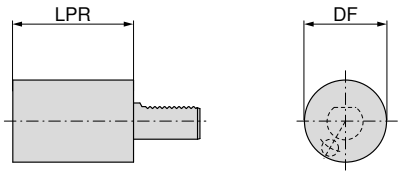




Adapter	BD h5 mm	DF mm	LPR mm	LPCON mm	83 324 ... £ Y8	
VDI 16	30	40	120	15	454.61	**016**
VDI 20	40	50	150	15	494.47	**020**
VDI 30	40	68	200	15	534.07	**030**
VDI 40	40	83	200	15	563.56	**040**
VDI 50	40	98	200	15	615.66	**050**

Tool holders, rough machined, round

▲ Manufactured from C45



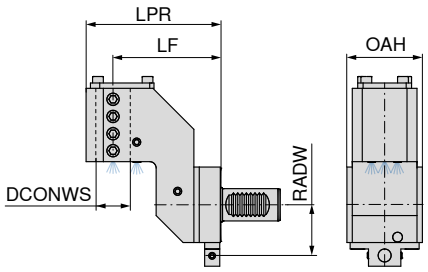
A2

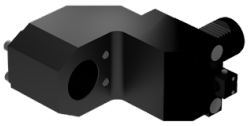


Adapter	LPR mm	DF mm	82 330 ... £ Y8	
VDI 16	60	40	154.22	**160**
VDI 20	70	50	134.54	**200**
VDI 30	100	68	157.63	**300**
VDI 30	240	68	191.44	**303**
VDI 40	120	83	184.73	**400**
VDI 40	320	83	278.91	**403**
VDI 50	135	98	259.39	**500**
VDI 50	400	98	418.76	**502**

Boring bar holder, with offset, with through coolant

▲ doubles = reciprocally interlocked VDI shank
▲ external coolant supply available







IC

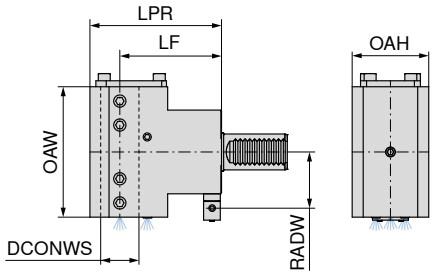
Adapter	DCONWS	LPR	LF	OAH	RADW	double 83 229 ... £ Y7	
	mm	mm	mm	mm	mm		
VDI 25	25	99.5	75	30	40	1,411.91	**02528**[1)]
VDI 30	32	125.0	100	70	47	1,650.98	**03227**[1)]
VDI 40	40	133.0	100	85	56	1,936.24	**04026**[1)]

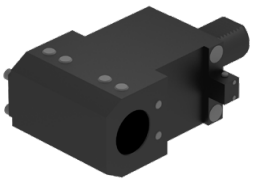
1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

Double boring bar holder with through coolant

▲ for use of two boring bars for main and sub-spindle machining
▲ external coolant supply available







IC

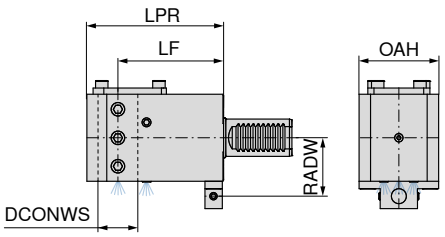
Adapter	DCONWS	LPR	LF	OAH	RADW	OAW	83 230 ... £ Y7	
	mm	mm	mm	mm	mm	mm		
VDI 25	25	99.5	75	54	40	104	1,589.62	**02528**[1)]
VDI 30	32	110.0	85	62	47	109	1,689.53	**03227**[1)]
VDI 30	32	125.0	100	62	47	118	1,689.53	**13227**[1)]
VDI 40	40	152.0	120	76	56	116	1,832.15	**04026**[1)]

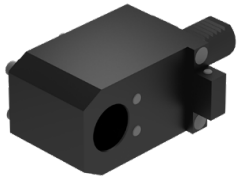
1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

Boring bar holder with through coolant

▲ external coolant supply available







IC

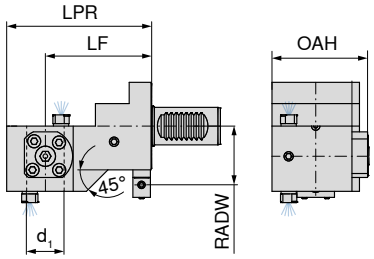
Adapter	DCONWS mm	LPR mm	LF mm	OAH mm	RADW mm	83 228 ... £ Y7	
VDI 25	25	100	75	60	40	938.17	**02528**[1)]
VDI 30	32	110	85	64	47	1,099.34	**03227**[1)]
VDI 30	32	125	100	64	47	1,141.83	**13227**[1)]
VDI 40	40	130	100	76	56	1,380.89	**04026**[1)]
VDI 40	40	152	120	76	56	1,427.30	**14026**[1)]
VDI 50	50	155	120	98	64	1,647.00	**05025**[1)]

1) Not ex-stock

With star turrets, there is the danger of a collision for failure to comply to the machine-default nominal maximum height (LPR).

90° VDI to VDI adapter, double sided

▲ for rotating toolholder







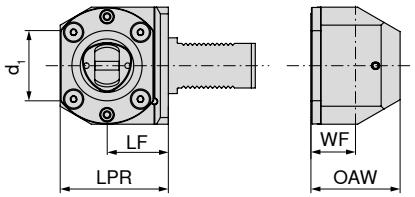
IC

Adapter	DCONWS mm	LPR mm	LF mm	OAH mm	RADW mm	83 225 ... £ Y7	
VDI 25	25	104	75	38.0	40	1,184.29	**02528**[1)]
VDI 25	20	104	75	67.5	40	1,184.29	**02028**[1)]
VDI 30	30	116	85	76.5	47	1,361.73	**03027**[1)]
VDI 30	30	131	100	76.5	47	1,404.00	**13027**[1)]
VDI 40	40	133	100	89.0	56	1,647.00	**04026**[1)]
VDI 40	40	153	120	89.0	56	1,647.00	**14026**[1)]

1) Not ex-stock

90° VDI to PSC adapter

Scope of supply:
including pull stud



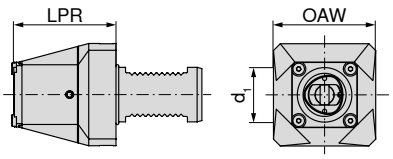


						90°	
						83 231 ...	
Adapter	d_1	LF mm	LPR mm	WF mm	OAW mm	£ Y7	
VDI 30	PSC 40	41	65	21	56	1,717.92	**04027**[1)]
VDI 40	PSC 40	51	75	30	86	1,795.00	**04026**[1)]
VDI 40	PSC 50	53	85	40	80	1,795.00	**05026**[1)]
VDI 40	PSC 63	53	95	40	80	1,891.70	**06326**[1)]
VDI 50	PSC 50	53	85	40	80	1,795.00	**05025**[1)]
VDI 50	PSC 63	55	97	40	80	1,891.70	**06325**[1)]

1) Not ex-stock

VDI to PSC adapter

Scope of supply:
including pull stud





					83 232 ...	
Adapter	d_1	LPR mm	OAW mm		£ Y7	
VDI 30	PSC 40	70	60		1,717.92	**04027**[1)]
VDI 40	PSC 40	75	75		1,717.92	**04026**[1)]
VDI 40	PSC 50	85	82		1,795.00	**05026**[1)]
VDI 40	PSC 63	90	105		1,891.70	**06326**[1)]
VDI 50	PSC 50	85	91		1,795.00	**05025**[1)]
VDI 50	PSC 63	100	105		1,891.70	**06325**[1)]

1) Not ex-stock

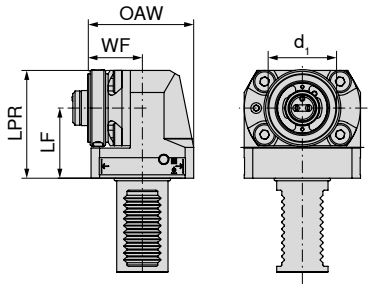
Accessories



Pull stud PSC
→ 176

16

90° VDI to HSK-T adapter

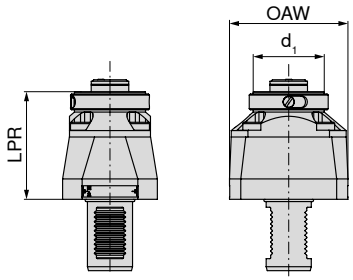




						90° 83 233 ...	
Adapter	d_1	LF mm	LPR mm	WF mm	OAW mm	£ Y7	
VDI 30	HSK-T 40	41	65	25	60	1,717.92	**04027**[1)]
VDI 40	HSK-T 40	51	75	34	90	1,717.92	**04026**[1)]
VDI 40	HSK-T 63	53	90	45	85	1,891.70	**06326**[1)]
VDI 50	HSK-T 63	55	97	45	85	1,891.70	**06325**[1)]

1) Not ex-stock

VDI to HSK-T adapter





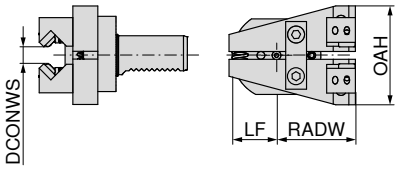
				83 234 ...	
Adapter	d_1	LPR mm	OAW mm	£ Y7	
VDI 30	HSK-T 40	74	60	1,861.21	**04027**[1)]
VDI 40	HSK-T 40	79	75	1,861.21	**04026**[1)]
VDI 40	HSK-T 63	95	105	2,049.36	**06326**[1)]
VDI 50	HSK-T 63	105	105	2,049.36	**06325**[1)]

1) Not ex-stock

Bar pullers for disc turrets, radial

▲ Two adjustable, spring-mounted, replaceable grippers are fitted to the main body. Each of these is equipped with a carbide insert. The grippers are set to a slightly smaller diameter than the bar and then pressed onto the bar in an axial direction (x axis) by the tool turret.
▲ GA = Gripper set

Scope of supply:
Bar puller incl. GA 1 for VDI 16, and GA 3 from VDI 20



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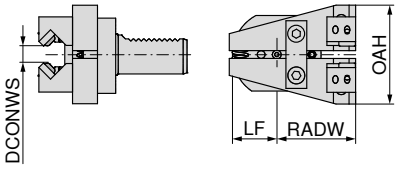

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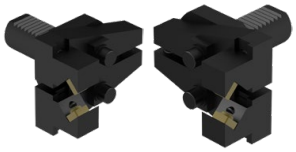
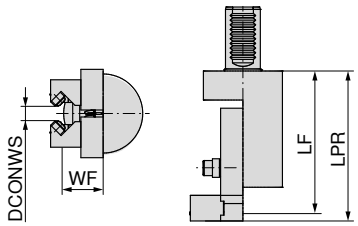


Adapter	DCONWS mm	LF mm	OAH mm	RADW mm	GA	Left-hand 80 309 ... £ Y7		Right-hand 80 306 ... £ Y7	
VDI 16	2 - 22	28	74	35	1			2,203.42	**01600**
VDI 20	2 - 42	34	85	61	3			2,604.17	**02000**
VDI 30	2 - 42	34	105	61	3 - 4	2,604.17	**03000**	2,604.17	**03000**
VDI 40	2 - 65	34	125	61	3 - 4	3,644.06	**04000**	3,644.06	**04000**

Bar pullers for star turrets

▲ Two adjustable, spring-mounted, replaceable grippers are fitted to the main body. Each of these is equipped with a carbide insert. The grippers are set to a slightly smaller diameter than the bar and then pressed onto the bar in an axial direction (x axis) by the tool turret.
▲ 90° angle head
▲ GA = Gripper set

Scope of supply:
Bar puller with GA 3

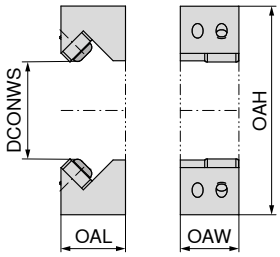




Adapter	DCONWS mm	LF mm	LPR mm	WF mm	GA	Left-hand 80 310 ... £ Y7	
VDI 30	2 - 42	122.5	129	37.0	3 - 4	2,860.77	**03000**
VDI 40	2 - 65	142.5	149	41.5	3 - 4	3,738.87	**04000**

Gripper accessories

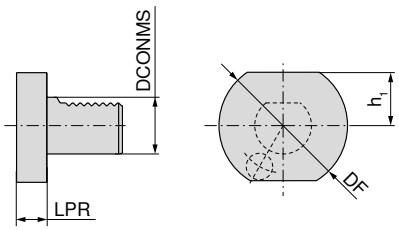
▲ For bar pullers 80 306 ... / 80 309 ... / 80 310 ...
▲ Price per pair



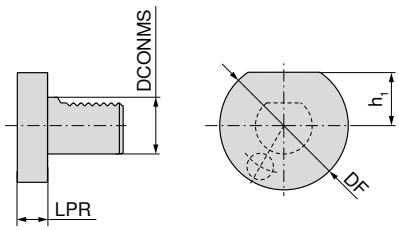


GA	DCONWS mm	OAL mm	OAW mm	OAH mm	80 312 ... £ Y7	
1	2 - 22	24.5	13	58	476.63	12200
3	2 - 42	26.0	22	86	476.63	14200
4	42 - 65	29.5	22	102	637.76	16500

Protection plugs



Steel



Plastic



Z2

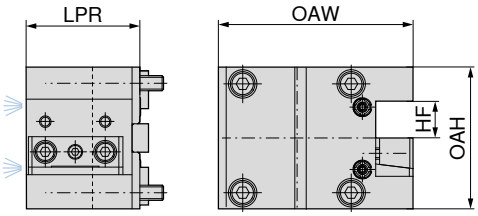


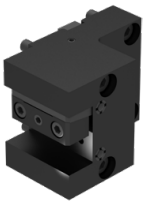
Z2

DCONMS h8 mm	DF mm	h_1 mm	LPR mm	Steel 82 317 ... £ Y8		Plastic 83 318 ... £ Y8	
16	40	18.0	16	46.69	160	39.03	160
20	50	23.0	16	92.72	200	15.82	200
30	68	28.0	16	49.53	300	15.78	300
40	83	32.5	20	58.26	400	18.19	400
50	98	35.0	20	114.10	500	25.86	500

Doosan/Spinner – BMT 45 – Axial square section tool holder

▲ directly screwed version





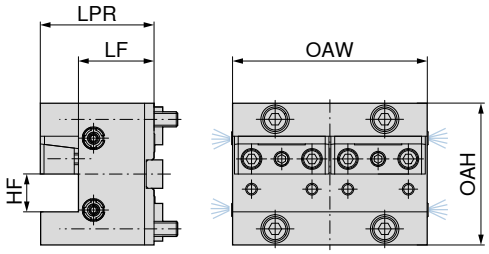
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 480 ... £ Y7		Left-hand 82 480 ... £ Y7	
BMT 45	58 x 58	20	60	75	99.5	1,067.34	**00001**	923.84	**00006**

Doosan/Spinner – BMT 45 – Radial square section tool holder

▲ directly screwed version





NEW

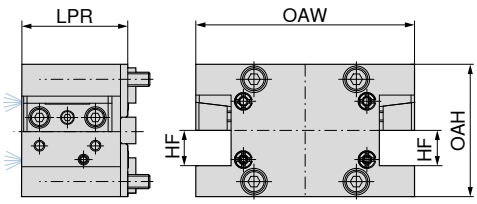
Direct Cooling

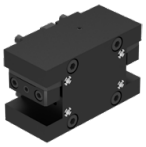
Adapter	Hole pattern	HF mm	LF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 480 ... £ Y7		Left-hand 82 480 ... £ Y7	
BMT 45	58 x 58	20	40	60	75	103	1,121.62	**01002**		
BMT 45	58 x 58	20	40	60	75	80			972.00	**01007**

16

Doosan/Spinner – BMT 45 – Multi square section tool holder

▲ directly screwed version





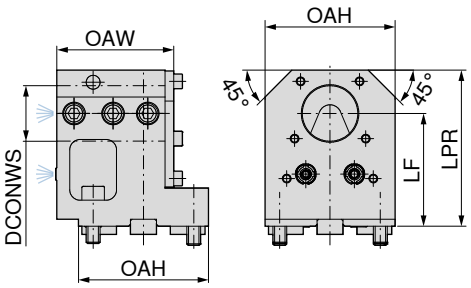
NEW

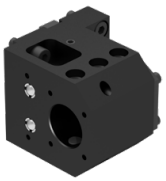
Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	82 480 ... £ Y7		82 480 ... £ Y7	
BMT 45	58 x 58	20	60	75	124	1,483.61	**02003**	1,291.40	**02008**

Doosan/Spinner – BMT 45 – Combi tool holder

▲ directly screwed version





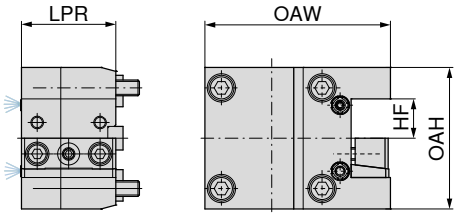


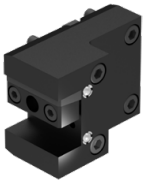
IC

Adapter	Hole pattern	DCONWS mm	LF mm	OAW mm	OAH mm	LPR mm	82 480 ... £ Y7	
BMT 45	58 x 58	32	65	67.5	75	90	1,140.26	**03004**
BMT 45	58 x 58	32	85	67.5	75	110	1,929.87	**03005**

Doosan – BMT 55 – Axial square section tool holder

▲ directly screwed version





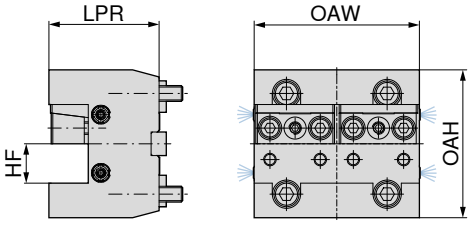
NEW

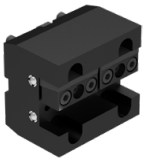
Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 481 ... £ Y7		Left-hand 82 481 ... £ Y7	
BMT 55	64 x 64	25	60	90	118	1,157.92	**00001**	1,159.21	**00005**

Doosan – BMT 55 – Radial square section tool holder

▲ directly screwed version





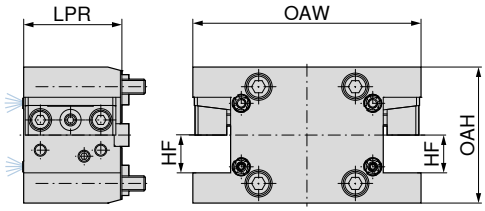
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 481 ... £ Y7		Left-hand 82 481 ... £ Y7	
BMT 55	64 x 64	25	70	94	105	1,157.92	**01002**		
BMT 55	64 x 64	25	95	94	105			1,656.43	**01006**

Doosan – BMT 55 – Multi square section tool holder

▲ directly screwed version





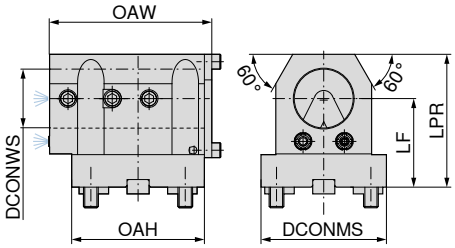
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	82 481 ... £ Y7		82 481 ... £ Y7	
BMT 55	64 x 64	25	65	90	151	1,689.08	**02003**		
BMT 55	64 x 64	25	60	90	151			1,629.81	**02007**

Doosan – BMT 55 – Boring bar holder

▲ directly screwed version





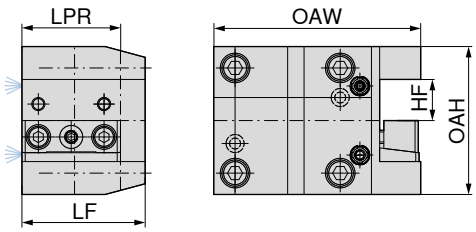


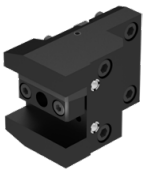
IC

Adapter	Hole pattern	DCONWS mm	LF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	82 481 ... £ Y7	
BMT55	64 x 64	40	60	85	90	90	110	1,140.26	**04004**

EMAG – BMT 55 –
Axial square section tool holder

▲ directly screwed version





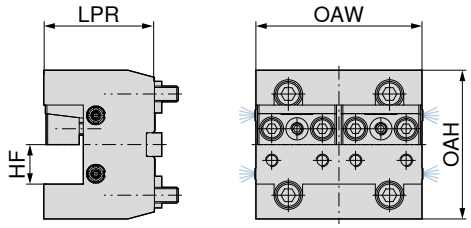
NEW

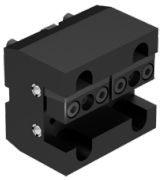
Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	LF mm	OAH mm	OAW mm	Left-hand 82 482 ... £ Y7		Left-hand 82 482 ... £ Y7	
BMT 55	64 X 64	25	60	75	90	126	1,130.29	**00001**	1,134.86	**00004**

EMAG – BMT 55 –
Radial square section tool holder

▲ directly screwed version







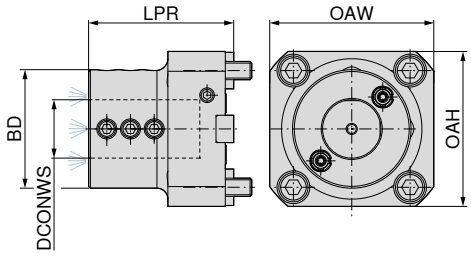
IC

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 482 ... £ Y7	
BMT 55	64 x 64	25	70	94	105	1,157.92	**01002**

16

EMAG – BMT 55 – Boring bar holder

▲ directly screwed version





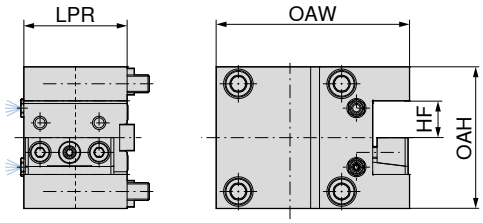


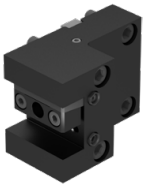
IC

Adapter	Hole pattern	DCONWS mm	BD mm	LPR mm	OAW mm	OAH mm	82 482 ... £ Y7	
BMT55	64 x 64	32	65	75	85	90	1,381.70	**04003**

HAAS/Doosan – BMT 65 – Axial square section tool holder

▲ directly screwed version





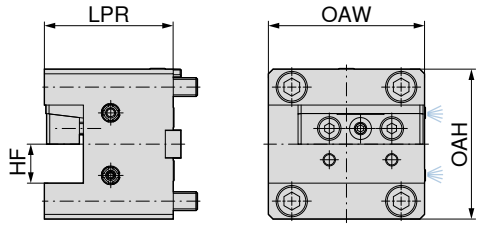
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 483 ... £ Y7		Left-hand 82 483 ... £ Y7	
BMT 65	70 x 73	25	70	96	131	1,821.97	**00001**		
BMT 65	70 x 73	25	75	97	131			1,384.68	**00005**

HAAS/Doosan – BMT 65 – Radial square section tool holder

▲ directly screwed version





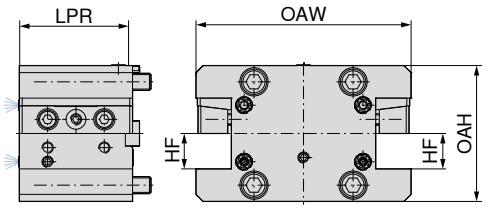
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Right-hand 82 483 ... £ Y7		Right-hand 82 483 ... £ Y7	
BMT 65	70 x 73	25	82.5	96	100	1,375.39	**05002**	1,351.85	**05006**

HAAS/Doosan – BMT 65 – Multi square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation





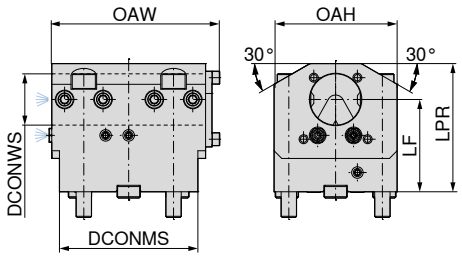
NEW

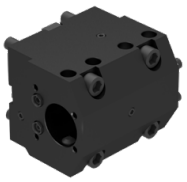
Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	82 483 ... £ Y7		82 483 ... £ Y7	
BMT 65	70 x 73	25	80	96	152	1,773.33	**02003**	1,704.71	**02007**

HAAS/Doosan – BMT 65 – Combi tool holder

▲ directly screwed version
▲ double-sided version





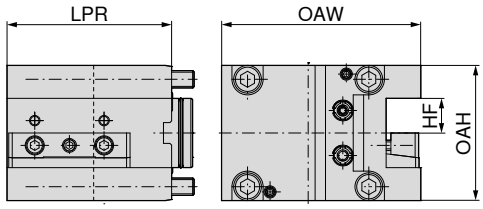


IC

Adapter	Hole pattern	DCONWS mm	LF mm	OAH mm	LPR mm	DCONMS mm	OAW mm	82 483 ... £ Y7	
BMT 65	70 x 73	40	78	96	100	108	125	2,416.41	**03004**

Mori/Seiki – BMT 40 – Axial square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation





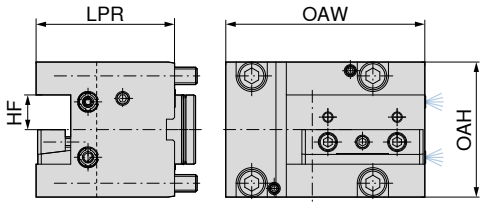
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 484 ... £ Y7		Left-hand 82 484 ... £ Y7	
BMT 40	70 x 62	20	95	78	115	1,067.34	**00001**	1,078.97	**00005**

Mori/Seiki – BMT 40 – Radial square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation





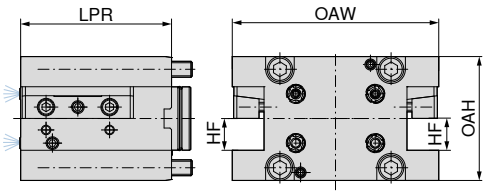
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	Left-hand 82 484 ... £ Y7		Left-hand 82 484 ... £ Y7	
BMT 40	70 x 62	20	80	78	115	1,121.62	**01002**	1,127.14	**01006**

Mori/Seiki – BMT 40 – Multi square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation





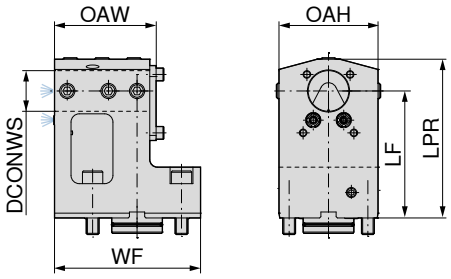
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	82 484 ... £ Y7	82 484 ... £ Y7
BMT 40	70 x 62	20	95	78	130	1,176.23 **02003**	1,175.43 **02007**

Mori/Seiki – BMT 40 – Combi tool holder

▲ directly screwed version





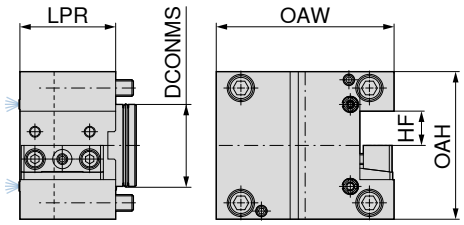


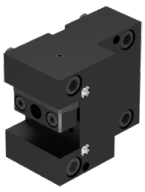
IC

Adapter	Hole pattern	DCONWS mm	OAH mm	OAW mm	LF mm	WF mm	LPR mm	82 484 ... £ Y7
BMT 40	70 x 62	32	78	80	100	115	125	1,067.34 **03004**

Mori/Seiki – BMT 60 – Axial square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation





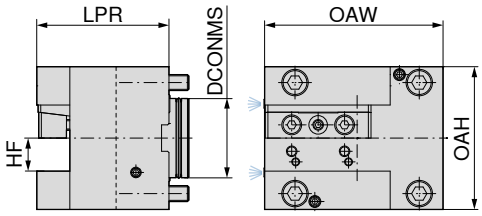
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	Left-hand 82 485 ... £ Y7		Left-hand 82 485 ... £ Y7	
BMT 60	94 x 84	25	60	70	108	130	1,067.34	**00001**	1,078.97	**00005**

Mori/Seiki – BMT 60 – Radial square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation





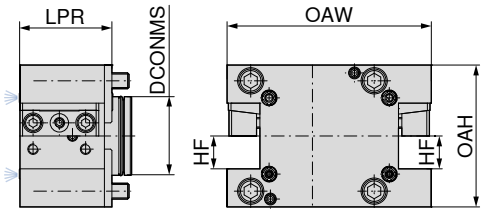
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	Left-hand 82 485 ... £ Y7		Left-hand 82 485 ... £ Y7	
BMT 60	94 x 84	25	60	100	108	135	1,121.62	**01002**	1,127.14	**01006**

Mori/Seiki – BMT 60 – Multi square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation





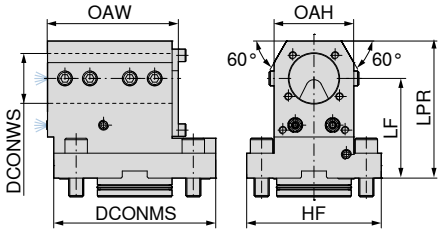
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	82 485 ... £ Y7		82 485 ... £ Y7	
BMT 60	94 x 84	25	60	70	108	155.5	1,284.82	**02003**	1,271.88	**02007**

Mori/Seiki – BMT 60 – Combi tool holder

▲ directly screwed version





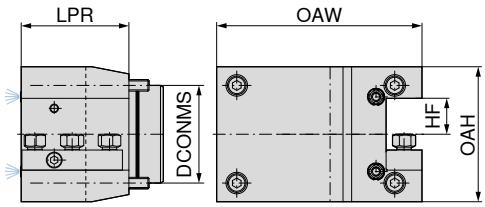


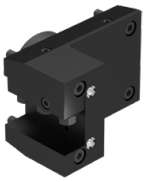
IC

Adapter	Hole pattern	DCONWS mm	OAH mm	LF mm	OAW mm	HF mm	LPR mm	DCONMS mm	82 485 ... £ Y7	
BMT 60	94 x 84	40	64	80	105	108	110	130	1,067.34	**03004**

Mazak – BMT 68 – Axial square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation





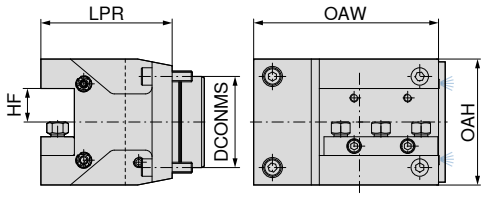
NEW

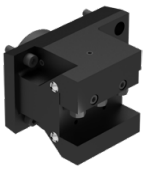
Direct Cooling

Adapter	Hole pattern	HF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	Left-hand 82 486 ... £ Y7		Left-hand 82 486 ... £ Y7	
BMT 68	110 x 68	25	68	75	94	143	1,022.04	**00001**	1,038.93	**00005**

Mazak – BMT 68 – Radial square section tool holder

▲ directly screwed version
▲ For right and left direction of rotation





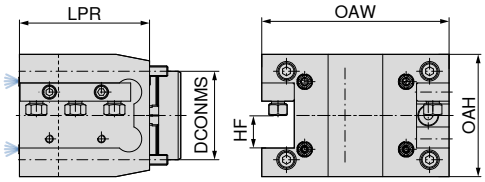
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	DCONMS mm	OAH mm	LPR mm	OAW mm	Left-hand 82 486 ... £ Y7		Left-hand 82 486 ... £ Y7	
BMT 68	110 x 68	25	68	94	98	143	1,038.70	**01002**	1,053.63	**01006**

EMAG – BMT 68 –
Multi square section tool holder

▲ directly screwed version





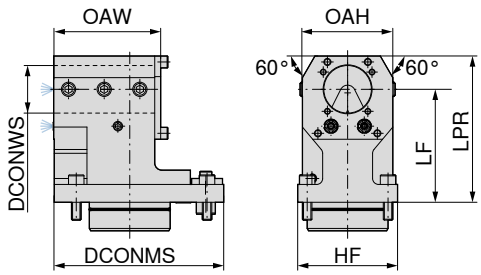
NEW

Direct Cooling

Adapter	Hole pattern	HF mm	DCONMS mm	OAH mm	LPR mm	OAW mm	82 486 ... £ Y7		82 486 ... £ Y7	
BMT 68	110 x 68	25	68	94	100	144	1,635.80	**02003**	1,582.66	**02007**

Mazak – BMT 68 –
Combi tool holder

▲ directly screwed version







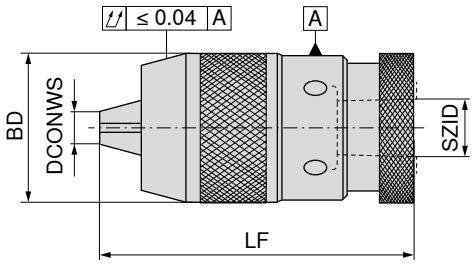
IC

Adapter	Hole pattern	DCONWS mm	OAH mm	HF mm	OAW mm	LF mm	LPR mm	DCONMS mm	82 486 ... £ Y7	
BMT 68	110 x 68	40	76	84	90	95	123	142.5	999.39	**03004**

Drill chuck

▲ For manual and key clamping
▲ Through-hardened and ground

Scope of supply:
Holder with clamping key





SZID	DCONWS mm	LF mm	BD mm	83 636 ... £ Y8	
B12	0 - 8	73	35	195.44	**012**
B12	0 - 10	92	43	231.09	**112**
B16	1 - 13	106	50	276.99	**016**
B16	3 - 16	110	57	226.14	**116**
B18	3 - 16	110	57	294.93	**018**

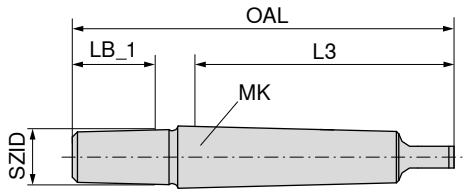


NC clamping key

Spare parts DCONWS	83 302 ... £ Y8	
0 - 8	20.72	**008**
0 - 10	22.08	**010**
1 - 13	18.22	**013**
3 - 16	21.64	**016**

Drill chuck adapter DIN 238

▲ Through-hardened and ground

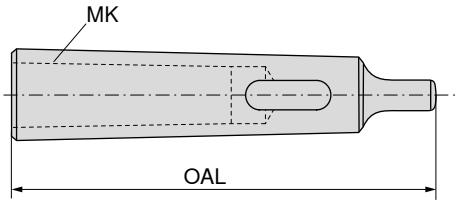




Adapter	SZID	l_3 mm	LB_1 mm	OAL mm	83 642 ... £ Y8	
MK1	B12	62.0	18.5	89.0	18.06	**120**
MK1	B16	62.0	24.0	97.0	18.06	**160**
MK1	B18	62.0	32.0	106.0	18.06	**180**
MK2	B12	75.0	18.5	106.5	18.06	**121**
MK2	B16	75.0	24.0	110.5	18.06	**161**
MK2	B18	75.0	32.0	117.5	18.45	**181**
MK3	B12	94.0	18.5	125.0	18.06	**122**
MK3	B16	94.0	24.0	134.0	18.06	**162**
MK3	B18	94.0	32.0	141.0	24.53	**182**
MK4	B16	117.5	24.0	159.0	41.49	**163**
MK4	B18	117.5	32.0	168.0	41.49	**183**
MK5	B16	149.5	24.0	196.0	156.47	**164**
MK5	B18	149.5	32.0	204.5	156.47	**184**

Reduction sleeve DIN 2185

▲ Through-hardened, ground internally and externally



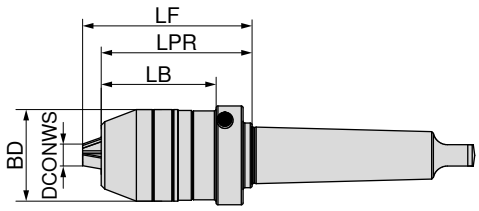


Adapter	d_1	OAL mm	83 644 ... £ Y8	
MK1	MK0	80	30.64	**010**
MK2	MK1	92	32.87	**020**
MK3	MK1	99	35.26	**130**
MK3	MK2	112	37.65	**030**
MK4	MK1	124	46.77	**240**
MK4	MK2	124	46.77	**140**
MK4	MK3	140	68.26	**040**
MK5	MK2	156	89.20	**250**
MK5	MK3	156	93.96	**150**
MK5	MK4	171	98.29	**050**

Short drill chuck – NC 2010

▲ bidirectional
▲ Torque moment = 12 Nm
▲ with Morse taper

Scope of supply:
Holder with clamping key





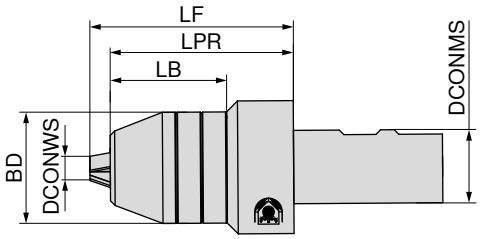


Adapter	DCONWS mm	BD mm	LB mm	LPR mm	LF mm	84 314 ... £ Y8	
MK3	0,5 - 13	48.5	64	84	93.0	584.59	**313**
MK3	2,5 - 16	51.0	64	84	94.5	603.15	**316**
MK4	2,5 - 16	51.0	64	84	94.5	646.10	**416**

Short drill chuck – NC 2010

▲ bidirectional
▲ Torque moment = 12 Nm
▲ with cylindrical shank

Scope of supply:
Holder with clamping key







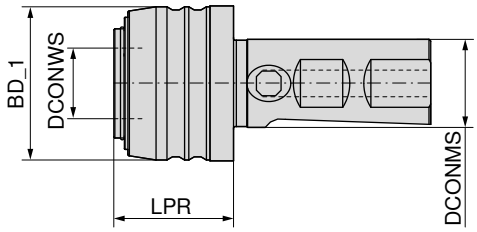
G 6,3 n_{max} 10000

DCONMS mm	DCONWS mm	BD mm	LB mm	LPR mm	LF mm	84 311 ... £ Y8	
25	0,5 - 13	48.5	50.9	80	89.0	645.90	**213**
32	0,5 - 13	48.5	50.9	80	89.0	645.90	**313**
32	2,5 - 16	51.0	50.9	80	90.5	815.24	**316**

16

Synchro quick change tapping chuck with minimum length compensation

▲ For collets according to DIN 6499
▲ With length compensation under tension and under compression (LZD)
▲ $p_{max.}$ = 50 bar





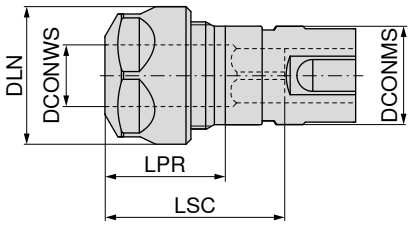


DCONWS mm	cutting range	SZID	LPR mm	BD_1 mm	DCONMS mm	LZD± mm	83 641 ... £ Y8	
20	M3 - M12	1	35	43.5	25	1,0 / 0,2	300.14	**012**
32	M6 - M20	2	56	60.0	25	1,0 / 0,2	342.10	**020**

Insert for synchro quick change tapping chuck with minimum length compensation

▲ SZID = for insert size

Scope of supply:
Includes lock nut







SZID	DCONWS mm	cutting range	LPR mm	DLN mm	LSC mm	for collet	DCONMS mm	83 608 ... £ Y8		
1	2 - 10	M3 - M12	24	28	42	426E (ER16)	20	247.61	**012**	1)
2	2 - 16	M6 - M20	28	42	59	430E (ER25)	32	288.42	**020**	

1) with 6 position lock nut


Lock nut


Lock nut IK

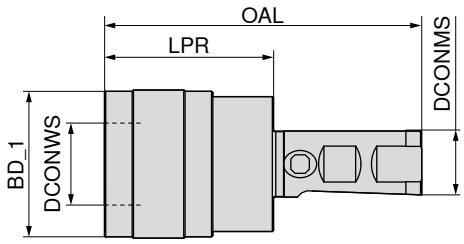

Lock nut


Y clamping key

Spare parts for Article no.		62 950 ... £ W7		83 950 ... £ Y8		62 950 ... £ W7		83 357 ... £ Y8	
83 608 012	M22x1,5 - SW25	33.81	**044**	M22x1,5	87.05	**054**	M22x1,5	26.90	**054**	29.58	**116**
83 608 020				M32x1,5	101.40	**055**	M32x1,5	28.01	**055**	29.58	**125**

Quick change tap chuck with length compensation

▲ With cylindrical shank
▲ With length compensation under tension and compression (LZD)
▲ Quick change adapters



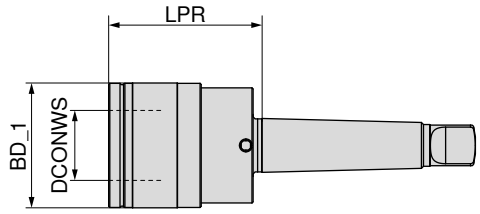




DCONMS mm	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	OAL mm	LZD± mm	83 648 ... £ Y8	
20	M3 - M12	01	41	38	19	91	9	444.50	**112**
20	M6 - M20	02	63	55	31	138	15	609.14	**120**
25	M3 - M12	01	41	38	19	97	9	444.50	**212**
25	M6 - M20	02	63	55	31	119	15	548.97	**220**
32	M3 - M12	01	41	38	19	102	9	453.77	**312**
32	M6 - M20	02	63	55	31	124	15	567.95	**320**

DIN 228B – Quick change tap chuck with length compensation

▲ With Morse taper shank
▲ With length compensation under tension and compression (LZD)







Adapter	cutting range	SZID	LPR mm	BD_1 mm	DCONWS mm	LZD± mm	83 646 ... £ Y8	
MK 2	M3 - M12	01	46	38	19	9	387.24	**212**
MK 3	M3 - M12	01	46	38	19	9	380.81	**312**
MK 3	M6 - M20	02	69	55	31	15	476.24	**320**
MK 4	M6 - M20	02	70	55	31	15	476.24	**420**

Accessories



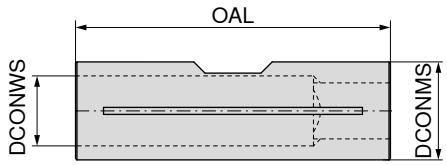
Collet

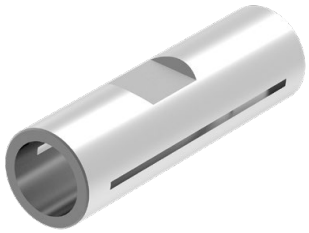
→ 288, 290–292

16

Clamping sleeve for taps in Weldon chucks

▲ For machines with rigid tapping
▲ For safe clamping of taps



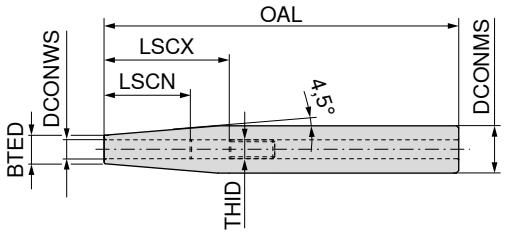


DCONWS h7 mm	DCONMS f6 mm	OAL mm	80 699 ... £ Y7	
3.5	6	26	94.85	**03500**
4.0	8	32	91.91	**04000**
4.5	8	26	91.91	**04500**
6.0	10	30	88.83	**06000**
7.0	10	31	88.83	**07000**
8.0	12	38	88.83	**08000**
9.0	12	38	88.83	**09000**
10.0	14	42	88.83	**10000**
11.0	14	42	88.83	**11000**
12.0	16	44	88.83	**12000**
14.0	18	45	88.83	**14000**
16.0	20	46	88.83	**16000**

Shrink fit extension

▲ For solid carbide and HSS shanks with h6 tolerance or better
▲ DRVS = Key size of the adjustment screw

TG





DCONMS h6 mm	DCONWS mm	BTED mm	OAL mm	LSCX mm	LSCN mm	THID	DRVS mm	84 310 ... £ Y8	
12	3	8	150					267.83	**003**
12	4	8	150					267.83	**004**
12	5	10	150					267.83	**005**
12	6	10	150	36	26	M5	2.5	267.83	**006**
16	3	10	150					267.83	**103**
16	4	10	150					267.83	**104**
16	5	10	150					267.83	**105**
16	6	10	150	36	26	M5	2.5	267.83	**106**
16	8	12	150	36	26	M6	3.0	267.83	**108**
20	3	10	150					267.83	**203**
20	4	10	150					267.83	**204**
20	5	10	150					267.83	**205**
20	6	10	150	36	26	M5	2.5	267.83	**206**
20	8	12	150	36	26	M6	3.0	267.83	**208**
20	10	14	150	42	32	M8x1	3.0	267.83	**210**
20	12	16	150	47	37	M10x1	5.0	267.83	**212**
25	3	10	150					267.83	**303**
25	4	10	150					267.83	**304**
25	5	15	150					267.83	**305**
25	6	20	150	36	26	M5	2.5	267.83	**306**
25	8	20	150	36	26	M6	3.0	267.83	**308**
25	10	20	150	42	32	M8x1	3.0	267.83	**310**
25	12	20	150	47	37	M10x1	5.0	267.83	**312**
25	14	20	150	47	37	M10x1	5.0	267.83	**314**
25	16	22	150	50	40	M10x1	5.0	267.83	**316**
32	6	20	150	36	26	M5	2.5	267.83	**406**
32	8	20	150	36	26	M6	3.0	267.83	**408**
32	10	24	150	42	32	M8x1	3.0	267.83	**410**
32	12	24	150	47	37	M10x1	5.0	267.83	**412**
32	14	27	150	47	37	M10x1	5.0	267.83	**414**
32	16	27	150	50	40	M10x1	5.0	267.83	**416**
32	18	27	150	50	40	M10x1	5.0	267.83	**418**
32	20	27	150	52	42	M10x1	5.0	267.83	**420**

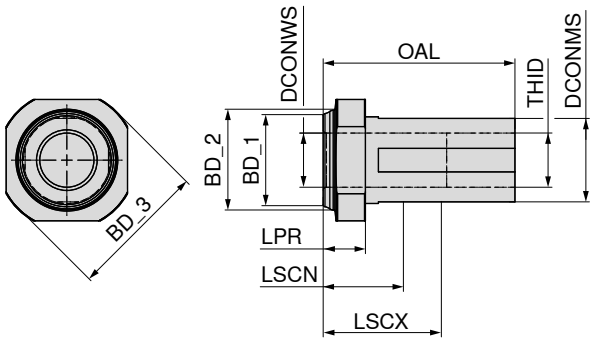
Observe the minimum clamping depth on → **Page 312**.

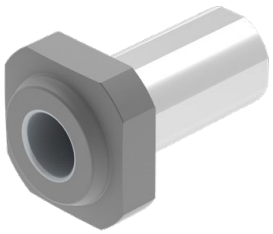
HyTens – Turn

- ▲ Hydraulic chuck with cylindrical shank
- ▲ For the hydraulic clamping of cylindrical tool shanks tol. h6, boring bars and cylindrical tool holders tol. h7, g6 in fixed base holders
- ▲ One screw for locking the boring bar
- ▲ With length setting screw – can also be removed, to enable the boring bar to be slid through
- ▲ High-precision clamping with a repeatability of 3 µm

Scope of supply:

Base body with backstop screw and pressure screw







DCONMS mm	DCONWS mm	BD_1 mm	BD_2 mm	BD_3 mm	LPR mm	OAL mm	LSCX mm	LSCN mm	THID	83 402 ... £ Y8	
32	16	38	41	59	19.5	78.5	51	41	M22x1	704.94	**31699**
32	20	38	41	59	19.5	78.5	51	41	M22x1	704.94	**32099**
40	16	43	46	64	19.5	88.5	51	41	M22x1	727.00	**41699**
40	20	43	46	64	19.5	88.5	51	41	M22x1	727.00	**42099**
40	25	43	46	64	19.5	88.5	57	47	M27x1	727.00	**42599**



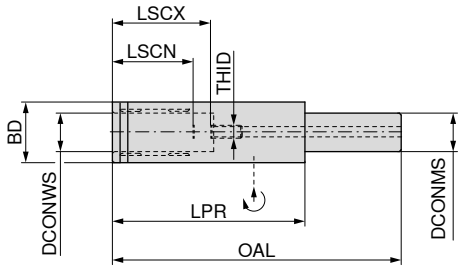
Stop screw IK

Spare parts DCONWS	83 950 ... £ Y7	
16 - 20	51.50	**48500**
25	81.26	**48600**

Hydraulic expansion extension especially for Hydraulic Chucks

▲ For solid carbide and HSS shanks with h6 tolerance or better

Scope of supply:
Base body with backstop screw and pressure screw







G 2,5 n_{max} 25000

84 313 ...

DCONMS mm	DCONWS mm	BD mm	LPR mm	OAL mm	LSCX mm	LSCN mm	THID	£ Y8	
20	12	25.0	100	150	46	36	M6	936.01	**112**
20	20	31.5	100	150	51	41	M10x1	936.01	**120**
32	20	31.5	90	150	51	41	M10x1	936.01	**132**
32	20	31.5	90	200	51	41	M10x1	967.66	**232**

Observe the minimum clamping depth on → **Page 312**.



Stop screw IK

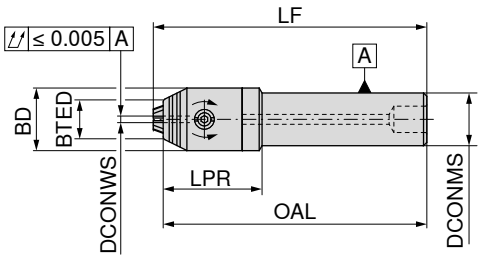
83 950 ...

Spare parts for Article no.		£ Y7	
84 313 112	M6x12,5 - SW3	25.16	**419**
84 313 120	M10x1x13,5 - SW5	25.16	**421**
84 313 132	M10x1x13,5 - SW5	25.16	**421**
84 313 232	M10x1x13,5 - SW5	25.16	**421**

Micro-precision collet chuck

▲ bidirectional
▲ for speeds up to 60,000 1/min.

Scope of supply:
Holder including clamping wrench SW 2 x 60 mm







G 2,5 n_{max} 18000

84 315 ...

DCONMS mm	DCONWS mm	LPR mm	OAL mm	LF mm	BD mm	BTED mm	TQX Nm	£ Y7	
16	0,2 - 3,4	30	80	83	19	12	2	1,152.00	**161**
16	0,2 - 3,4	30	100	103	19	12	2	1,212.79	**162**
16	0,2 - 3,4	30	160	163	19	12	2	1,328.01	**163**
20	0,2 - 3,4	28	80	83	19	12	2	1,152.00	**201**
20	0,2 - 3,4	28	100	103	19	12	2	1,212.79	**202**
20	0,2 - 3,4	28	160	163	19	12	2	1,328.01	**203**

Torx blade


Torque screwdriver

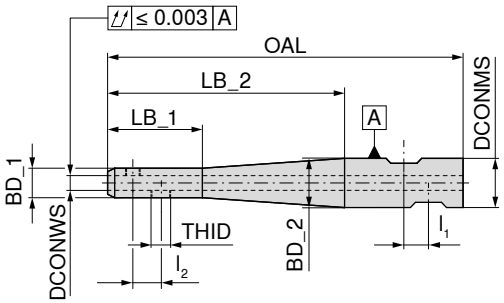
80 950 ... | **80 950 ...**

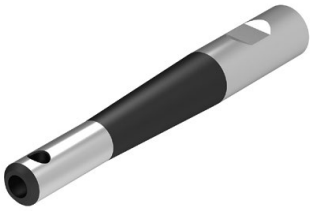
Spare parts for Article no.	£ Y7			£ Y7	
84 315 161	11.95	**152**	0,5 - 2,0 Nm	217.91	**191**
84 315 162	11.95	**152**	0,5 - 2,0 Nm	217.91	**191**
84 315 163	11.95	**152**	0,5 - 2,0 Nm	217.91	**191**
84 315 201	11.95	**152**	0,5 - 2,0 Nm	217.91	**191**
84 315 202	11.95	**152**	0,5 - 2,0 Nm	217.91	**191**
84 315 203	11.95	**152**	0,5 - 2,0 Nm	217.91	**191**

Micro-extension

▲ for shanks with lateral clamping flat to DIN 6535 HB / 1835 B

Scope of supply:
Holder with shank clamping screw







DCONWS mm	BD_1 mm	LB_1 mm	LB_2 mm	OAL mm	DCONMS mm	BD_2 mm	l_1 mm	l_2 mm	THID	TQX Nm	80 642 ... £ Y7	
6	12	40	40	85	12	12	10	10	M6 x 0,5	7	280.17	**00600**
6	12	40	100	150	20	20	10	10	M6 x 0,5	7	341.79	**10600**
8	15	40	40	88	16	15	10	10	M8 x 0,75	8	277.37	**00800**
8	15	40	100	150	20	20	10	10	M8 x 0,75	8	333.38	**10800**
10	18	40	40	90	20	18	10	10	M10 x 1	12	277.37	**01000**
10	18	40	100	150	20	20	10	10	M10 x 1	12	333.38	**11000**
12	21	40	40	90	20	21	10	10	M12 x 1	15	277.37	**01200**
12	21	40	100	150	20	21	10	10	M12 x 1	15	333.38	**11200**
14	23	40	40	90	20	23	10	10	M12 x 1	15	282.97	**01400**
14	23	40	100	150	20	23	10	10	M12 x 1	15	341.79	**11400**
16	26	40	50	106	25	26	10	12	M14 x 1	18	288.55	**01600**[1)]
16	26	40	100	156	25	26	10	12	M14 x 1	18	361.42	**11600**[1)]
18	28	40	50	106	25	28	10	12	M14 x 1	18	302.55	**01800**[1)]
18	28	40	100	156	25	28	10	12	M14 x 1	18	369.79	**11800**[1)]
20	31	40	50	110	32	31	10	14	M16 x 1	20	299.79	**02000**[1)]
20	31	40	100	160	32	31	10	14	M16 x 1	20	364.21	**12000**[1)]

1) only pre-balanced design



Clamping screw

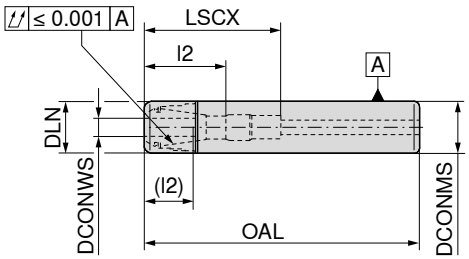
Spare parts DCONWS		80 950 ... £ Y7	
6	M6X0,5X3	19.74	**21700**
8	M8x0,75x4	19.74	**21800**
10	M10x1x5	19.74	**21900**
12 - 14	M12x1x5	20.31	**30000**
16 - 18	M14x1x6,5	20.85	**31000**
20	M16x1x6,5	21.46	**32000**

16

ER-Mini precision collet chuck – Centro-P

▲ Maximum clamping range covered according to ISO tolerance field H10
▲ Roll key required for clamping

Scope of supply:
Holder **without** nut, **without** backstop







DCONMS mm	DCONWS mm	DLN mm	OAL mm	LSCX mm	l_2 (l_2) mm	for collet	84 456 ... £ Y8	
10	1 - 5	10	80	16		4004E (ER08)	274.31	**00400**
10	1 - 5	10	150	16		4004E (ER08)	433.07	**005**
10	1 - 5	10	200	16		4004E (ER08)	416.20	**006**
12	1 - 5	10	120	16		4004E (ER08)	294.49	**11000**
12	1 - 5	10	160	16		4004E (ER08)	306.60	**11200**
12	1 - 5	10	200	16		4004E (ER08)	375.16	**11400**
16	1 - 7	16	150	68	18 - 36 (12 - 26)	4008E (ER11)	318.75	**007**
16	1 - 7	16	200	68	18 - 36 (12 - 26)	4008E (ER11)	330.08	**008**
16	1 - 10	22	150	68	28 - 48 (16 - 35)	426E (ER16)	318.75	**010**
16	1 - 10	22	200	68	28 - 48 (16 - 35)	426E (ER16)	304.57	**12000**
20	1 - 10	22	150	68	28 - 48 (16 - 35)	426E (ER16)	282.29	**102**
20	1 - 10	22	200	68	28 - 48 (16 - 35)	426E (ER16)	330.08	**104**

LSCX = Clamping depth without back stop screw for shanks
l_2 = with back stop screw 1, dimension in brackets (l_2) = with back stop screw 2
dimension OAL when using tightening nuts with seals 4 mm longer






Spare parts for collet	Mini lock nut IK 84 950 ... £ Y8		Mini lock nut 84 950 ... £ Y8		Stop screw 2 83 950 ... £ Y8		Stop screw 1 83 950 ... £ Y8	
4004E (ER08)			120.83	**040**				
4008E (ER11)			100.56	**041**	M8x1 - SW4	57.32 **340**	M8x1 - SW4	38.17 **336**
426E (ER16)	97.92	**035**	80.34	**034**	M11x1 - SW6	60.14 **341**	M11x1 - SW6	40.28 **337**

Accessories



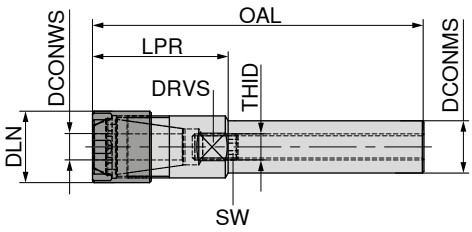



ER collet	Device	Roll key	Roll key device
→ 268–276, 279	→ 285	→ 286	→ 286

The transferable torques can be found on → **Page 313**.

ER collet chuck with mini clamping nut

▲ with cylindrical shank





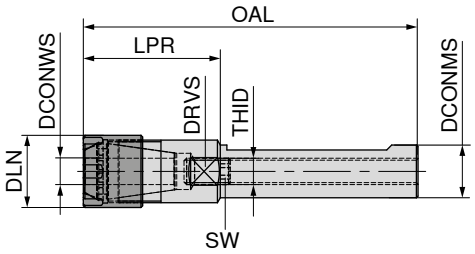


DCONMS h6 mm	DCONWS mm	OAL mm	LPR mm	DLN mm	THID	DRVS mm	SW mm	for collet	83 453 ... £ Y8	
8	1 - 5	81	26	12		9		4004E (ER08)	164.61	**081** 1)
12	1 - 5	157	20	12	M5x0,8	10	2.5	4004E (ER08)	348.14	**122**
16	1 - 7	185	25	16	M7,5x0,5	14	3.0	4008E (ER11)	342.04	**163**
16	1 - 10	117	37	22	M11x1	17	5.0	426E (ER16)	348.14	**164**
16	1 - 10	199	39	22	M8x1,25	17	4.0	426E (ER16)	342.04	**165**
20	1 - 10	168	28	22	M11x1	17	5.0	426E (ER16)	245.32	**204**
25	1 - 13	168	28	28	M14x1	22	5.0	428E (ER20)	283.82	**254**
25	1 - 16	189	39	35	M18x1	27	5.0	430E (ER25)	357.53	**256**

1) without coolant supply (form A)

ER collet chuck with mini clamping nut

▲ with cylindrical shank and clamping flat







DCONMS h6 mm	DCONWS mm	OAL mm	LPR mm	DLN mm	THID	DRVS mm	SW mm	for collet	83 454 ... £ Y8	
20	1 - 10	168	28	22	M11x1	17	5	426E (ER16)	245.32	**204**
20	1 - 13	138	38	28	M11x1	22	5	428E (ER20)	176.38	**206**
20	1 - 16	146	46	35	M14x1	27	5	430E (ER25)	205.67	**208**
25	1 - 13	168	28	28	M14x1	22	5	428E (ER20)	283.82	**254**
25	1 - 16	189	39	35	M18x1	27	5	430E (ER25)	357.53	**256**

Spare parts for ER collet chuck with mini lock nut


ER Mini clamping key

83 950 ...

Spare parts for collet	£ Y8	
4004E (ER08)	44.43	099
4004E (ER08)	44.43	099
4008E (ER11)	44.43	100
426E (ER16)	49.71	101
426E (ER16)	49.71	101
428E (ER20)	46.65	102
430E (ER25)	46.65	103


Mini lock nut

62 950 ...

	£ W7	
M10x0,75	74.48	067
M10x0,75	74.48	067
M13x0,75	66.89	065
M19x1	46.66	066
M19x1	46.66	066
M24x1	74.08	068
M30x1	74.08	069


Mini IK

83 950 ...

	£ Y8	
M19x1	112.26	058
M19x1	112.26	058
M24x1	114.35	059
M30x1	120.54	060

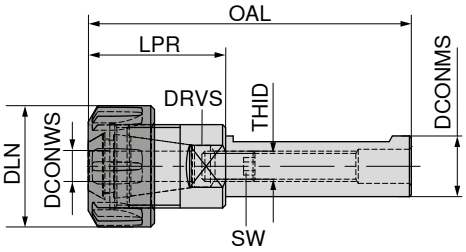

Stop screw IK

83 950 ...

	£ Y8	
M5x0,8 SW 2,5	3.34	003
M7,5x0,5 SW 3	3.89	004
M11x1 SW 5	4.43	006
M8x1,25 SW 4	4.26	005
M14x1 SW 5	4.64	007
M18x1 SW 5	4.98	008

ER Collet Chuck

▲ with cylindrical shank and clamping flat







83 455 ...

DCONMS $_{h6}$ mm	DCONWS mm	OAL mm	LPR mm	DLN mm	THID	DRVS mm	SW mm	for collet	£ Y8	
40	2 - 20	100	35	50	M22x1,5	36	5	470E (ER32)	208.98	**401**
40	2 - 20	160	35	50	M22x1,5	36	5	470E (ER32)	258.02	**402**
40	3 - 30	139	59	63	M28x1,5	40	6	472E (ER40)	239.57	**405**


Y clamping key

83 357 ...

Spare parts for collet	£ Y8	
470E (ER32)	43.08	132
472E (ER40)	48.80	140


Stop screw IK

83 950 ...

	£ Y8	
M28x1,5x25 SW 6	7.94	096


Stop screw

83 950 ...

	£ Y8	
M22x1,5x20 SW 5	6.44	095


Lock nut IK

83 950 ...

	£ Y8	
M40x1,5	108.45	056
M50x1,5	130.50	057


Lock nut

62 950 ...

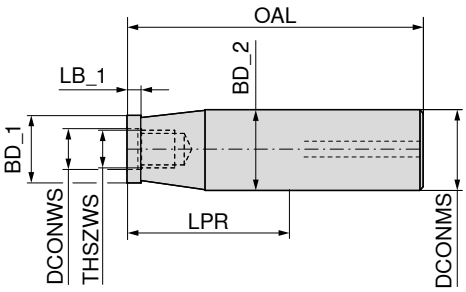
	£ W7	
M40x1,5	35.87	65600
M50x1,5	34.86	65700

Accessories


ER collet

→ 268–276, 278–279

Cylindrical milling bar for cutters with threaded end

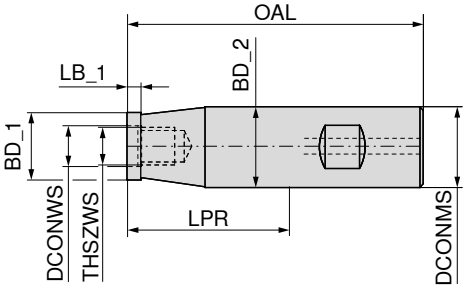






DCONMS h6 mm	THSZWS	DCONWS mm	LPR mm	BD_1 mm	LB_1 mm	BD_2 mm	OAL mm	56 727 ... £ WA	
12	M5	5.5	20	9.5	7.8	11.5	65	149.74	052
12	M6	6.5	20	11.5	7.8	11.5	65	138.80	060
12	M6	6.5	40	11.5	7.8	11.5	85	149.73	062
16	M8	8.5	20	13.8	7.8	15.8	68	154.94	081
16	M8	8.5	40	13.8	7.8	15.8	88	166.58	082
20	M10	10.5	25	18.0	7.8	19.8	75	161.41	101
20	M10	10.5	45	18.0	7.8	19.8	95	174.51	102
25	M12	12.5	50	21.0	7.8	24.8	106	182.24	122
32	M16	17.0	50	29.0	12.0	31.8	110	196.59	162

Milling bar for cutters with threaded end (Weldon)



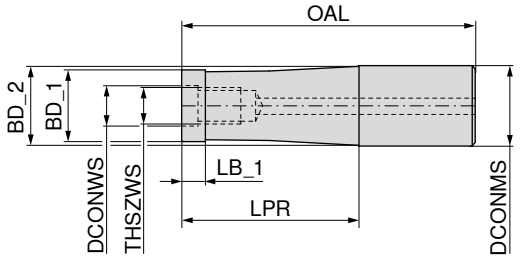




DCONMS h6 mm	THSZWS	DCONWS mm	LPR mm	BD_1 mm	LB_1 mm	BD_2 mm	OAL mm	56 729 ... £ WA	
12	M6	6.5	20	11.5	7.8	11.5	65	138.80	060
12	M6	6.5	40	11.5	7.8	11.5	85	149.73	062
16	M8	8.5	20	13.8	12.0	15.8	68	154.94	081
16	M8	8.5	40	13.8	8.0	15.8	88	166.58	082
20	M10	10.5	25	18.0	8.0	19.8	75	161.41	101
20	M10	10.5	45	18.0	12.0	19.8	95	174.51	102
25	M12	12.5	30	21.0	12.0	24.9	86	168.06	121
25	M12	12.5	50	21.0	8.0	24.9	106	182.24	122
32	M16	17.0	50	29.0	12.0	31.8	110	196.59	162

Screw-in adapter with cylindrical shank

▲ Vibration-damped





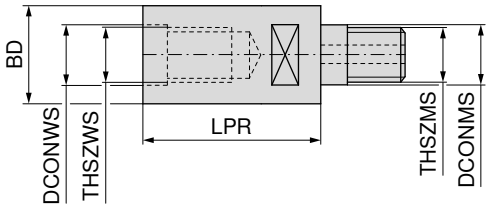




DCONMS h6 mm	THSZWS	DCONWS mm	LPR mm	BD_1 mm	LB_1 mm	BD_2 mm	OAL mm	Solid carbide 56 743 ... £ WC		Densimet 56 744 ... £ WC	
12	M5	5.5	40	9.5	9	11.3	85			554.71	**052**
12	M5	5.5	60	9.5	9	11.3	105			599.53	**053**
12	M5	5.5	80	9.5	9	11.3	125			666.79	**054**
12	M6	6.5	20	11.5		11.5	65	730.53	**060**		
12	M6	6.5	40	11.5		11.5	85	780.15	**062**		
12	M6	6.5	60	11.5		11.5	105	864.91	**063**		
12	M6	6.5	80	11.5		11.5	125	946.71	**064**		
12	M6	6.5	100	11.5		11.5	145	1,028.53	**065**		
16	M8	8.5	40	14.2	9	15.3	88	827.57	**082**	680.77	**082**
16	M8	8.5	60	14.2	9	15.3	108	914.63	**083**	736.83	**083**
16	M8	8.5	80	14.2	9	15.3	128	985.82	**084**	806.87	**084**
16	M8	8.5	100	14.2	9	15.3	148	970.09	**085**	888.11	**085**
16	M8	8.5	120	14.2	9	15.3	168	1,037.26	**086**	977.76	**086**
16	M8	8.5	150	14.2	9	15.3	198			1,232.69	**087**
20	M10	10.5	60	18.5	9	19.3	110	1,052.08	**103**	860.09	**103**
20	M10	10.5	80	18.5	9	19.3	130	1,072.36	**104**	958.18	**104**
20	M10	10.5	100	18.5	9	19.3	150	1,286.75	**105**	1,070.22	**105**
20	M10	10.5	120	18.5	9	19.3	170	1,326.53	**106**	1,187.88	**106**
20	M10	10.5	140	18.5	9	19.3	190	1,478.51	**107**	1,384.01	**107**
25	M12	12.5	75	23.0	9	24.3	131			1,291.54	**124**
25	M12	12.5	80	23.0	9	24.3	136	1,145.40	**124**		
25	M12	12.5	100	23.0	9	24.3	156	1,472.91	**125**	1,428.82	**125**
25	M12	12.5	120	23.0	9	24.3	176	1,656.76	**126**		
25	M12	12.5	125	23.0	9	24.3	181			1,563.29	**126**
25	M12	12.5	140	23.0	9	24.3	196	1,913.88	**127**		
25	M12	12.5	150	23.0	9	24.3	206			1,756.62	**127**
25	M12	12.5	160	23.0	9	24.3	216	2,171.00	**128**		
25	M12	12.5	175	23.0	9	24.3	231			1,989.16	**128**
32	M16	17.0	100	29.0	9	31.5	160	2,439.83	**165** 1)		
32	M16	17.0	150	29.0	9	31.5	210	2,959.93	**166** 1)		
32	M16	17.0	200	29.0	9	31.5	260	3,567.69	**167** 1)		
32	M16	17.0	250	29.0	9	31.5	310	4,286.52	**168** 1)		
32	M16	17.0	300	29.0	9	31.5	360	4,900.12	**169** 1)		

1) On request

Extensions for milling cutters with threaded end

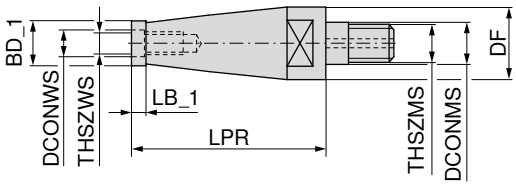






THSZWS	THSZMS	DCONWS mm	DCONMS mm	LPR mm	BD mm	56 733 ... £ WA	
M8	M8	8.5	8.5	40	13.8	168.06	**081**
M8	M8	8.5	8.5	60	13.8	207.01	**082**
M10	M10	10.5	10.5	40	18.0	174.51	**101**
M10	M10	10.5	10.5	60	18.0	213.46	**102**
M12	M12	12.5	12.5	40	21.0	180.96	**121**
M12	M12	12.5	12.5	60	21.0	219.91	**122**
M16	M16	17.0	17.0	40	29.0	187.44	**161**
M16	M16	17.0	17.0	60	29.0	226.59	**162**

Reductions for milling cutters with threaded end







THSZWS	THSZMS	DCONMS mm	DCONWS mm	LPR mm	BD_1 mm	DF mm	LB_1 mm	56 735 ... £ WA	
M6	M8	8.5	6.5	20	9.5	13.8	7.8	148.57	**060**
M8	M10	10.5	8.5	40	13.8	18.0	7.8	174.51	**081**
M8	M12	12.5	8.5	60	13.8	21.0	7.8	188.67	**082**
M10	M12	12.5	10.5	40	18.0	21.0	7.8	180.96	**101**
M10	M16	17.0	10.5	60	18.0	29.0	7.8	219.91	**102**
M12	M16	17.0	12.5	40	21.0	29.0	7.8	180.96	**121**

MultiChange – Programme Overview

The "MultiChange" interchangeable head system enables an extremely fast and problem free tool change. Provides quick changeover and concentricity with the highest stability at the same time. For a multitude of applications, the suitable interchangeable heads are available in the following chapters.

Exchangeable heads

→ Chapter 2, Solid carbide drilling

Page No. 2|107

Solid Carbide NC Spot Drills

Ø 8, 10, 12, 16, 20 mm
NOF 2


SIG 90°


SIG 120°


SIG 142°

→ Chapter 4, Reaming and countersinking

Page No. 4|18 + 4|19

Replaceable reaming heads

Ø 8,00 – 30,20 mm


Through hole

Ø 12,20 – 30,20 mm


Blind hole

→ Chapter 14, Solid carbide milling cutters

Page No. 14|198 – 14|202

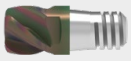
Solid carbide shoulder mills
Ø 8, 10, 12, 16, 20 mm /
ZEFP 3+4


Type PCR-UNI


Type PCR-ALU


Type N

Solid carbide torus bull nose milling cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 3+4


Type W


Type N

Solid carbide rough and finish milling cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 4+6


Type NF

Solid carbide finish milling cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 6


Type N

Solid carbide ball-nosed end mills
Ø 10, 12, 16, 20 mm / ZEFP 4


Type N

Solid carbide high-feed cutters
Ø 8, 10, 12, 16, 20 mm / ZEFP 6


Type N

Solid carbide quarter round cutter
Ø 8, 10, 12, 16, 20 mm / ZEFP 6


Type N

Solid carbide deburring cutters
Ø 10, 12, 16, 20 mm / ZEFP 4+6


Type N


Type N

NOF / ZEFP = Number of cutting edges

Tool holder

→ Catalogue – Clamping technology, Chapter 16 Accessories

Page No. 16|259 – 16|261

OAL 60 – 90 mm


Tapered 87° / Steel

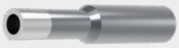

Cylindrical* / Steel

OAL 85 – 120 mm


Tapered 87° / Steel


Cylindrical* / Steel


Tapered 87° / Solid carbide


Cylindrical* / Solid carbide

OAL 110 – 150 mm


Tapered 87° / Solid carbide


Cylindrical* / Solid carbide

OAL 150 – 200 mm


Tapered 87° / Solid carbide


Cylindrical* / Steel


Cylindrical* / Solid carbide

OAL 200 – 250 mm


Cylindrical* / Steel


Cylindrical* / Solid carbide

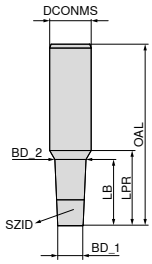
* only conditionally suitable for milling

MultiChange – Holders

▲ Tapered 87°
▲ SZID = Coupling Size

Scope of supply:
Holder without mounting key













							Steel		Steel		Solid carbide		Solid carbide		Solid carbide	
							84 001 ...		84 004 ...		84 005 ...		84 007 ...		84 010 ...	
SZID	BD_1 mm	BD_2 mm	DCONMS mm	OAL mm	LB mm	LPR mm	£ Y8		£ Y8		£ Y8		£ Y8		£ Y8	
06	7.8	9.4	10	60	18	19	196.88	**080**								
06	7.8	9.4	10	85	43	44			233.11	**080**	394.74	**080**				
06	7.8	9.4	10	110	68	69							436.84	**080**		
06	7.8	9.4	10	150	108	109									503.36	**080**
08	9.8	12.0	16	70	25	29	200.09	**100**								
08	9.8	13.0	16	90	38	41			238.98	**100**	430.50	**100**				
08	9.8	14.9	16	110	60	61							483.39	**100**		
08	9.8	15.4	16	150	100	101									562.62	**100**
10	11.8	14.2	16	70	27	29	221.82	**120**								
10	11.8	15.2	16	90	40	41			243.98	**120**	430.50	**120**				
10	11.8	16.6	20	110	56	59							617.39	**120**		
10	11.8	19.5	20	150	98	99									664.94	**120**
12	15.8	18.2	20	80	27	29	238.10	**160**								
12	15.8	19.5	20	105	53	54			293.76	**160**	605.21	**160**				
12	15.8	19.5	20	130	78	79							722.90	**160**		
12	15.8	19.5	20	150	98	99									741.64	**160**
16	19.8	23.2	25	90	39	41	279.32	**200**								
16	19.8	24.5	25	120	60	61			343.56	**200**	741.87	**200**				
16	19.8	24.5	25	150	90	91							838.75	**200**		
16	19.8	24.5	25	200	140	141									941.03	**200**

Assembly instructions can be found on → **Page 293**

Accessories




insertion key	Adjustable wrench
→ 293	→ 293

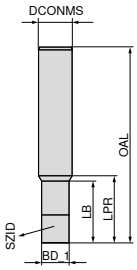
16

MultiChange – Holders

▲ cylindrical
▲ only conditionally suitable for milling
▲ SZID = Coupling Size

Scope of supply:
Holder without mounting key







						Steel		Steel		Steel		Steel	
						84 000 ...		84 002 ...		84 008 ...		84 011 ...	
SZID	BD_1 mm	DCONMS mm	OAL mm	LB mm	LPR mm	£ Y8		£ Y8		£ Y8		£ Y8	
06	7.8	10	60	17	19	178.80	080						
06	7.8	10	85	42	44			209.79	080				
06	7.8	10	150	107	109					293.76	080		
08	9.8	12	70	22	24	181.75	100						
08	9.8	12	90	42	44			215.00	100				
08	9.8	12	150	102	104					301.01	100		
10	11.8	16	70	17	21	201.65	120						
10	11.8	16	90	37	41			219.55	120				
10	11.8	16	150	97	101					307.37	120		
12	15.8	16	80	30	31	216.58	160						
12	15.8	16	105	55	56			264.35	160				
12	15.8	16	150	100	101					370.26	160		
12	15.8	16	200	150	151							670.85	160
16	19.8	25	90	26	31	253.94	200						
16	19.8	25	120	56	61			309.14	200				
16	19.8	25	200	136	141					432.72	200		
16	19.8	25	250	186	191							745.50	200

Assembly instructions can be found on → **Page 293**

Accessories



insertion key
→ 293



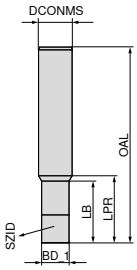
Adjustable wrench
→ 293

MultiChange – Holders

▲ cylindrical
▲ only conditionally suitable for milling
▲ SZID = Coupling Size

Scope of supply:
Holder without mounting key








Solid carbide


Solid carbide


Solid carbide


Solid carbide

SZID	BD_1 mm	DCONMS mm	OAL mm	LB mm	LPR mm	84 003 ... £ Y8		84 006 ... £ Y8		84 009 ... £ Y8		84 012 ... £ Y8	
06	7.8	10	85	42	44	394.74	**080**						
06	7.8	10	110	67	69			436.84	**080**				
06	7.8	10	150	107	109					503.36	**080**		
08	9.8	12	90	42	44	418.22	**100**						
08	9.8	12	110	62	64			455.38	**100**				
08	9.8	12	150	102	104					534.11	**100**		
10	11.8	16	90	37	41	430.50	**120**						
10	11.8	16	110	57	61			483.39	**120**				
10	11.8	16	150	97	101					562.62	**120**		
12	15.8	16	105	55	56	468.47	**160**						
12	15.8	16	130	80	81			639.39	**160**				
12	15.8	16	150	100	101					725.55	**160**		
12	15.8	16	200	150	151							957.81	**160**
16	19.8	25	120	56	61	741.87	**200**						
16	19.8	25	150	86	91			838.75	**200**				
16	19.8	25	200	136	141					941.03	**200**		
16	19.8	25	250	186	191							1,449.81	**200**

Assembly instructions can be found on → **Page 293**

Accessories

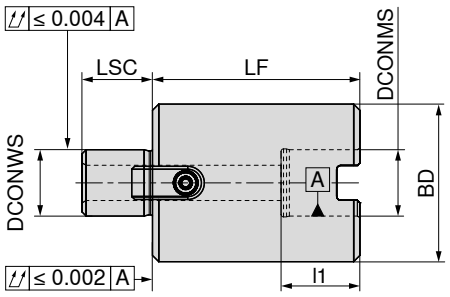

insertion key
→ 293


Adjustable wrench
→ 293

Extension for Shell mill arbors

▲ Variable applications through usage of one or two extensions (max. 2 x 50 mm possible)

Scope of supply:
Holder without clamping screw





DCONWS $_{h5}$ mm	DCONMS $_{H5}$ mm	LF mm	BD mm	LSC mm	l_1 mm	82 648 ... £ Y8/3B	
16	16	50	38	17	19	152.71	**050**
16	16	75	38	17	19	153.78	**075**
22	22	50	48	19	21	156.38	**150**
22	22	75	48	19	21	157.90	**175**
27	27	50	58	21	23	163.73	**250**
27	27	75	58	21	23	166.76	**275**
32	32	50	78	24	26	177.55	**350**
32	32	75	78	24	26	183.85	**375**
40	40	50	88	27	29	220.33	**450**
40	40	75	88	27	29	228.95	**475**


Screw for drivers


Driver

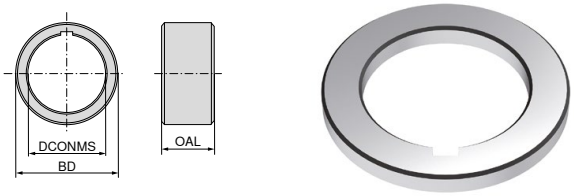

Cross screw


Cross screw

Spare parts for Article no.		83 950 ... £ Y8/3B			83 950 ... £ Y8/3B			82 649 ... £ Y8/3B			82 649 ... £ Y8/3B	
82 648 050	M3x8	1.29	**296**	8x9x17,5	18.20	**120**	M8x125	8.64	**001**	M8x80	5.32	**050**
82 648 075	M3x8	1.29	**296**	8x9x17,5	18.20	**120**				M8x100	7.38	**075**
82 648 150	M4x12	1.69	**297**	10x11x20,5	18.79	**121**	M10x125	12.80	**100**	M10x80	8.44	**150**
82 648 175	M4x12	1.69	**297**	10x11x20,5	18.79	**121**				M10x100	11.15	**175**
82 648 250	M5x12	1.74	**136**	12x13x24,3	20.72	**122**	M12x125	19.58	**200**	M12x80	12.35	**250**
82 648 275	M5x12	1.74	**136**	12x13x24,3	20.72	**122**				M12x100	16.68	**275**
82 648 350	M5x20	1.84	**137**	14x21x21,2	20.94	**123**	M16x125	28.74	**300**	M16x80	18.15	**350**
82 648 375	M5x20	1.84	**137**	14x21x21,2	20.94	**123**				M16x100	25.28	**375**
82 648 450	M6x16	2.09	**138**	15,9x16,3x19,5	27.87	**295**						
82 648 475	M6x16	2.09	**138**	15,9x16,3x19,5	27.87	**295**						

When using two extension pieces (max. 2 x 50 mm) please use a tightening bolt with a length of 125 mm.

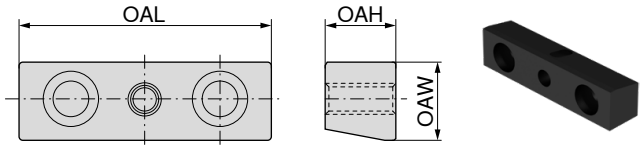
Milling Adapter Rings
DIN 2084 Form B



			83 385 ...	
DCONMS mm	BD mm	OAL mm	£ Y8	
13	22	2	15.24	013
	22	3	15.32	113
	22	4	15.96	213
	22	5	16.48	313
	22	6	17.31	413
	22	10	19.28	513
16	26	2	13.50	016
	26	3	13.50	116
	26	4	13.70	216
	26	5	14.21	316
	26	6	14.69	416
	26	10	20.84	516
	26	20	26.54	616
	26	30	33.04	716
22	34	2	13.90	022
	34	3	14.21	122
	34	4	14.40	222
	34	5	15.77	322
	34	6	17.78	422
	34	10	24.45	522
	34	20	30.65	622
	34	30	40.65	722
27	41	2	15.32	027
	41	3	15.71	127
	41	4	17.31	227
	41	5	17.96	327
	41	6	20.14	427
	41	10	25.00	527
	41	20	33.66	627
	41	30	45.02	727
32	47	2	17.09	032
	47	3	18.17	132
	47	4	19.74	232
	47	5	21.38	332
	47	6	22.64	432
	47	10	27.59	532
	47	20	41.68	632
	47	30	50.64	732
40	55	2	19.88	040
	55	3	22.08	140
	55	4	24.35	240
	55	5	26.54	340
	55	6	28.60	440
	55	10	38.33	540
	55	20	52.74	640
	55	30	65.12	740

Spare parts for VDI holders with DirectCooling

Clamping rail



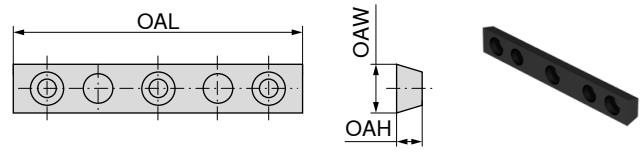
OAL mm	OAW mm	OAH mm	82 250 ... £ Y8	
53.0	12.7	11.5	23.35	05300
54.0	16.0	15.0	23.35	05400
67.5	16.0	15.0	29.31	06750
68.0	21.0	19.0	29.31	06800
83.0	20.5	19.0	35.15	08300
90.0	20.5	19.0	41.74	09000

Screw for ball-shaped spray nozzle



THOD	82 950 ... £ Y8	
M3x10	4.57	31000
M4x10	4.57	31300
M5x12	5.84	31100
M6x12	7.10	31200

Clamping wedge



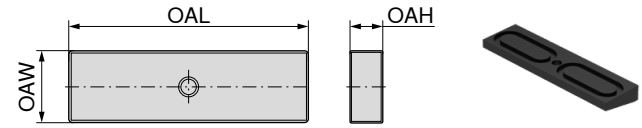
OAL mm	OAW mm	OAH mm	82 250 ... £ Y8	
70	14	7.3	29.31	07000
85	14	7.3	35.15	08500
100	14	7.3	41.74	10000

Ball-shaped spray nozzle



THID	BD mm	82 950 ... £ Y8	
M5	8	11.66	30600
M6	10	14.59	30900
M6	12	17.51	30700
M6	14	20.94	30800

Levelling plates



OAL mm	OAW mm	OAH mm	82 250 ... £ Y8	
53.0	14	6.1	46.82	15300
67.5	18	6.3	58.49	16750
83.0	22	7.5	71.04	18300
90.0	22	7.5	81.95	19000

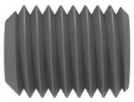
Spare parts for VDI holders with DirectCooling

O ring for clamping wedge



Size	82 950 ... £ Y8	
Ø13 x Ø2	8.77	32600
Ø18 x Ø2	11.66	32700
Ø22 x Ø2	11.66	32800

Screw plug for ball-shaped spray nozzle



THOD	OAL mm	82 950 ... £ Y8	
M5	6	5.08	32900
M6	6	5.08	33000

O ring for ball-shaped spray nozzle



Size	82 950 ... £ Y8	
Ø10 x Ø2	4.57	31600
Ø5 x Ø1,5	4.57	31400
Ø7 x Ø1,5	4.57	31700
Ø7 x Ø2,5	4.57	31500

Screw for clamping wedge



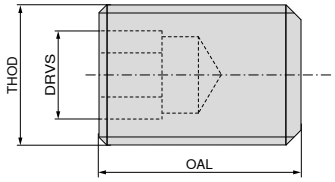
THOD	82 950 ... £ Y8	
M5x12	5.84	31800
M6x16	8.77	32200
M6x20	8.77	31900
M8x20	11.66	32300
M8x25	14.59	32100

Quad ring



Size	82 950 ... £ Y8	
Ø21,95 x Ø1,78	17.51	32400
Ø28,3 x Ø1,78	20.94	32500

Screw
for cylindrical adapters E2

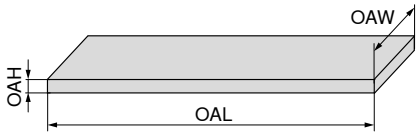




THOD	OAL mm	DRVS mm	£ Y8	83 950 ...
M6	12	3	4.49	461
M6	16	3	4.36	462
M6	25	3	4.49	463
M8	10	4	4.49	464
M8	12	4	4.49	465
M8	16	4	4.49	466
M8	20	4	4.36	467
M8	25	4	4.36	468
M8	30	4	4.49	469
M10	16	5	4.49	470
M10	20	5	4.36	471
M10	25	5	5.34	472
M10	30	5	4.93	473
M12	12	6	5.34	474
M12	16	6	5.34	475
M12	20	6	5.34	476
M12	25	6	5.34	477

Levelling plates

▲ For axial and radial tool holders
▲ Without mounting thread





OAH mm	OAL mm	OAW mm	£ Y8	83 950 ...
4	38	14	25.63	210
4	48	14	21.91	211
4	54	14	21.91	212
4	55	12	25.63	213
4	69	16	21.91	214
4	72	14	21.91	215
4	75	12	25.63	216
4	99	16	21.91	217
5	84	20	25.16	218
5	117	20	21.91	219
7	99	25	21.91	220
7	120	25	29.85	221
7	129	25	25.63	222
7	143	25	25.63	223

Clamping screw
for cylindrical adapters E1



THOD	£ Y8	83 950 ...
M10x1x10	9.05	180
M12x1x12	9.05	181
M16x1x13	8.08	182

Lock nut with external thread form ER for sealing rings with internal cooling



for collet	THOD	DRVS mm	83 950 ... £ Y8	
ER 16	M24x1	19	110.31	45600
ER 20	M28x1,5	22	115.73	45700
ER 25	M32x1,5	24	113.29	45800
ER 32	M40x1,5	32	123.21	45900

Ball-shaped spray nozzle



	83 950 ... £ Y8	
Ø 8 - M 5	6.92	200
Ø 10 - M 6	8.73	201
Ø 14 - M 8	8.61	202

O-Ring



Adapter	Size	83 950 ... £ Y8	
VDI 16	15 x 1,5	2.09	205
VDI 20	18,77 x 1,78	2.09	206
VDI 30	28,3 x 1,78	2.43	207
VDI 40	37,77 x 2,62	2.80	208
VDI 50	47,29 x 2,62	2.80	209

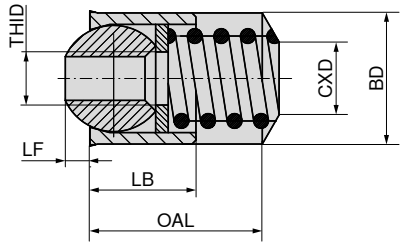
Pipe joints

▲ steel pipe



THOD	CXD mm	Type	83 950 ... £ Y7	
M8x1	5	A	18.79	372
M10x1	6	A	40.83	373
M10x1	8	A	23.94	374
M8x1	5	B	18.79	375
M10x1	6	B	40.83	376
M10x1	8	B	40.83	377

Spray nozzle element





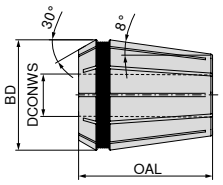
BD mm	THID	OAL mm	LB mm	LF mm	CXD mm	83 950 ... £ Y8	
9.88	M4	13	8	2.2	5.5	18.21	247
11.88	M6	15	10	3.0	6.8	18.21	248
13.88	M6	17	12	4.0	6.8	18.21	249

16

ER precision collet for precision collet chucks – Centro-P

- ▲ DIN ISO 15488-B (old DIN 6499-B)
- ▲ 12 times slotted
- ▲ Double taper collet
- ▲ Coloured ring as identification of precision collet
- ▲ ER08: 5 µm runout and repeatability
- ▲ Coated precision collet

ER-B
2 µm





DCONWS mm		BD = 8.5 OAL = 13.6 4004 E / ER08		BD = 11.5 OAL = 18 4008 E / ER11		BD = 17 OAL = 27.5 426 E / ER16		BD = 26 OAL = 34 430 E / ER25		BD = 33 OAL = 40 470 E / ER32		BD = 41 OAL = 46 472 E / ER40	
		84 577 ...		**84 585 ...**		**84 596 ...**		**84 597 ...**		**84 598 ...**		**84 599 ...**	
		£ Y8		£ Y8		£ Y8		£ Y8		£ Y8		£ Y8	
1.0		125.81	010	121.63	010	119.54	010						
1.1						213.82	011						
1.2						213.82	012						
1.4						213.82	014						
1.5		125.81	015	121.63	015	119.54	015						
1.6						213.82	016						
1.8						213.82	018						
2.0		111.73	020	106.91	020	102.11	020	105.71	020	108.11	020		
2.2						189.80	022						
2.4						189.80	024						
2.5		111.73	025	106.91	025	102.11	025	105.71	025				
2.6						189.80	026						
2.8						189.80	028						
3.0		94.89	030	90.11	030	86.49	030 [1]	88.90	030	90.11	030	132.11	030
3.2						168.19	032						
3.4						148.91	034						
3.5		94.89	035	90.11	035	110.11	035	115.35	035				
3.6						168.19	036						
3.8						168.19	038						
4.0		94.89	040	90.11	040	86.49	040 [1]	88.90	040	90.11	040 [1]	115.33	040
4.5		94.89	045	90.11	045	110.11	045	115.35	045				
5.0		94.89	050	90.11	050	86.49	050 [1]	88.90	050	90.11	050	115.33	050
5.5				90.11	055	110.11	055	115.35	055				
5.6						168.19	056						
6.0				90.11	060	86.49	060 [1]	88.90	060 [1]	90.11	060 [1]	115.33	060
6.3						168.19	063						
6.5				90.11	065	110.11	065	115.35	065				
7.0				90.11	070	86.49	070	88.90	070	90.11	070	115.33	070
7.1						168.19	071						
7.5						110.11	075	115.35	075				
8.0						86.49	080 [1]	88.90	080 [1]	90.11	080 [1]	115.33	080
8.5						110.11	085	115.35	085				
9.0						86.49	090	88.90	090	90.11	090	115.33	090
9.5						110.11	095	115.35	095				
10.0						86.49	100 [1]	88.90	100 [1]	90.11	100 [1]	115.33	100
10.5								115.35	105				
11.0								88.90	110	90.11	110	115.33	110
11.5								115.35	115				
12.0								88.90	120 [1]	90.11	120 [1]	115.33	120
12.5								115.35	125				
13.0								88.90	130	90.11	130	115.33	130
13.5								115.35	135				
14.0								88.90	140 [1]	90.11	140 [1]	115.33	140
14.5								115.35	145				
15.0								88.90	150	90.11	150	115.33	150
15.5								115.35	155				
16.0								88.90	160 [1]	90.11	160 [1]	115.33	160
17.0										90.11	170	115.33	170
18.0										90.11	180	115.33	180
19.0										90.11	190	115.33	190
20.0										90.11	200 [1]	115.33	200
21.0												115.33	210
22.0												115.33	220
23.0												115.33	230
24.0												115.33	240
25.0												115.33	250
26.0												115.33	260
	Set in wooden box					557.37	999	672.71	999	773.61	999		

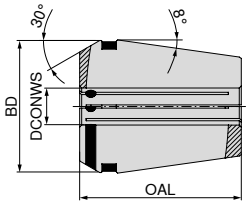
1) Included in the set

Clamping range covered: H10 corresponding to shank Ø DCONWS

ER precision collet, sealed, for precision collet chucks – Centro-P

- ▲ Similar to DIN ISO 15488-A
- ▲ 8 times slotted
- ▲ Coloured ring as identification of precision collet
- ▲ $p_{max.}$ = 60 bar
- ▲ Coated precision collet

ER-B
2 µm



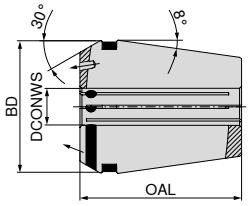


DCONWS mm	BD = 11.3 OAL = 18 425 E / ER11		BD = 16.7 OAL = 27.5 425 E / ER16		BD = 25.7 OAL = 34 429 E / ER25		BD = 32.7 OAL = 40 469 E / ER32		BD = 40.7 OAL = 46 471 E / ER40	
	84 536 ...		**84 537 ...**		**84 538 ...**		**84 539 ...**		**84 540 ...**	
	£ Y8		£ Y8		£ Y8		£ Y8		£ Y8	
3	113.23	030	117.72	030	119.54	030	123.76	030		
4	113.23	040	117.72	040	124.94	040	113.23	040		
5	123.76	050	113.23	050	119.54	050	123.76	050		
6	113.23	060	117.72	060	124.94	060	113.23	060	130.01	060
7			113.23	070	119.54	070	123.76	070		
8			117.72	080	124.94	080	113.23	080	130.01	080
9			113.23	090	119.54	090	123.76	090		
10			117.72	100	124.94	100	113.23	100	130.01	100
11					119.54	110	123.76	110		
12					124.94	120	113.23	120	130.01	120
13					119.54	130	123.76	130		
14					124.94	140	113.23	140	130.01	140
15					119.54	150	123.76	150		
16					124.94	160	113.23	160	130.01	160
17							123.76	170		
18							113.23	180	130.01	180
19							123.76	190		
20							113.23	200	130.01	200
22									142.60	220
25									130.01	250

ER precision collet, sealed with coolant holes, for precision collet chucks – Centro-P

- ▲ Similar to DIN ISO 15488-A
- ▲ 8 times slotted
- ▲ Coloured ring as identification of precision collet
- ▲ Coated precision collet

ER-A
2 µm



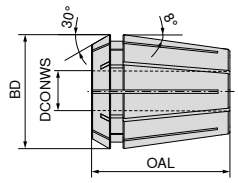


DCONWS mm	BD = 11.3 OAL = 18 4012 E / ER11 **84 547 ...** £ Y8		BD = 16.7 OAL = 27.5 425 E / ER16 **84 548 ...** £ Y8		BD = 25.7 OAL = 34 429 E / ER25 **84 549 ...** £ Y8		BD = 32.7 OAL = 40 469 E / ER32 **84 550 ...** £ Y8		BD = 40.7 OAL = 46 471 E / ER40 **84 551 ...** £ Y8	
3	173.46	**03000**	155.19	**03000**						
4	173.46	**04000**	155.19	**040**	165.68	**040**	171.95	**040**		
6	173.46	**06000**	155.19	**060**	165.68	**060**	171.95	**060**	199.24	**06000**
8			155.19	**080**	165.68	**080**	171.95	**080**	199.24	**08000**
10			155.19	**10000**	165.68	**100**	171.95	**100**	199.24	**100**
12					165.68	**120**	171.95	**120**	199.24	**120**
14					165.68	**140**	171.95	**140**		
16					165.68	**16000**	171.95	**160**	199.24	**160**
18							171.95	**180**		
20							171.95	**200**	199.24	**200**
25									199.24	**250**

ER precision collet

- ▲ DIN ISO 15488-B (old DIN 6499-B)
- ▲ 12 times slotted
- ▲ Double taper collet
- ▲ Coated collet

ER-B
5 µm





DCONWS mm		BD = 11.5 OAL = 18 4008 E / ER11		BD = 17 OAL = 27.5 426 E / ER16		BD = 21 OAL = 31.5 428 E / ER20		BD = 26 OAL = 34 430 E / ER25		BD = 33 OAL = 40 470 E / ER32		BD = 41 OAL = 46 472 E / ER40	
		84 576 ...		**84 578 ...**		**84 579 ...**		**84 580 ...**		**84 581 ...**		**84 582 ...**	
		£ Y8		£ Y8		£ Y8		£ Y8		£ Y8		£ Y8	
1.0		52.11	010	50.34	010	51.92	010 [1]	54.77	010 [1]				
1.5		52.11	015	50.34	015 [1]	51.92	015 [1]	54.77	015 [1]				
2.0		52.11	020	50.34	020	51.92	020	54.77	020	57.84	020 [1]		
2.5		52.11	025	50.34	025 [1]	51.92	025 [1]	54.77	025 [1]	57.84	025 [1]		
3.0		42.22	030	39.81	030	41.12	030	42.22	030	45.10	030	78.08	030 [1]
3.5		42.22	035										
4.0		42.22	040	39.81	040	41.12	040	42.22	040	45.10	040	58.28	040
4.5		42.22	045										
5.0		42.22	050	39.81	050	41.12	050	42.22	050	45.10	050	58.28	050
5.5		42.22	055										
6.0		42.22	060	39.81	060	41.12	060	42.22	060	45.10	060	58.28	060
6.5		42.22	065										
7.0		42.22	070	39.81	070	41.12	070	42.22	070	45.10	070	58.28	070
8.0				39.81	080	41.12	080	42.22	080	45.10	080	58.28	080
9.0				39.81	090	41.12	090	42.10	090	45.10	090	58.28	090
10.0				39.81	100	41.12	100	42.22	100	45.10	100	58.28	100
11.0						41.12	110	42.22	110	45.10	110	58.28	110
12.0						41.12	120	42.22	120	45.10	120	58.28	120
13.0						41.12	130	42.22	130	45.10	130	58.28	130
14.0								42.22	140	45.10	140	58.28	140
15.0								42.22	150	45.10	150	58.28	150
16.0								42.22	160	45.10	160	58.28	160
17.0										45.10	170	58.28	170
18.0										45.10	180	58.28	180
19.0										45.10	190	58.28	190
20.0										45.10	200	58.28	200
21.0												58.28	210
22.0												58.28	220
23.0												58.28	230
24.0												58.28	240
25.0												58.28	250
26.0												58.28	260
	Set in wooden box	628.90	999	455.18	999	554.12	999	701.47	999	877.34	999	1,418.31	999

1) not included in the set

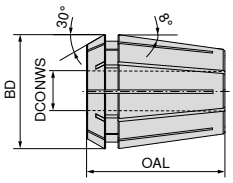
Clamping range covered: up to Ø 2 mm = 0.5 mm, from Ø 2.5 mm = 1 mm

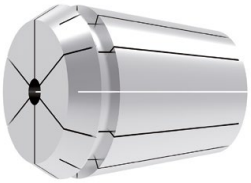
16

ER collet

- ▲ DIN ISO 15488-B (alt DIN 6499-B)
- ▲ 16 times slotted
- ▲ Double taper clamping

ER-B
10 µm





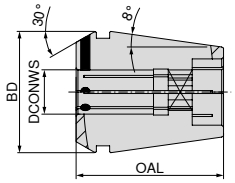
DCONWS mm		NEW BD = 8.5 OAL = 13.6 4004 E / ER08 82 683 ... £ Y8		NEW BD = 17 OAL = 27.5 426 E / ER16 82 684 ... £ Y8		NEW BD = 26 OAL = 34 430 E / ER25 82 685 ... £ Y8		NEW BD = 33 OAL = 40 470 E / ER32 82 686 ... £ Y8	
1.0		39.29	01000	31.24	01000				
1.5		39.29	01500						
2.0		39.29	02000	31.24	02000	32.67	02000		
2.5		39.29	02500						
3.0		39.29	03000	31.24	03000	32.67	03000	34.59	03000
3.5		39.29	03500						
4.0		39.29	04000	31.24	04000	32.67	04000	34.59	04000
4.5		39.29	04500						
5.0		39.29	05000	31.24	05000	32.67	05000	34.59	05000
6.0				31.24	06000	32.67	06000	34.59	06000
7.0				31.24	07000	32.67	07000	34.59	07000
8.0				31.24	08000	32.67	08000	34.59	08000
9.0				31.24	09000	32.67	09000	34.59	09000
10.0				31.24	10000	32.67	10000	34.59	10000
11.0						32.67	11000	34.59	11000
12.0						32.67	12000	34.59	12000
13.0						32.67	13000	34.59	13000
14.0						32.67	14000	34.59	14000
15.0						32.67	15000	34.59	15000
16.0						32.67	16000	34.59	16000
17.0								34.59	17000
18.0								34.59	18000
19.0								34.59	19000
20.0								34.59	20000
	Set in plastic case	391.64	99900	345.79	99900	523.08	99900	661.75	99900

Clamping range covered: up to Ø 3 mm = 0.5 mm, from Ø 4 mm = 1 mm

ER precision tap collet

- ▲ Similar to DIN ISO 15488-A
- ▲ 8 times slotted
- ▲ For Centro-P and standard chucks
- ▲ $p_{max.}$ = 60 bar
- ▲ Coated collet

ER-A
10 µm



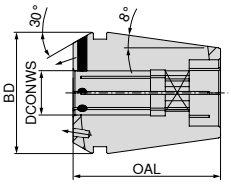


DCONWS mm		BD = 16.7 OAL = 27.5 4031 E / ER16 **84 531 ...** £ Y8		BD = 25.7 OAL = 34 4282 E / ER25 **84 533 ...** £ Y8		BD = 32.7 OAL = 40 4537 E / ER32 **84 534 ...** £ Y8	
2.8		110.03	028				
3.5		83.90	035	92.27	035		
4.0		83.90	040	92.27	040	113.56	040
4.5		83.90	045	92.27	045	113.56	045
6.0		83.90	060	92.27	060	113.56	060
7.0		83.90	070	92.27	070	113.56	070
8.0		83.90	080	92.27	080	113.56	080
9.0		83.90	090	92.27	090	113.56	090
10.0				92.27	100	113.56	100
11.0				92.27	110	113.56	110
12.0				92.27	120	113.56	120
14.0				92.27	140	113.56	140
16.0				92.27	160	113.56	160
18.0						113.56	180
20.0						113.56	200

ER precision collet, sealed with coolant channels

- ▲ Similar to DIN ISO 15488-A
- ▲ 8 times slotted
- ▲ For Centro-P and standard chucks
- ▲ Coated collet

ER-A
10 µm



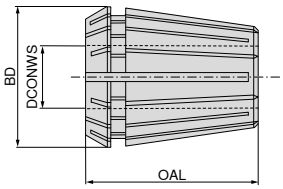


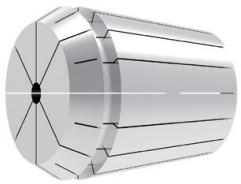
DCONWS mm	BD = 16.7 OAL = 27.5 4537 E / ER16		BD = 25.7 OAL = 34 4537 E / ER25		BD = 32.7 OAL = 40 4537 E / ER32	
	84 567 ...		**84 568 ...**		**84 569 ...**	
	£ Y8		£ Y8		£ Y8	
3.5	152.20	035				
4.5	152.20	045	168.56	045	182.62	045
6.0	152.20	060	168.56	060	182.62	060
7.0	152.20	070	168.56	070	182.62	070
8.0	152.20	080	168.56	080	182.62	080
9.0	152.20	09000	168.56	090	182.62	090
10.0			168.56	100	182.62	100
11.0			168.56	110	182.62	110
12.0			168.56	120	182.62	120
14.0			168.56	140	182.62	140
16.0			168.56	16000	182.62	160
18.0					182.62	180
20.0					182.62	200

ER precision collet

▲ DIN ISO 15488-B (old DIN 6499-B)
▲ Double taper collet
▲ 16 times slotted

ER-B
20 µm





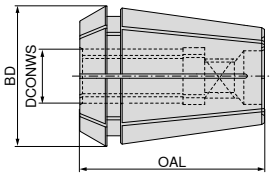
		NEW	NEW	NEW	NEW	NEW
		BD = 17 OAL = 27.5 426 E / ER16	BD = 21 OAL = 31.5 428 E / ER20	BD = 26 OAL = 34 430 E / ER25	BD = 33 OAL = 40 470 E / ER32	BD = 41 OAL = 46 472 E / ER40
		82 687 ...	**82 688 ...**	**82 689 ...**	**82 690 ...**	**82 691 ...**
DCONWS mm		£ Y8	£ Y8	£ Y8	£ Y8	£ Y8
1		30.59 **01000**	31.62 **01000**			
2		30.59 **02000**	31.62 **02000**	32.83 **02000**		
3		24.87 **03000**	22.99 **03000**	24.64 **03000**	26.53 **03000**	33.48 **03000**
4		24.87 **04000**	22.99 **04000**	24.64 **04000**	26.53 **04000**	33.48 **04000**
5		24.87 **05000**	22.99 **05000**	24.64 **05000**	26.53 **05000**	33.48 **05000**
6		24.87 **06000**	22.99 **06000**	24.64 **06000**	26.53 **06000**	33.48 **06000**
7		24.87 **07000**	22.99 **07000**	24.64 **07000**	26.53 **07000**	33.48 **07000**
8		24.87 **08000**	22.99 **08000**	24.64 **08000**	26.53 **08000**	33.48 **08000**
9		24.87 **09000**	22.99 **09000**	24.64 **09000**	26.53 **09000**	33.48 **09000**
10		24.87 **10000**	22.99 **10000**	24.64 **10000**	26.53 **10000**	33.48 **10000**
11			22.99 **11000**	24.64 **11000**	26.53 **11000**	33.48 **11000**
12			22.99 **12000**	24.64 **12000**	26.53 **12000**	33.48 **12000**
13			22.99 **13000**	24.64 **13000**	26.53 **13000**	33.48 **13000**
14				24.64 **14000**	26.53 **14000**	33.48 **14000**
15				24.64 **15000**	26.53 **15000**	33.48 **15000**
16				24.64 **16000**	26.53 **16000**	33.48 **16000**
17					26.53 **17000**	33.48 **17000**
18					26.53 **18000**	33.48 **18000**
19					26.53 **19000**	33.48 **19000**
20					26.53 **20000**	33.48 **20000**
21						33.48 **21000**
22						33.48 **22000**
23						33.48 **23000**
24						33.48 **24000**
25						33.48 **25000**
26						33.48 **26000**
	Set in plastic case	275.43 **99900**	295.76 **99900**	388.42 **99900**	476.68 **99900**	805.36 **99900**

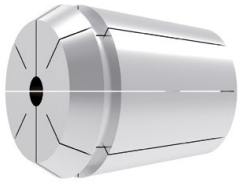
Clamping range covered: up to Ø 2 mm = 0.5 mm, from Ø 2.5 mm = 1 mm

ER collet with internal square

- ▲ Similar DIN ISO 15488-A (old DIN 6499-A)
- ▲ 8 times slotted
- ▲ Double taper collets for holding taps on synchronised spindle machines, without compensating lengths

ER-A
15 µm





	NEW	NEW	NEW	NEW
	BD = 16.7 OAL = 27.5 426 E / ER16	BD = 25.7 OAL = 34 430 E / ER25	BD = 32.7 OAL = 40 470 E / ER32	BD = 40.7 OAL = 46 472 E / ER40
	82 695 ...	**82 692 ...**	**82 693 ...**	**82 694 ...**
DCONWS mm	£ Y8	£ Y8	£ Y8	£ Y8
2.8	43.59 **02800**			
3.5	43.59 **03500**			
4.0	43.59 **04000**			
4.5	43.59 **04500**	65.13 **04500**	71.30 **04500**	
5.0	43.59 **05000**			
5.5	43.59 **05500**	65.13 **05500**	71.30 **05500**	
6.0	43.59 **06000**	65.13 **06000**	71.30 **06000**	
7.0	43.59 **07000**	65.13 **07000**	71.30 **07000**	85.28 **07000**
8.0	43.59 **08000**	65.13 **08000**	71.30 **08000**	85.28 **08000**
9.0	43.59 **09000**	65.13 **09000**	71.30 **09000**	85.28 **09000**
10.0		65.13 **10000**	71.30 **10000**	85.28 **10000**
11.0		65.13 **11000**	71.30 **11000**	85.28 **11000**
12.0		65.13 **12000**	71.30 **12000**	85.28 **12000**
14.0			71.30 **14000**	85.28 **14000**
16.0			71.30 **16000**	85.28 **16000**
18.0				85.28 **18000**
20.0				85.28 **20000**

Wooden boxes for collets

▲ For collets form A+B

Scope of supply:
empty wooden box

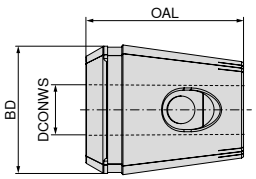


for collet	capacity	83 689 ... £ Y8/3B	
4004E (ER08)	9	36.69	**008**
426E (ER16)	10	41.47	**116**
428E (ER20)	11	65.79	**020**
4008E (ER11)	13	54.94	**011**
430E (ER25)	14	68.55	**025**
470E (ER32)	18	88.83	**032**
472E (ER40)	24	112.22	**040**

ER wedge collet with pull out protection, for precision collet chucks – Centro-P – HDC

▲ Similar to DIN ISO 15488-A
▲ Slotted
▲ Double taper collet

ER
5 µm





BD = 32.7
OAL = 40
ER 32

83 629 ...

DCONWS mm		£ Y8	
12		228.35	**120**
16		228.35	**160**



Conical spring

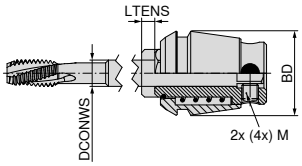
83 950 ...

Spare parts DCONWS		£ Y8	
12	CP 32	13.70	**455**
16	CP 32	13.70	**455**

Tapping Collet Form ET (ER) with length compensation

- ▲ DIN ISO 15488 (old DIN 6499)
- ▲ With pull out length compensation (LTENS)
- ▲ The spring force is adapted to the thread size
- ▲ Anti-rotation by 2 and/or 4 clamping screws on the shank square drive

ER
10 µm



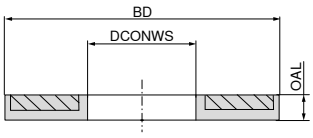


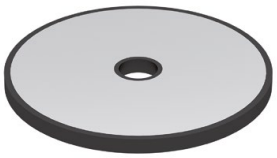
DCONWS mm		BD = 17 LTENS = 7 426 E / ER16 **80 661 ...** £ Y7		BD = 21 LTENS = 7 428 E / ER20 **80 662 ...** £ Y7		BD = 26 LTENS = 8 430 E / ER25 **80 663 ...** £ Y7		BD = 33 LTENS = 10 470 E / ER32 **80 664 ...** £ Y7		BD = 41 LTENS = 13 472 E / ER40 **80 665 ...** £ Y7	
2.2		289.09	022	289.09	022						
2.5		289.09	025	289.09	025	306.54	025				
2.8		289.09	028	289.09	028	306.54	028				
3.0		289.09	030	289.09	030	306.54	030				
3.5		289.09	035	289.09	035	306.54	035				
4.0		289.09	040	289.09	040	306.54	040				
4.5		289.09	045	289.09	045	306.54	045	326.27	045		
5.0								326.27	050		
5.5		289.09	055	289.09	055	306.54	055	326.27	055		
6.0		289.09	060	289.09	060	306.54	060	326.27	060	358.19	060
7.0				289.09	070	306.54	070	326.27	070	358.19	070
8.0						306.54	080	326.27	080	358.19	080
9.0						306.54	090	326.27	090	368.37	090
10.0						306.54	100	326.27	100	368.37	100
11.0								326.27	110	368.37	110
12.0								326.27	120	368.37	120
14.0										368.37	140
16.0										368.37	160

When using CNC machines apply canned cycles with a feed rate or pitch of only 95 % with small threads and up to 99 % with large threads. In this way when reversing the rotation of the spindle an optimum length compensation in both directions is guaranteed.

Sealing discs for precision collet chucks – Centro-P, ER-Standard and ER-Mini with thro' coolant

- ▲ For sealing when using tools with internal cooling
- ▲ Sealing range: nominal diameter –0,1 mm / +0,4 mm
- ▲ Can be applied up to 80 bar

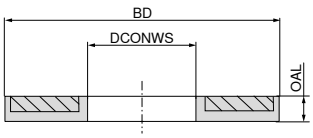




	BD = 12.6 OAL = 2 426E (ER16)		BD = 15.8 OAL = 2 428E (ER20)		BD = 20.2 OAL = 2 430E (ER25)		BD = 26.2 OAL = 2 444E / OZ (ER32)		BD = 34.2 OAL = 2 472E (ER40)	
	83 690 ...		**83 694 ...**		**83 691 ...**		**83 692 ...**		**83 693 ...**	
DCONWS mm	£ Y8		£ Y8		£ Y8		£ Y8		£ Y8	
1.0	36.67	010								
1.5	36.67	015								
2.0	33.38	020	37.50	020	33.38	020	40.62	020		
2.5	33.38	025	37.50	025	33.38	025	40.62	025		
3.0	31.77	030	28.99	030	31.77	030	33.07	030	39.61	030
3.5	31.77	035	28.99	035	31.77	035	33.07	035	39.61	035
4.0	31.77	040	28.99	040	31.77	040	33.07	040	39.61	040
4.5	31.77	045	28.99	045	31.77	045	33.07	045	39.61	045
5.0	31.77	050	28.99	050	31.77	050	33.07	050	39.61	050
5.5	31.77	055	28.99	055	31.77	055	33.07	055	39.61	055
6.0	31.77	060	28.99	060	31.77	060	33.07	060	39.61	060
6.5	31.77	065	28.99	065	31.77	065	33.07	065	39.61	065
7.0	31.77	070	28.99	070	31.77	070	33.07	070	39.61	070
7.5	31.77	075	28.99	075	31.77	075	33.07	075	39.61	075
8.0	31.77	080	28.99	080	31.77	080	33.07	080	39.61	080
8.5	31.77	085	28.99	085	31.77	085	33.07	085	39.61	085
9.0	31.77	090	28.99	090	31.77	090	33.07	090	39.61	090
9.5	31.77	095	28.99	095	31.77	095	33.07	095	39.61	095
10.0	31.77	100	28.99	100	31.77	100	33.07	100	39.61	100
10.5			28.99	105	31.77	105	33.07	105	39.61	105
11.0			28.99	110	31.77	110	33.07	110	39.61	110
11.5			28.99	115	31.77	115	33.07	115	39.61	115
12.0			28.99	120	31.77	120	33.07	120	39.61	120
12.5			28.99	125	31.77	125	33.07	125	39.61	125
13.0			28.99	130	31.77	130	33.07	130	39.61	130
13.5					31.77	135	33.07	135	39.61	135
14.0					31.77	140	33.07	140	39.61	140
14.5					31.77	145	33.07	145	39.61	145
15.0					31.77	150	33.07	150	39.61	150
15.5					31.77	155	33.07	155	39.61	155
16.0					31.77	160	33.07	160	39.61	160
16.5							33.07	165	39.61	165
17.0							33.07	170	39.61	170
17.5							33.07	175	39.61	175
18.0							33.07	180	39.61	180
18.5							33.07	185	39.61	185
19.0							33.07	190	39.61	190
19.5							33.07	195	39.61	195
20.0							33.07	200	39.61	200
20.5									39.61	205
21.0									39.61	210
21.5									39.61	215
22.0									39.61	220
22.5									39.61	225
23.0									39.61	230
23.5									39.61	235
24.0									39.61	240
24.5									39.61	245
25.0									39.61	250
25.5									39.61	255
26.0									39.61	260

Sealing rings for precision collet chucks – PCC

▲ For sealing when using tools with internal cooling
▲ Sealing range: nominal diameter –0,1 mm / +0,4 mm
▲ Can be applied up to 100 bar

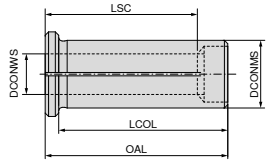




DCONWS mm	BD = 13 OAL = 4 426E (ER16) 82 630 ... £ Y8	BD = 21 OAL = 4 430E (ER25) 82 631 ... £ Y8	BD = 27 OAL = 4 470E (ER32) 82 632 ... £ Y8
3.0	42.88 03000	42.88 03000	42.88 03000
3.5	42.88 03500	42.88 03500	42.88 03500
4.0	42.88 04000	42.88 04000	42.88 04000
4.5	42.88 04500	42.88 04500	42.88 04500
5.0	42.88 05000	42.88 05000	42.88 05000
5.5	42.88 05500	42.88 05500	42.88 05500
6.0	42.88 06000	42.88 06000	42.88 06000
6.5	42.88 06500	42.88 06500	42.88 06500
7.0	42.88 07000	42.88 07000	42.88 07000
7.5	42.88 07500	42.88 07500	42.88 07500
8.0	42.88 08000	42.88 08000	42.88 08000
8.5	42.88 08500	42.88 08500	42.88 08500
9.0	42.88 09000	42.88 09000	42.88 09000
9.5	42.88 09500	42.88 09500	42.88 09500
10.0	42.88 10000	42.88 10000	42.88 10000
10.5		42.88 10500	42.88 10500
11.0		42.88 11000	42.88 11000
11.5		42.88 11500	42.88 11500
12.0		42.88 12000	42.88 12000
12.5		42.88 12500	42.88 12500
13.0		42.88 13000	42.88 13000
13.5		42.88 13500	42.88 13500
14.0		42.88 14000	42.88 14000
14.5		42.88 14500	42.88 14500
15.0		42.88 15000	42.88 15000
15.5		42.88 15500	42.88 15500
16.0		42.88 16000	42.88 16000
16.5			42.88 16500
17.0			42.88 17000
17.5			42.88 17500
18.0			42.88 18000
18.5			42.88 18500
19.0			42.88 19000
19.5			42.88 19500
20.0			42.88 20000

Reducing sleeves for hydraulic and high pressure chucks

▲ Thro' coolant to 80 bar

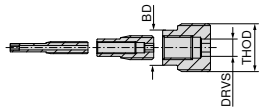




83 609 ...

DCONMS mm	DCONWS mm	OAL mm	LCOL mm	LSC mm	£ Y8	
12	3	40	36	29	286.38	**103**
12	4	40	36	29	286.38	**104**
12	5	40	36	29	286.38	**105**
12	6	40	36	36	286.38	**106**
12	8	40	36	37	286.38	**108**
20	3	54	50	28	269.00	**203**
20	4	54	50	28	269.00	**204**
20	5	54	50	28	269.00	**205**
20	6	54	50	36	208.98	**206**
20	8	54	50	37	208.98	**208**
20	10	54	50	40	208.98	**210**
20	12	54	50	45	208.98	**212**
20	14	54	50	45	208.98	**214**
20	16	54	50	48	208.98	**216**
25	6	60	56	37	219.39	**256**
25	8	60	56	37	219.39	**258**
25	10	60	56	40	219.39	**260**
25	12	60	56	46	219.39	**262**
25	14	60	56	47	219.39	**264**
25	16	60	56	48	219.39	**266**
25	18	60	56	48	219.39	**268**
25	20	60	56	50	219.39	**270**
32	6	64	60	36	269.00	**306**
32	8	64	60	36	269.00	**308**
32	10	64	60	40	269.00	**310**
32	12	64	60	45	269.00	**312**
32	14	64	60	46	269.00	**314**
32	16	64	60	48	269.00	**316**
32	18	64	60	49	269.00	**318**
32	20	64	60	50	269.00	**320**
32	25	64	60	56	269.00	**325**

Stop screw for use with reducing sleeves in hydraulic chuck



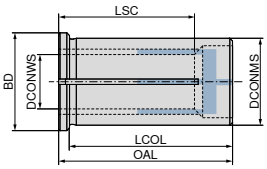


83 950 ...

THOD	BD mm	DRVS mm	£ Y7	
M4x0,5x26	2.8	2	25.16	**425**
M8x1x19	5.8	2,5	25.16	**428**
M10x1x16	5.8	3	25.16	**426**
M16x1x16	11.7	5	25.16	**427**

Reduction sleeves with coolant hole for hydraulic and high pressure chucks

▲ with coolant holes, for flexible diameter application





83 611 ...

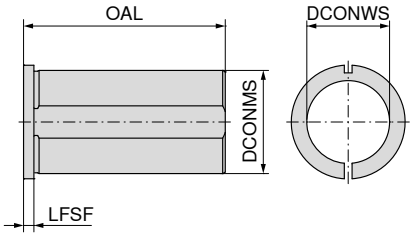
DCONMS mm	DCONWS mm	BD mm	OAL mm	LCOL mm	LSC mm	£ Y8	
12	3	16	44	40	29	465.00	**10300**
12	4	16	44	40	29	465.00	**10400**
12	5	16	44	40	29	465.00	**10500**
12	6	16	44	40	36	465.00	**10600**
12	8	16	44	40	37	465.00	**10800**
20	3	25	54	50	28	292.64	**20300**
20	4	25	54	50	28	292.64	**20400**
20	5	25	54	50	28	292.64	**20500**
20	6	25	54	50	36	292.64	**20600**
20	8	25	54	50	37	292.64	**20800**
20	10	25	54	50	40	292.64	**21000**
20	12	25	54	50	45	292.64	**21200**
20	14	25	54	50	45	292.64	**21400**
20	16	25	54	50	48	292.64	**21600**
32	6	36	64	60	36	330.92	**30600**
32	8	36	64	60	36	330.92	**30800**
32	10	36	64	60	40	330.92	**31000**
32	12	36	64	60	45	330.92	**31200**
32	14	36	64	60	46	330.92	**31400**
32	16	36	64	60	48	330.92	**31600**
32	18	36	64	60	49	330.92	**31800**
32	20	36	64	60	50	330.92	**32000**
32	25	36	64	60	56	330.92	**32500**

Adaptation for the use of stop screws for reducing sleeves

DCONMS in mm			
12		**83 950 425**	**83 950 426**
20	**83 950 425**	**83 950 428**	**83 950 427**
25	**83 950 425**	**83 950 428**	**83 950 427**
32		**83 950 428**	**83 950 427**

Slotted reduction sleeves

▲ For cylindrical and other tool holders
▲ For tools with cylindrical shank

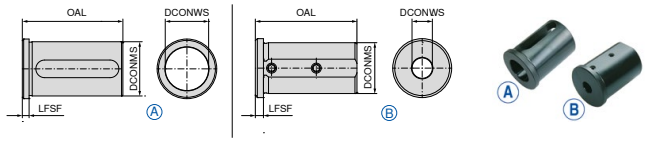




DCONMS mm	DCONWS mm	OAL mm	LFSF mm	83 271 ... £ Y8	
20	6	30	4	130.58	206
20	8	30	4	102.80	208
20	10	30	4	102.80	210
20	12	30	4	102.80	212
20	15	30	4	102.80	215
20	16	30	4	102.80	216
25	6	40	4	146.83	256
25	8	40	4	109.55	258
25	10	40	4	109.55	260
25	12	40	4	109.55	262
25	15	40	4	117.02	265
25	16	40	4	109.55	266
25	20	40	4	109.55	270
32	6	50	4	141.81	326
32	8	50	4	109.55	328
32	10	50	4	109.55	330
32	12	50	4	109.55	332
32	15	50	4	109.55	335
32	16	50	4	109.55	336
32	20	50	4	109.55	340
40	10	78	4	132.03	410
40	12	78	4	132.03	412
40	15	78	4	132.03	415
40	16	78	4	132.03	416
40	20	78	4	132.03	420
40	25	78	4	132.03	425
40	32	78	4	132.03	432
50	20	88	4	177.20	520
50	25	88	4	177.20	525
50	32	88	4	177.20	532
50	40	88	4	177.20	540

Reduction sleeves for direct clamping

▲ For tools with cylindrical shank



DCONMS mm	DCONWS mm	OAL mm	LFSF mm	Fig.	83 272 ... £ Y8	
25	6	50	4	B	175.54	256
25	8	50	4	B	133.85	258
25	10	50	4	B	133.85	260
25	12	50	4	B	133.85	262
25	14	50	4	A	123.28	264
25	16	50	4	A	133.85	266
25	20	50	4	A	133.85	270
32	6	58	5	B	181.13	326
32	8	58	5	B	181.13	328
32	10	58	5	B	137.63	330
32	12	58	5	B	137.63	332
32	16	58	5	A	137.63	336
32	20	58	5	A	137.63	340
32	25	58	5	A	137.63	345
40	8	58	5	B	220.04	408
40	10	58	5	B	181.13	410
40	12	58	5	B	181.13	412
40	16	58	5	A	181.13	416
40	20	58	5	A	181.13	420
40	25	58	5	A	181.13	425
40	32	58	5	A	181.13	432
50	12	75	5	B	204.35	512
50	16	75	5	A	204.35	516
50	20	75	5	A	204.35	520
50	25	75	5	A	204.35	525
50	32	75	5	A	204.35	532
50	40	75	5	A	204.35	540

Taper wiper

▲ Version made from hard wood with felt inserts



Adapter	83 715 ... £ Y8	
MK 1	14.91	001
MK 2	18.06	002
MK 3	23.24	003
MK 4	28.59	004
MK 5	40.74	005
HSK 32	98.50	320
HSK 40	107.03	400
HSK 50	108.60	500
HSK 63	103.11	630
HSK 80	163.92	800
HSK 100	156.86	100
SK 30	27.32	130
SK 40	32.32	140
SK 50	42.06	150

Assembly device for ISO adapters

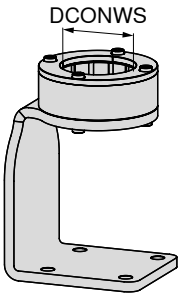
▲ Aluminium



Adapter	80 720 ... £ Y7	
SK 30	265.76	030
SK 40	265.76	040
SK 50	442.13	050

Assembly fixture for tool holders

▲ gripping by roller
▲ secure clamping
▲ quick assembly, no additional clamping necessary

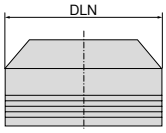




Holder Type	DCONWS mm	80 722 ... £ Y7	
HSK 32, PSC 32	32.0	383.66	032
HSK 40, PSC 40	40.0	383.66	040
MAS-BT 30	46.0	336.91	046
ISO 7388-1 / DIN 2080 - SK 30, HSK 50, PSC 50	50.0	336.91	050
ISO 7388-1 / DIN 2080 - SK 40, HSK 63, PSC 63, MAS-BT 40, ANSI-CAT 40	63.0	336.91	063
ISO 7388-1 - SK 50	97.5	670.44	097
HSK 100, MAS-BT 50, ANSI-CAT 50	100.0	670.44	100

Safety Note: The clamping devices must be free of oil and grease to avoid slipping!

ER standard lock nut for precision collet chucks – Centro-P



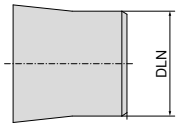




for seals

for collet	DCONWS mm	DLN mm	TQX Nm	84 950 ... £ Y8		84 950 ... £ Y8	
426E (ER16)	1 - 10	30	80	72.00	001	96.95	011
430E (ER25)	2 - 16	40	90	80.00	003	108.06	013
470E (ER32)	2 - 20	50	180	88.00	005	115.55	015
472E (ER40)	3 - 26	63	200	128.02	007	158.03	017

Tapered lock nut for precision collet chucks – Centro-P



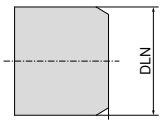




for seals

for collet	DCONWS mm	DLN mm	TQX Nm	84 950 ... £ Y8		84 950 ... £ Y8	
426E (ER16)	1 - 10	24	80	100.56	031	119.03	033

Mini lock nut for precision collet chucks – Centro-P







for seals

for collet	DCONWS mm	DLN mm	TQX Nm	84 950 ... £ Y8		84 950 ... £ Y8	
4004E (ER08)	1 - 5	10	5 - 8	120.83	040		
4008E (ER11)	1 - 7	16	10	100.56	041		
4008E (ER11)	Ø 3,0	16	10	209.20	042 [1)]		
4008E (ER11)	Ø 4,0	16	10	209.20	043 [1)]		
4008E (ER11)	Ø 5,0	16	10	209.20	044 [1)]		
4008E (ER11)	Ø 6,0	16	10	209.20	045 [1)]		
4008E (ER11)	Ø 7,0	16	10	209.20	046 [1)]		
426E (ER16)	1 - 10	22	30	80.34	034		
426E (ER16)	1 - 10	22	28			97.92	035

1) directly sealed

Collet removal aid for Mini lock nuts for precision collet chucks – Centro-P



for collet	84 950 ... £ Y8	
4004E (ER08)	60.14	070
4008E (ER11)	84.59	072

Roll key

▲ Version CP = for Centro-P lock nuts
▲ Version STD = for standard lock nuts
▲ Version HDC = for HDC lock nuts



for lock nut	DLN mm	84 950 ... £ Y8	
4004E / ER08 CP mini	10	355.31	050 1)
4008E / ER 11 CP mini	16	163.80	080 1)
426E / ER 16 CP / ER 16 mini	22	145.89	026 1)
426E / ER 16 CP Conical	24	163.80	082 2)
426E / ER 16 CP	30	145.89	027
426E / ER 16 STD	32	145.89	028
430E / ER 25 CP	40	171.03	054
470E / ER 32 CP + STD	50	160.34	056
470E / ER 32 HDC	53	194.88	30200
472E / ER 40 CP + STD	63	182.64	057

1) Special key for mini lock nuts
2) Key for tapered lock nuts

Torque key



TQX Nm	Square mm	84 435 ... £ Y8	
5 - 30	9 x 12	301.80	030
10 - 80	9 x 12	357.09	080
20 - 200	14 x 18	364.67	200

Additional roll key device for torque key

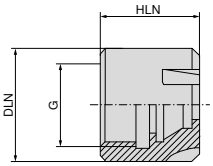
▲ Version CP = for Centro-P lock nuts
▲ Version STD = for standard lock nuts
▲ Version HDC = for HDC lock nuts



for lock nut	DLN mm	TQX Nm	Square mm	84 950 ... £ Y8	
4008E / ER 11 CP mini	16	5 - 30	9 x 12	163.83	060 1)
426E / ER 16 CP / ER 16 mini	22	5 - 30	9 x 12	145.89	170 1)
426E / ER 16 CP Conical	24	10 - 80	9 x 12	163.83	061 2)
426E / ER 16 CP	30	20 - 200	14 x 18	145.89	171
426E / ER 16 STD	32	20 - 200	14 x 18	145.89	172
430E / ER 25 CP	40	20 - 200	14 x 18	163.83	065
470E / ER 32 CP + STD	50	20 - 200	14 x 18	163.83	067
470E / ER 32 HDC	53	20 - 200	14 x 18	194.88	30300
472E / ER 40 CP + STD	63	20 - 200	14 x 18	163.83	068

1) For mini lock nuts
2) For tapered lock nuts

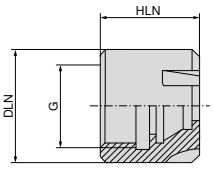
Mini ER lock nut





for collet	THSZMS	DLN mm	HLN mm	TQX Nm	62 950 ... £ W7	
4004E (ER08)	M10x0,75	12	11.0	8	74.48	067
4008E (ER11)	M13x0,75	16	12.0	18	66.89	065
426E (ER16)	M19x1	22	18.0	28	46.66	066
428E (ER20)	M24x1	28	19.5	35	74.08	068
430E (ER25)	M30x1	35	21.0	40	74.08	069

Mini ER lock nut for sealing rings





for seals

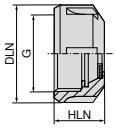
for collet	THSZMS	DLN mm	HLN mm	TQX Nm	83 950 ... £ Y8	
426E (ER16-DS)	M19x1	22	22.0	28	112.26	058
428E (ER20-DS)	M24x1	28	23.2	35	114.35	059
430E (ER25-DS)	M30x1	35	24.7	40	120.54	060

ER Mini clamping key



for collet	83 950 ... £ Y8	
4004E (ER08)	44.43	099
4008E (ER11)	44.43	100
426E (ER16)	49.71	101
428E (ER20)	46.65	102
430E (ER25)	46.65	103

ER Lock nut







for seals

for collet	THSZMS	DLN mm	HLN mm	62 950 ... £ W7		83 950 ... £ Y8	
426E (ER16)	M22x1,5	32	17.0	26.90	054		
426E (ER16)	M22x1,5	32	22.0			87.05	054
428E (ER20)	M25x1,5	35	23.2			98.88	053
430E (ER25)	M32x1,5	42	20.0	28.01	055		
430E (ER25)	M32x1,5	42	24.7			101.40	055
470E (ER32)	M40x1,5	50	22.3	35.87	65600		
470E (ER32)	M40x1,5	50	27.0			108.45	056
472E (ER40)	M50x1,5	63	25.3	34.86	65700		
472E (ER40)	M50x1,5	63	30.7			130.50	057

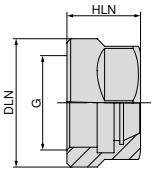
Y clamping key



for lock nut	83 357 ... £ Y8	
ER 16	29.58	116
ER 20	42.89	12000
ER 25	29.58	125
ER 32	43.08	132
ER 40	48.80	140

ER Lock nut

▲ DRVS = Drive size



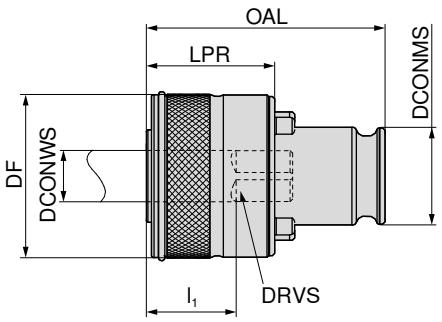


for collet	THSZMS	DRVS mm	DLN mm	HLN mm	62 950 ... £ W7	
426E (ER16)	M22x1,5	25	28	18.0	33.81	044
428E (ER20)	M25x1,5	30	34	19.5	27.26	045

16

Quick change tap adapter with overload clutch

▲ Adapter with adjustable overload clutch
▲ for use with taps



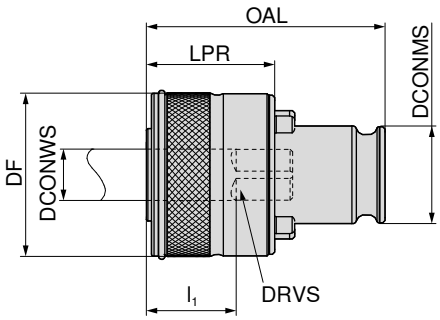




SZID	DCONWS mm	DRVS mm	DIN 371	DIN 374 / 376	DF mm	DCONMS mm	OAL mm	l_1 mm	LPR mm	83 612 ... £ Y8	
01	2.8	2.1	M2		33	19	46.5	17	25	133.50	100
01	2.8	2.1	M2,5		33	19	46.5	17	25	133.50	101
01	3.5	2.7	M3		33	19	46.5	17	25	133.50	102
01	4.0	3.0	M3,5		33	19	46.5	17	25	133.50	103
01	4.5	3.4	M4		33	19	46.5	17	25	133.50	104
01	6.0	4.9	M4,5		33	19	46.5	17	25	133.50	105
01	6.0	4.9	M5		33	19	46.5	17	25	133.50	106
01	4.5	3.4		M6	33	19	46.5	17	25	133.50	107
01	6.0	4.9	M6		33	19	46.5	17	25	133.50	108
01	5.5	4.3		M7	33	19	46.5	17	25	133.50	109
01	7.0	5.5	M7		33	19	46.5	17	25	133.50	110
01	6.0	4.9		M8	33	19	46.5	17	25	133.50	111
01	8.0	6.2	M8		33	19	46.5	17	25	133.50	112
01	9.0	7.0	M9		33	19	46.5	17	25	133.50	113
01	7.0	5.5		M10	33	19	46.5	17	25	133.50	114
01	10.0	8.0	M10		33	19	46.5	17	25	133.50	115
01	8.0	6.2		M11	33	19	46.5	17	25	133.50	116
01	9.0	7.0		M12	33	19	46.5	17	25	133.50	117
02	6.0	4.9	M4,5 - M6		50	31	69.0	30	34	174.76	200
02	6.0	4.9	M7 (DIN 352)		50	31	69.0	30	34	174.76	201
02	7.0	5.5	M7		50	31	69.0	30	34	174.76	202
02	6.0	4.9		M8	50	31	69.0	30	34	174.76	203
02	8.0	6.2	M8		50	31	69.0	30	34	174.76	204
02	9.0	7.0	M9		50	31	69.0	30	34	174.76	205
02	7.0	5.5		M10	50	31	69.0	30	34	174.76	206
02	10.0	8.0	M10		50	31	69.0	30	34	174.76	207
02	8.0	6.2		M11	50	31	69.0	30	34	174.76	208
02	9.0	7.0		M12	50	31	69.0	30	34	174.76	209
02	11.0	9.0		M14	50	31	69.0	30	34	174.76	210
02	12.0	9.0		M16	50	31	69.0	30	34	174.76	211
02	14.0	11.0		M18	50	31	69.0	30	34	174.76	212
02	16.0	12.0		M20	50	31	69.0	30	34	174.76	213

Quick change tap adapter with overload clutch, with through coolant

▲ Adapter with adjustable overload clutch
▲ for use with taps



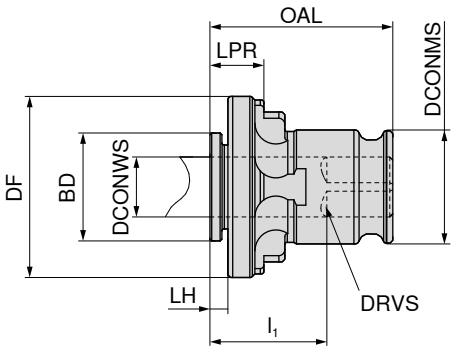




SZID	DCONWS mm	DRVS mm	DIN 371	DIN 374 / 376	DF mm	DCONMS mm	OAL mm	l_1 mm	LPR mm	83 616 ... £ Y8	
01	3.5	2.7	M3	M4,5 - M5	33	19	46.5	17	25	222.36	100
01	4.5	3.4	M4	M6	33	19	46.5	17	25	222.36	102
01	5.5	4.3		M7	33	19	46.5	17	25	222.36	104
01	6.0	4.9	M4,5 - M6	M8	33	19	46.5	17	25	222.36	106
01	7.0	5.5	M7	M10	33	19	46.5	17	25	222.36	108
01	8.0	6.2	M8	M11	33	19	46.5	17	25	222.36	110
01	9.0	7.0	M9	M12	33	19	46.5	17	25	222.36	112
01	10.0	8.0	M10		33	19	46.5	17	25	222.36	114
01	11.0	9.0		M14	33	19	46.5	17	25	222.36	116
02	6.0	4.9	M4,5 - M6	M8	50	31	69.0	30	34	269.94	200
02	7.0	5.5	M7	M10	50	31	69.0	30	34	269.94	202
02	8.0	6.2	M8	M11	50	31	69.0	30	34	269.94	204
02	9.0	7.0	M9	M12	50	31	69.0	30	34	269.94	206
02	10.0	8.0	M10		50	31	69.0	30	34	269.94	208
02	11.0	9.0		M14	50	31	69.0	30	34	269.94	210
02	12.0	9.0	M12	M16	50	31	69.0	30	34	269.94	212
02	14.0	11.0		M18	50	31	69.0	30	34	269.94	214
02	16.0	12.0		M20	50	31	69.0	30	34	269.94	216

Quick change tap adapter

▲ Normal version without overload clutch
▲ For mounting taps
▲ For right-hand and left-hand threads





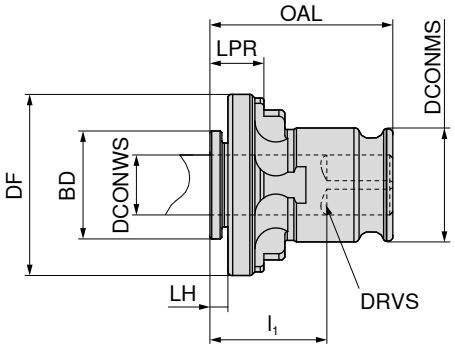


83 610 ...

SZID	DCONWS mm	BD mm	DRVS mm	DIN 371	DIN 374 / 376	DF mm	DCONMS mm	OAL mm	LH mm	l_1 mm	LPR mm	£ Y8	
01	3.5	18	2.7	M3		30.2	19	31	3.5	17	9.5	51.10	**100**
01	4.5	18	3.4	M4		30.2	19	31	3.5	17	9.5	51.10	**101**
01	4.0	18	3.0	M3,5		30.2	19	31	3.5	17	9.5	51.10	**102**
01	2.8	18	2.1	M2 - M2,6		30.2	19	31	3.5	17	9.5	51.10	**103**
01	5.5	18	4.3		M7	30.2	19	31	3.5	17	9.5	51.10	**104**
01	6.0	18	4.9	M4,5 - M6	M8	30.2	19	31	3.5	17	9.5	51.10	**105**
01	7.0	18	5.5	M7	M10	30.2	19	31	3.5	17	9.5	51.10	**106**
01	8.0	18	6.2	M8	M11	30.2	19	31	3.5	17	9.5	51.10	**107**
01	9.0	18	7.0	M9	M12	30.2	19	31	3.5	17	9.5	51.10	**108**
01	10.0	18	8.0	M10		30.2	19	31	3.5	17	9.5	51.10	**109**
01	11.0	18	9.0		M14	30.2	19	31	3.5	17	9.5	51.10	**110**
02	6.0	26	4.9	M4,5 - M6		46.3	31	46	2.5	30	11.0	70.27	**200**
02	7.0	26	5.5	M7		46.3	31	46	2.5	30	11.0	70.27	**201**
02	8.0	26	6.2	M8		46.3	31	46	2.5	30	11.0	70.27	**202**
02	9.0	26	7.0	M9		46.3	31	46	2.5	30	11.0	70.27	**203**
02	10.0	26	8.0	M10		46.3	31	46	2.5	30	11.0	70.27	**204**
02	11.0	26	9.0		M14	46.3	31	46	2.5	30	11.0	70.27	**205**
02	12.0	26	9.0		M16	46.3	31	46	2.5	30	11.0	70.27	**206**
02	14.0	26	11.0		M18	46.3	31	46	2.5	30	11.0	70.27	**207**
02	16.0	26	12.0		M20	46.3	31	46	2.5	30	11.0	70.27	**208**
02	18.0	26	14.5		M22 - M24	46.3	31	46	2.5	30	11.0	70.27	**209**

Quick change tap adapter, with through coolant

▲ Normal version without overload clutch
▲ For mounting taps
▲ For right-hand and left-hand threads





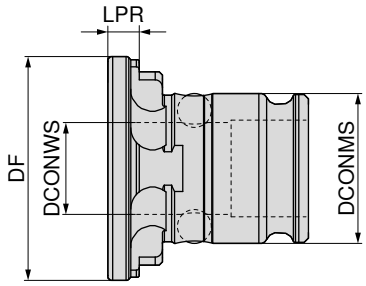


83 614 ...

SZID	DCONWS mm	BD mm	DRVS mm	DIN 371	DIN 374 / 376	DF mm	DCONMS mm	OAL mm	LH mm	l_1 mm	LPR mm	£ Y8	
01	3.5	18	2.7		M4,5 - M5	30.2	19	31	3.5	17	9.5	101.99	**100**
01	4.5	18	3.4	M4	M6	30.2	19	31	3.5	17	9.5	101.99	**102**
01	5.5	18	4.3		M7	30.2	19	31	3.5	17	9.5	101.99	**104**
01	6.0	18	4.9	M4,5 - M6	M8	30.2	19	31	3.5	17	9.5	101.99	**106**
01	7.0	18	5.5	M7	M10	30.2	19	31	3.5	17	9.5	101.99	**108**
01	8.0	18	6.2	M8	M11	30.2	19	31	3.5	17	9.5	101.99	**110**
01	9.0	18	7.0	M9	M12	30.2	19	31	3.5	17	9.5	101.99	**112**
01	10.0	18	8.0	M10		30.2	19	31	3.5	17	9.5	101.99	**114**
02	6.0	26	4.9	M4,5 - M6	M8	46.3	31	46	2.5	30	11.0	133.50	**200**
02	7.0	26	5.5	M7	M10	46.3	31	46	2.5	30	11.0	133.50	**202**
02	8.0	26	6.2	M8	M11	46.3	31	46	2.5	30	11.0	133.50	**204**
02	9.0	26	7.0	M9	M12	46.3	31	46	2.5	30	11.0	133.50	**206**
02	10.0	26	8.0	M10		46.3	31	46	2.5	30	11.0	133.50	**208**
02	11.0	26	9.0		M14	46.3	31	46	2.5	30	11.0	133.50	**210**
02	12.0	26	9.0	M12	M16	46.3	31	46	2.5	30	11.0	133.50	**212**
02	14.0	26	11.0		M18	46.3	31	46	2.5	30	11.0	133.50	**214**
02	16.0	26	12.0		M20	46.3	31	46	2.5	30	11.0	133.50	**216**

Reducing adapter for quick change adapters

▲ Reducing adapter for reducing size 02 to 01. In this way the clamping ranges can be extended to smaller sizes.







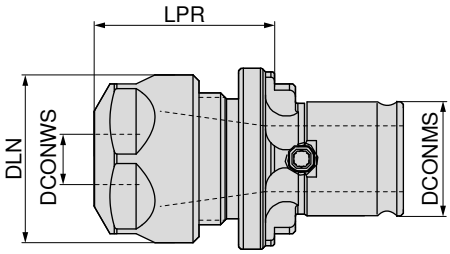
83 624 ...

SZID	DF mm	DCONMS mm	DCONWS mm	LPR mm	£ Y8	
02	46	31	19	8.5	157.33	**200**

16

Quick change tap adapters

▲ Adapters for collets ER 16 / ER 25





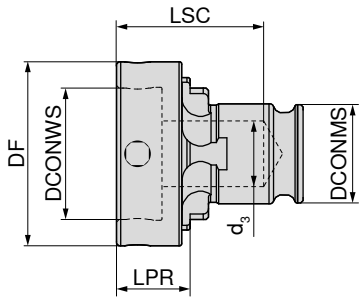


SZID	DCONWS mm	DLN mm	DCONMS mm	LPR mm	for collet	83 618 ... £ Y8	
01	1 - 10	28	19	29.5	ER 16	215.97	010 1)
02	2 - 16	42	31	38.5	ER 25	304.55	016

1) with 6 position lock nut

Quick change adapter for dies

▲ For mounting dies according to DIN 223





SZID	for size	DF mm	DCONMS mm	DCONWS mm	LPR mm	d_3 mm	LSC mm	83 622 ... £ Y8	
01	16 x 5	25	19	16	9	12.5	23	219.04	116
01	20 x 5	30	19	20	9	12.5	23	293.23	120
01	20 x 7	30	19	20	11	12.5	25	204.17	121
01	25 x 9	35	19	25	14	12.5	28	293.23	125
01	38 x 10	48	19	38	15	14.2	29	293.23	138
01	30 x 11	40	19	30	16	12.5	30	293.23	130
01	38 x 14	48	19	38	19	14.2	33	204.17	139
02	20 x 5	30	31	20	22	15.0	57	307.86	220
02	20 x 7	30	31	20	22	15.0	57	286.77	221
02	25 x 9	35	31	35	22	15.0	57	286.77	225
02	38 x 10	48	31	38	22	22.0	57	307.86	238
02	30 x 11	40	31	30	22	22.0	57	286.77	230
02	38 x 14	48	31	38	25	22.0	60	286.77	239
02	45 x 14	57	31	45	29	22.0	64	307.86	245
02	45 x 18	57	31	45	29	22.0	64	286.77	246

MultiChange – Spanner



DRVS mm	TQX Nm	84 357 ... £ Y8	
6	5	14.49	006
8	12,5	14.93	008
10	15	16.77	010
13	20	18.15	013
16	25	24.43	016
19	25	36.10	019 1)
21	25	39.51	021 1)
24	25	41.62	024 1)

1) only for MultiChange reamers

MultiChange – Spanner Head



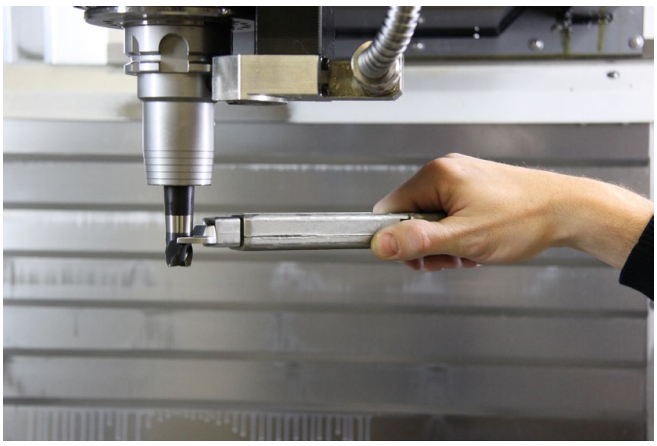
DRVS mm	TQX Nm	Square mm	84 358 ... £ Y8	
6	5	9 x 12	104.59	006
8	12,5	9 x 12	104.59	008
10	15	9 x 12	104.59	010
13	20	9 x 12	104.59	013
16	25	9 x 12	104.59	016
19	25	9 x 12	167.76	190
19	25	14 x 18	210.87	019 1)
21	25	9 x 12	234.56	210
21	25	14 x 18	256.96	021 1)
24	25	9 x 12	234.56	240
24	25	14 x 18	256.96	024 1)

1) only for MultiChange reamers

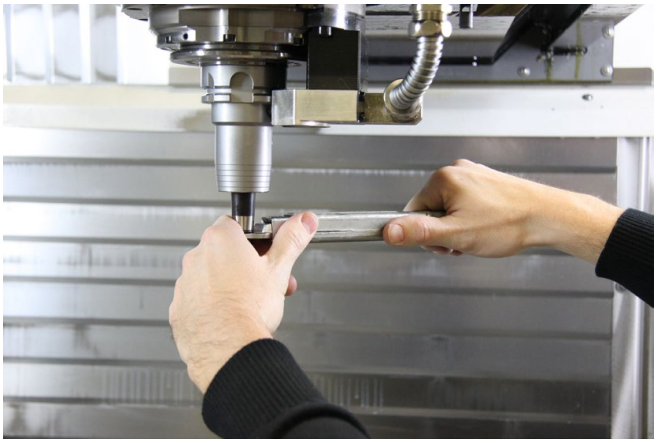
Suitable torque keys can be found on → **Page 286**.

Assembly instructions for MultiChange head

- ▲ Cleaning of cone, thread and face of the milling head
- ▲ Cleaning of cone and thread face of the holder
- ▲ Cleaning of cone, thread and face of the holders
- ▲ Cutter head screwed clockwise by hand into the holder (be careful if using gloves)
- ▲ Clamp the exchange milling head with the torque wrench and the correct spanner to the specified tightening torque (according to table).
- ▲ The gap between the head and holder must be closed (force and positive connection)



Torque wrench must be horizontally aligned to key area, take care not to tilt in the key area



Important for the sensitive tuning is an additional placing of the hand on the exchange milling head. This means the torque can be better maintained.

TORX® Screwdriver



Size	LB mm	TQX Nm	80 950 ... £ Y7	
T05	35	0,5	8.08	082
T06	35	0,9	8.18	083
T07	35	1,7	8.18	084
T08	40	2,6	8.18	085
T09	40	3,4	8.85	086
T10	40	4,5	8.85	087
T15	45	7,7	9.32	088
T20	45	12,7	10.19	089

TORX® Screwdriver sets



Size	80 950 ... £ Y7	
T06, T07, T08, T09, T10, T15, T20	76.72	090

TORX PLUS® Screwdriver



Size	LB mm	TQX Nm	80 950 ... £ Y7	
T05-IP	35	0,5	10.21	057
T06-IP	35	0,9	10.21	058
T07-IP	35	1,7	10.00	059
T08-IP	40	2,6	11.07	060
T09-IP	40	3,4	10.85	061
T10-IP	40	4,5	10.85	062
T15-IP	45	7,7	11.44	063
T20-IP	45	12,7	12.73	064

TORX PLUS® Screwdriver sets



Size	80 950 ... £ Y7	
T06IP, T07IP, T08IP, T09IP, T10IP, T15IP, T20IP	119.57	091

Allen key with cross handle



DRVS mm	TQX Nm	80 397 ... £ Y7	
2	1,9	6.37	020
2,5	3,8	6.61	025
3	6,6	6.37	030
4	16	6.37	040
5	30	8.11	050
6	52	7.96	060
8	120	9.89	080
10	220	16.50	100

Allen keys with cross handle – set

▲ 7-piece Allen key set in workbench stand



Size	80 397 ... £ Y7	
SW2, SW2,5, SW3, SW4, SW5, SW6, SW8	96.33	99900

TORX® Screwdriver



Size	LB mm	80 950 ... £ Y7	
T06	60	11.15	100
T07	60	11.15	101
T08	60	11.15	102
T09	60	12.00	103
T10	80	12.11	104
T15	80	12.47	105
T20	100	12.80	106
T25	100	13.95	107
T30	115	14.84	092

TORX PLUS® Screwdriver



Size	LB mm	80 950 ... £ Y7	
T06-IP	60	14.22	116
T07-IP	60	13.95	117
T08-IP	60	11.62	039
T09-IP	60	15.06	118
T10-IP	80	15.63	119
T15-IP	80	16.05	120
T20-IP	100	17.19	121
T25-IP	100	17.97	122

TORX® MagicSpring®



Size	LB mm	80 950 ... £ Y7	
MS T06	60	14.85	108
MS T07	60	13.73	109
MS T08	60	13.73	110
MS T09	60	15.63	111
MS T10	80	16.05	112
MS T15	80	16.32	113
MS T20	100	17.48	114
MS T25	100	17.97	115
MS T30	100	18.84	131

TORX PLUS® MagicSpring®



Size	LB mm	80 950 ... £ Y7	
MS T06-IP	60	18.22	123
MS T07-IP	60	17.97	124
MS T08-IP	60	17.97	125
MS T09-IP	60	19.68	126
MS T10-IP	80	20.40	127
MS T15-IP	80	21.01	128
MS T20-IP	100	22.06	129



A stainless steel spring holds MagicSpring® Torx® and Torx Plus® screws in place.





16

TorqueFix® Handle

- ▲ with fixed torque moment
- ▲ Standard: EN ISO 6798, BS EN 26789, ASME B107.14M
- ▲ Accuracy: ± 6 %, based on national standards
- ▲ Bits to be clamped in the universal holder only



TQX Nm	£ Y7	80 021 ...
0,4	124.23	00400
0,5	124.23	00500
0,6	156.74	006
0,7	137.63	007
0,8	140.73	008
0,9	124.23	00900
1	140.73	010
1,1	123.10	01100
1,2	155.19	012
1,5	123.10	01500
1,6	155.19	016
2	155.19	020
2,5	123.10	02500
3	164.05	030
3,2	164.05	032
3,8	130.03	03800
4	164.05	040
5	164.05	050
5,5	184.09	055
6	184.09	060
7,2	145.27	07200

easyTorque® Handle

- ▲ with a fixed torque
- ▲ Accuracy: ± 10%
- ▲ Bits can only be clamped in the universal holder



NEW

TQX Nm	DRVS mm	BD mm	OAL mm	WT kg	£ Y7	80 024 ...
0,5	4	34	130	0.950	81.82	00500
0,6	4	34	130	0.950	81.82	00600
0,9	4	34	130	0.940	81.82	00900
1,1	4	34	130	0.101	81.82	01100
1,2	4	34	130	0.990	81.82	01200
1,4	4	34	130	0.101	81.82	01400
2,0	4	34	130	0.101	86.02	02000
2,5	4	34	130	0.106	86.02	02500
3,0	4	34	130	0.104	86.02	03000
3,8	4	34	130	0.105	86.02	03800
4,0	4	34	130	0.105	88.12	04000
4,5	4	34	130	0.105	88.12	04500
5,0	4	34	130	0.105	88.12	05000

TorqueFix® key

- ▲ With fixed torque
- ▲ Ergonomic key handle, extremely easy to use thanks to compact design
- ▲ Specially designed for difficult to access screws and constricted openings
- ▲ Click signal when the set torque value is reached
- ▲ Standards: DIN EN ISO 6789
- ▲ Accuracy: ± 6%, traceable to national standards

Scope of supply:
incl. Plastic box and inspection report



TQX Nm	DRVS mm	£ Y7	80 392 ...
0,5	4	98.63	00500
0,6	4	98.63	00600
0,9	4	98.63	00900
1,1	4	98.63	01100
1,2	4	98.63	01200
1,4	4	98.63	01400
2,0	4	98.63	02000
2,5	4	98.63	02500
3,0	4	98.63	03000
3,8	4	98.63	03800
4,0	4	98.63	04000

TorqueVario®-S

- ▲ Patented handle

Scope of supply:
incl. Torque-Setter setting tool



TQX Nm	£ Y7	80 950 ...
0,4 - 1,0	218.70	046
0,5 - 2,0	217.91	191
0,8 - 5,0	205.52	192
2,0 - 7,0	244.07	193

Universal holder for Bits

- ▲ 162 mm long



for	£ Y7	80 950 ...
DIN3126-C/E 6,3-1/4"	13.49	014

Interchangeable blade for hex drive





Size	TQX Nm	short 75 mm 80 393 ... £ Y7		long 175 mm 80 950 ... £ Y7	
SW1,5	0,9	8.06	01500	11.95	151
SW2	1,8	8.06	02000	11.95	152
SW2,5	3,8	8.06	02500	11.95	153
SW3	5,5	8.06	03000	11.95	154
SW4	8,0	8.06	04000	11.95	155

Replaceable Blade for TORX®



Size	TQX Nm	short 75 mm 80 394 ... £ Y7		long 175 mm 80 950 ... £ Y7	
T05	0,4			9.66	048
T06	0,6	8.06	00600	8.91	031
T07	0,9	8.06	00700	8.91	032
T08	1,3	8.06	00800	8.91	033
T09	2,5	8.06	00900	8.91	034
T10	3,8	8.06	01000	8.91	035
T15	5,5	8.06	01500	8.91	036
T20	8,0	8.06	02000	8.91	037
T25	8,0	8.06	02500	8.91	038

Replaceable Blade for TORX PLUS®



Size	TQX Nm	long 175 mm 80 950 ... £ Y7	
T05-IP	0,5	8.91	049
T06-IP	0,8	8.91	050
T07-IP	1,3	8.91	051
T08-IP	2,0	8.91	043
T09-IP	3,0	8.91	052
T10-IP	4,5	8.91	053
T15-IP	6,6	8.91	054
T20-IP	8,0	8.91	055
T25-IP	8,0	8.91	056

Interchangeable blade, short 75 mm, suitable for TorqueFix® Key article number 80 392 ...→ **Page 296**.

Interchangeable blade, long 175 mm, suitable for TorqueFix® Grip article number 80 021 ... and TorqueVario®-S article number 80 950 ... → **Page 296**.

TORX® short bit (25 mm)

▲ DIN3126-C 6,3 – 1/4"



Size	TQX Nm	80 950 ... £ Y7	
T06	0,9	1.96	015
T07	1,7	1.96	016
T08	2,6	1.96	017
T09	3,4	1.96	018
T10	4,5	1.96	019
T15	7,7	1.96	020
T20	12,7	1.96	021
T25	19	1.96	022
T30	37,4	1.66	093

TORX® long bit (50 mm)

▲ DIN3126-E 6,3 – 1/4"



Size	TQX Nm	80 950 ... £ Y7	
T06	0,9	6.27	023
T07	1,7	6.27	024
T08	2,6	6.27	025
T09	3,4	6.27	026
T10	4,5	6.27	027
T15	7,7	6.27	028
T20	12,7	6.27	029
T25	19	6.27	030
T30	37,4	7.63	094

TORX PLUS® short bit (25 mm)

▲ DIN3126-C 6,3 – 1/4"



Size	TQX Nm	80 950 ... £ Y7	
T08-IP	2,6	4.71	068
T09-IP	3,4	4.71	069
T10-IP	4,5	4.71	070
T15-IP	7,7	4.71	071
T20-IP	12,7	4.71	072
T25-IP	19	4.71	073

TORX PLUS® long bit (50 mm)

▲ DIN3126-E 6,3 - 1/4"



Size	TQX Nm	80 950 ... £ Y7	
T08-IP	2,6	9.55	040
T09-IP	3,4	9.38	077
T10-IP	4,5	9.38	078
T15-IP	7,7	9.38	079
T20-IP	12,7	9.38	080
T25-IP	19	9.38	081

Bit – hexagonal (50 mm)

▲ DIN3126-E 6,3 - 1/4"



Size	80 398 ... £ Y7	
SW1,5	8.15	01500
SW2	8.15	02000
SW2,5	8.15	02500
SW3	7.41	03000
SW3,5	8.22	03500
SW4	6.08	04000
SW4,5	8.22	04500
SW5	7.41	05000
SW6	6.08	06000
SW8	12.80	08000

TORX PLUS® Allen key

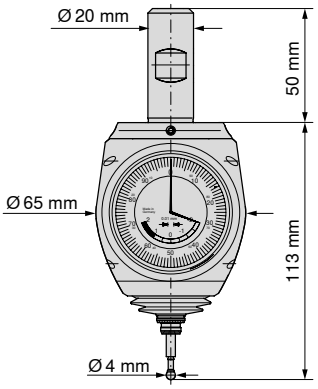


Size	OAL mm	80 951 ... £ Y7	
T07-IP	44	9.86	00700
T08-IP	47	9.86	00800
T09-IP	51	9.86	00900
T10-IP	54	10.08	01000
T15-IP	58	10.18	01500
T20-IP	62	10.84	02000
T25-IP	67	11.39	02500
T27-IP	73	11.84	02700
T30-IP	79	12.77	03000
T40-IP	88	14.56	04000

Universal 3D-tester

- ▲ Quick and accurate positioning
- ▲ For locating and/or setting the zero point of the workpiece
- ▲ with adjustable concentricity
- ▲ Usable in all 3 axes (x, y, z)
- ▲ For all CNC and erosion machines (insulation between stylus and case)
- ▲ Reading of actual dimensions is independent of direction
- ▲ Reading precision 0.01 mm

Scope of supply:
3D tester including tracer insert and Allen key



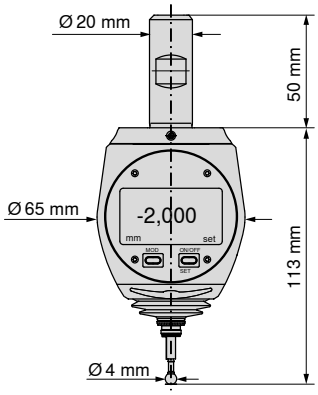


85 290 ...	£	
	XX	
Universal-3D-Tester	420.01	100

Digital 3D tester

- ▲ Quick and accurate positioning
- ▲ For locating and/or setting the zero point of the workpiece
- ▲ with adjustable concentricity
- ▲ Usable in all 3 axes (x, y, z)
- ▲ For all CNC and erosion machines (insulation between stylus and case)
- ▲ Reading of actual dimensions is independent of direction
- ▲ Reading precision 0.001 mm

Scope of supply:
3D tester including tracer insert and Allen key





85 291 ...	£	
	XX	
Digital 3D Tester	955.84	100

Zero height setting gauge

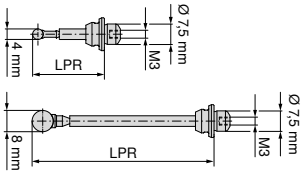
- ▲ to determine the point of reference and/or for adjusting tools „to zero“
- ▲ Plate Ø 10 mm
- ▲ Plate is hardened, non magnetic



85 900 ...	£	
OAH mm	Y7	
100	280.17	018

Stylus for 3D-tester

- ▲ With movement of 2 mm beyond the zero point a break-off ceramic insert prevents damage to the unit
- ▲ If the stylus is broken remove and insert a new stylus
- ▲ Check concentricity and adjust if necessary





85 290 ...	£	
LPR mm	XX	
25	32.96	102
65	70.23	104

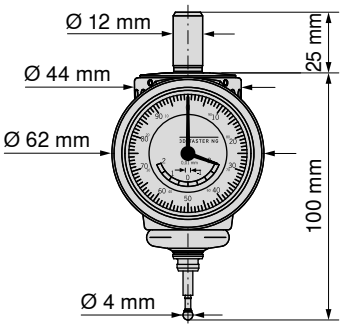
16

Universal 3D-Tester HQ

- ▲ fast and accurate positioning at reference edges
- ▲ Development of the existing universal 3D-Testers
- ▲ improved mechanics
- ▲ compact size
- ▲ characterised by over travel safety
- ▲ Functionality as with 85 290 100
- ▲ Accuracy 0,01 mm

Scope of supply:

3D tester including tracer insert and Allen key





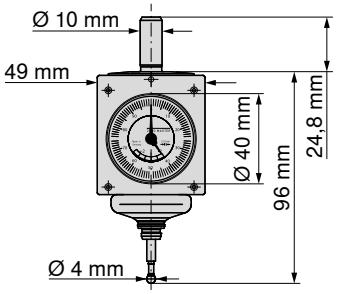
	85 292 ...	
	£ XX	
Universal 3D-Tester HQ	440.00	**100**

Universal 3D-Tester Mini

- ▲ fast and accurate positioning at reference edges
- ▲ very small universal 3D-Tester
- ▲ particularly suitable for machines with small spindle taper e.g. SK 30 or HSK 32
- ▲ low overhang length thanks to short housing
- ▲ characterised by over travel safety
- ▲ Functionality as with 85 290 100
- ▲ Accuracy 0,01 mm

Scope of supply:

3D tester including tracer insert and Allen key





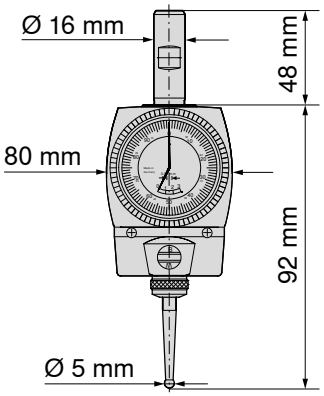
	85 295 ...	
	£ XX	
Universal 3D-Tester Mini	420.01	**100**

Centre finder

- ▲ Centralise holes and features quickly and accurately
- ▲ simple operation
- ▲ Dial gauge remains in the operators vision during process
- ▲ Centring accuracy 0,003 mm

Scope of supply:

3D-Tester incl. straight stylus and telescopic stop

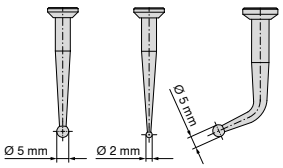




	85 299 ...	
	£ XX	
Centre finder	554.40	**100**

Range with probe tip Ø 5 mm holes
Ø 6–125 mm, shaft Ø 0–125 mm

Stylii for Centre Finder





	85 299 ...	
	£ XX	
Straight stylus / Ball-Ø 2 mm	42.00	**102**
Straight stylus / Ball-Ø 5 mm	41.20	**104**
Curved stylus / Ball Ø 5 mm	50.41	**106**

Telescopic rod for Centre Finder

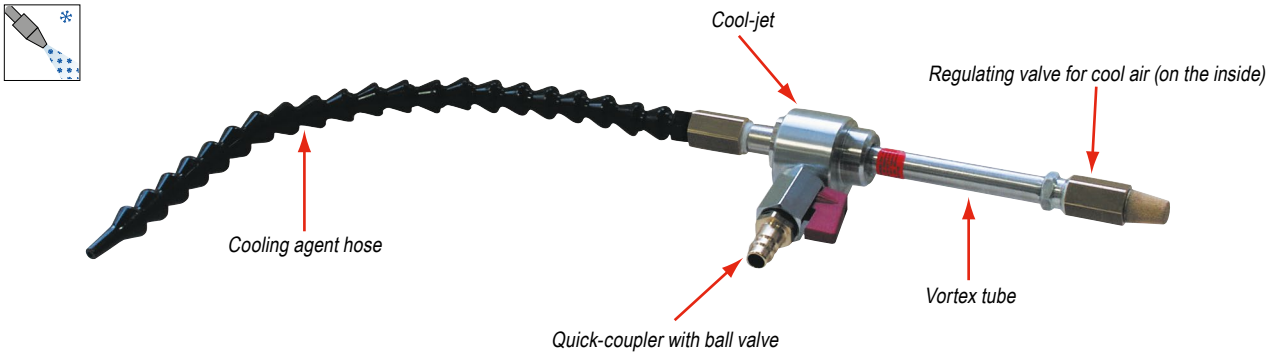
DCONMS mm	OAL mm	85 299 ...	
		£ XX	
6	478	16.49	**111**

Advantages with the use of the cool air nozzle

The main advantages are that cooling agent disposal is not required and tool life increases up to 100 % when dry machining

In order to improve the service life when dry machining, we recommend the use of our cooling nozzle, which is applicable with a normal compressed air connection from a pressure of 6 bar.

Not only for**cooling the tool and workpiece** it is primarily**for chip removal** to preventchip **jamming**.



Cool-jet	81 900 ... £ Y7	
3–7 bar air pressure, at -46 °C	1,605.40	100

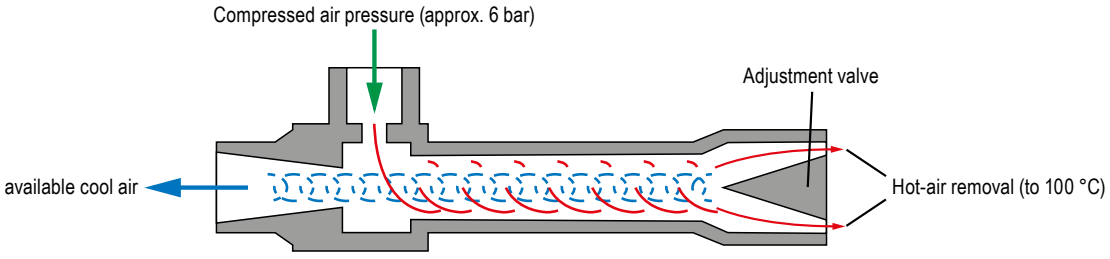
Accessories	81 900 ... £ Y7	
Magnetic plate Ø 80 mm without clamping arm	85.96	101
Spare tube, length 300 mm	85.96	104
Jet silencer (air filter)	18.05	105
Clamping arm, length 75 mm	253.63	106
Complete set (with magnetic set and clamping arm), weight 0,4 kg	334.69	107

Technical description – operating instruction

The principle of the cold-air nozzle is based on the use of vortex tubes. Ordinary air is divided into cold and hot air streams.

Without additional power supply or moving parts the cool air nozzle can produce**cooling performance of up to 733 W** or **Temperatures of approx. -42 °C** are produced and requires only operating pressure air of approx. 6 bar.

A water trap or service unit should be mounted. A regulating valve in the hot-air outlet regulates the temperatures and currents



Utilizable air temperature measured at the effective discharge of the vortex tube (not the nozzle end)

Air consumption at an inlet temperature of +21 °C and an inlet pressure of 6.9 bar: 7,08 l / sec. (25.5 m³ / h)

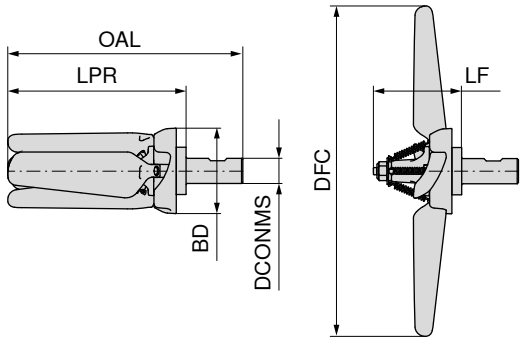
Entrance pressure				
	3 bar	-31 °C	up to	-6 °C
	4 bar	-35 °C	up to	-8 °C
	5 bar	-39 °C	up to	-10 °C
	6 bar	-42 °C	up to	-11 °C
	7 bar	-46 °C	up to	-13 °C

In order to operate the regulating valve, the silencer must be unscrewed – there is a burn danger! The valve of the hot air side can reach up to 100 °C: Before contact, allow cooling!

16

Cleaning propeller – large

▲ Chip and emulsion removal or drying processes via the tool spindle
▲ Simple replacement of the rotor blades





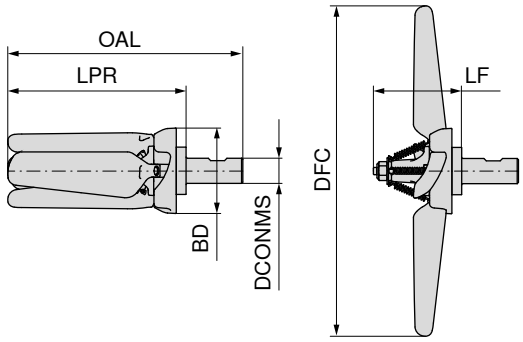


IK central

DCONMS	OAL	LPR	LF	DFC	BD	RPMX	80 399 ... £ Y7	
mm	mm	mm	mm	mm	mm	1/min.		
20	186.3	141.3	69.75	254	67.68	5000 - 8000	571.13	02000

Cleaning propeller – small

▲ Chip and emulsion removal or drying processes via the tool spindle
▲ Simple replacement of the rotor blades







IK central

DCONMS	OAL	LPR	LF	DFC	BD	RPMX	80 399 ... £ Y7	
mm	mm	mm	mm	mm	mm	1/min.		
20	135	90	70	160	68	6000 - 12000	459.13	16000

Rotor blade kit



1 rotary blade and 1 tension spring



4 rotary blades and 4 tension springs

Size	80 399 ... £ Y7		80 399 ... £ Y7	
Large	70.06	30100	270.78	30200
Small	48.33	36000	193.32	46000

Driven Tools

CERATIZIT offers a comprehensive portfolio of driven tool holders for the turrets or machines of leading manufacturers. There is almost no limit to the range of types available. You will find a small selection of our holders here.

Examples from our driven tooling range



Axial drilling and milling head



Radial drilling and milling head



Rear offset radial drilling and milling head



Double radial drilling and milling head



Double axial drilling and milling head



Offset axial drilling and milling head



Swivel head



Modular milling

Summary of machine turret manufacturers and interfaces for which CERATIZIT can supply driven tools

- ▲ Sauter
- ▲ Baruffaldi
- ▲ Duplomatic
- ▲ DIN1809
- ▲ DIN5480
- ▲ DIN5482
- ▲ Baruffaldi Toem
- ▲ Bevel gear milling
- ▲ Spline / tooth
- milling
- ▲ BMT (bolt on)

Technical Advice

Are you interested in our driven tools ? If so please contact your technical sales engineer who will be glad to assist you. Alternatively, you can contact our office based internal technical sales engineers who can be reached on our freephone number.

Enquiry Form

Should you have questions about driven tools you can find a detailed questionnaire on our website in the download area. Carefully complete the form and send it via e-mail or printed fax
→ **cutting.tools/en/download**

16

Modular quick-change system for driven tools

You want to optimize your setup time? CERATIZIT offers you several options! With each axial and radial driven tool you are prepared through the exchange of different modules for different machining demands.

Varia VX

The new quick change system for heavy duty machining



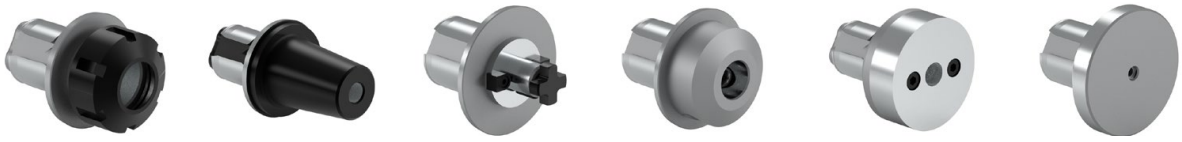


The face & taper contact interface ensures maximum concentricity.
The torque is transmitted via a form-fitting polygon, which can transmit up to 200 Nm.

Clamping and releasing takes place via a segmented gear wheel equipped with 3 multifunctional cams. When tightened with a radially mounted clamping screw, the 3-point clamping pulls the tool evenly into its operating position. When releasing the tool force is applied mechanically via a sliding cam and the tool is released for removal from the adapter.

The advantages at a glance

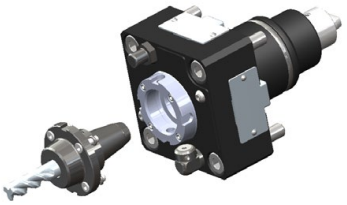
- ▲ Cutting tools are preset off the machine
- ▲ Quick change thanks to only one clamping point
- ▲ No risk of injury when changing tools
- ▲ Transverse force-free clamping of the tools
- ▲ Safe torque transmission
- ▲ No loose parts



System Preci-Flex® – The stable solution for long tool life and high surface quality

The internal cone of the driven tool is suitable for any commercial type ER collets. Through taper & face contact ≤ 0.01 mm system concentricity and ≤ 0.005 mm repeatability is achieved and four plane-side clamp screws achieve maximum system stability and rigidity.

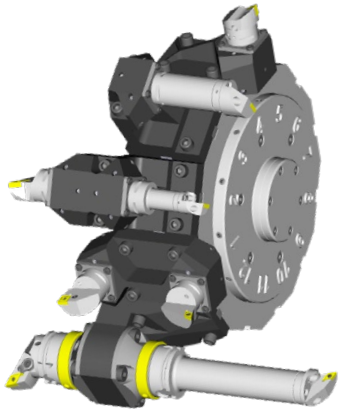






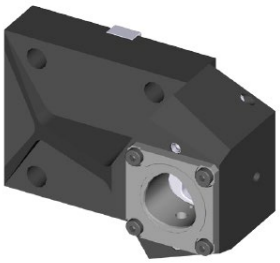
The program includes base holders for the collet sizes ER20, ER25, ER32, ER40 and ER50 and collet holders with male or female nut, adapters Weldon, Whistle Notch, shrink, boring bars, Shell mill arbors, hydraulic chucks, Test arbors and blanks. Also available for static VDI holders and rotating SK and HSK holders.

Quick-Change

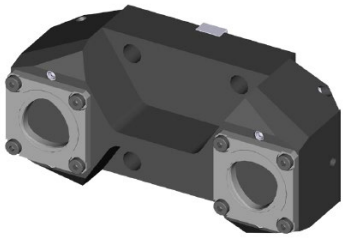


The tool holder range comprises both innovative and technologically proven solutions for all common CNC turning centres. We offer solutions that are perfectly tailored to the make of machine, regardless of whether the machine has a BMT, VDI or other connection type.

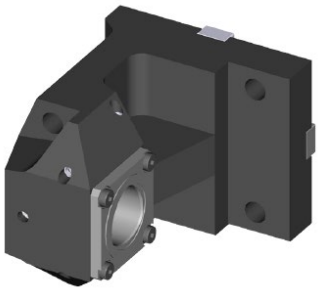
Every quick-change system has a standardised interface to DIN/ISO requirements and is available for HSK-T 40/63/100 and PSC 40/50/63 sizes. The tool change itself is carried out quickly and easily, minimising idle times and thus boosting productivity.



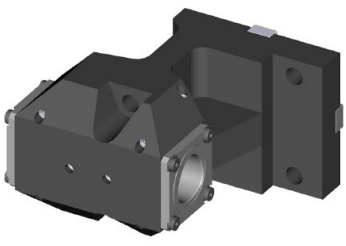
Tool holder single and straight



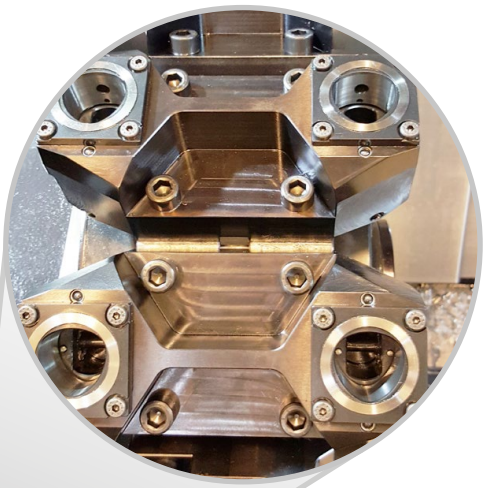
Tool holder double and straight

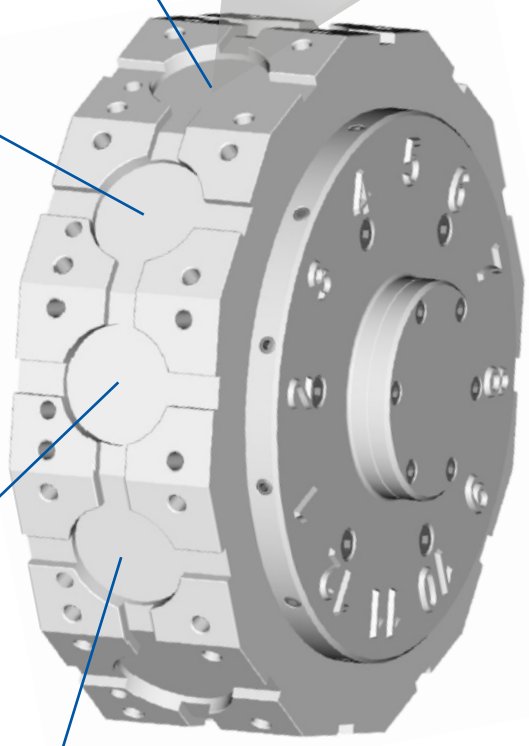


Single angle tool holder



Double angle tool holder





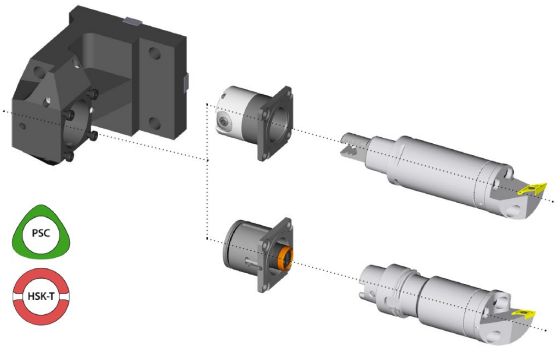
Revolverdisk BMT/VDI/...

16

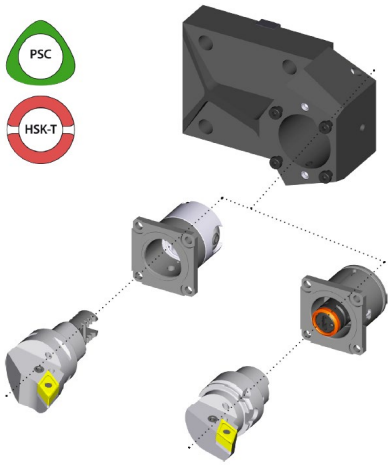
HSK/PSC clamping units

The tool holders are fitted with either an HSK or PSC clamping unit.

Clamping units are available in sizes HSK 40/63/100 and PSC 40/50/63.

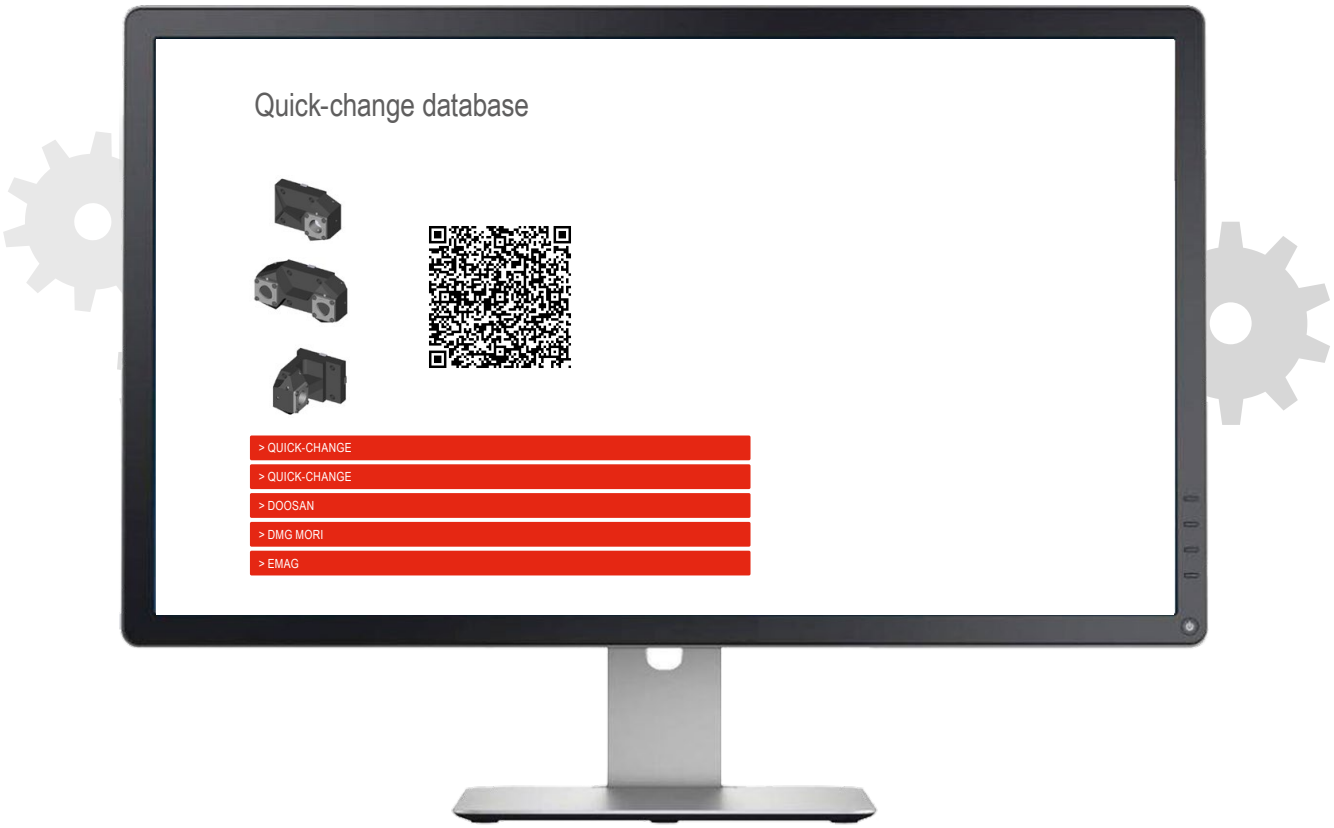


The toolholders permit the flexibility to be adapted to the customer's requirements.



Online database

Our quick-change tool holders are individually adapted to turning machines to ensure the greatest-possible levels of flexibility and efficiency. Using the online database, systems of previously specified machine types can be evaluated in order to obtain an initial overview.



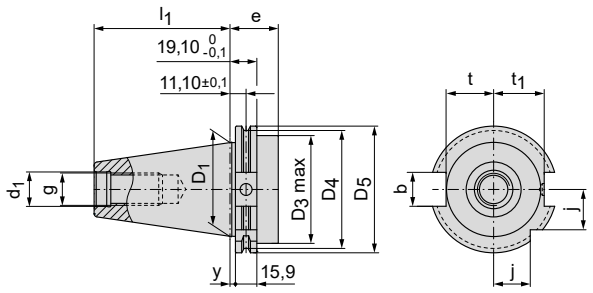
Information on enquiry process

To make the enquiry process as easy as possible, please use our enquiry form to enter the most important machine data and information on the machining process.
Please fill in this form carefully and send it to us by email or fax. → **cutting.tools/gb/download-quickchange**

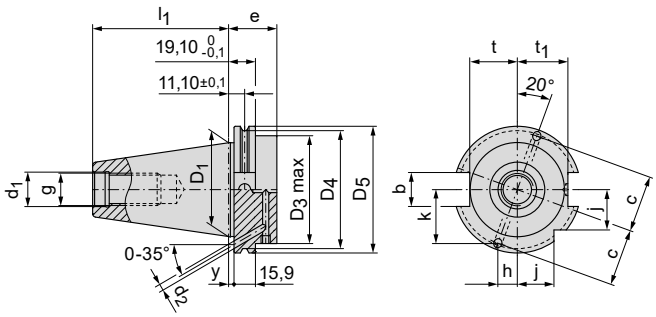
If you have any questions regarding the ordering process or the form itself, your CERATIZIT Technical Sales Engineer will be happy to help.

Technical data for steep taper tools

ISO 7388-1 – Form A

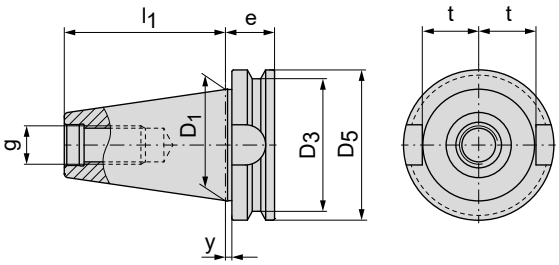


ISO 7388-1 – 871 Form B



	D_1 mm	$D_{3\,max}$ mm	D_4 mm	D_5 mm	l_1 $^{+0,2}_{0}$ mm	g	d_1 ^{H7} mm	e mm	y $^{\pm0,1}$ mm	t mm	t_1 mm	j mm	d_2 mm	h mm	k mm	c mm	b mm
SK 30	31,75	45	44,30	50	47,8	M 12	13	35	3,2	16,4	19	15					16,1
SK 40	44,45	50	56,25	63,55	68,4	M 16	17	35	3,2	22,8	25	18,5	4	9,2	25,4	27	16,1
SK 50	69,85	80	91,25	97,5	101,75	M 24	25	35	3,2	35,5	37,7	30	6	14,4	39,5	42	25,7

ISO 7388-2

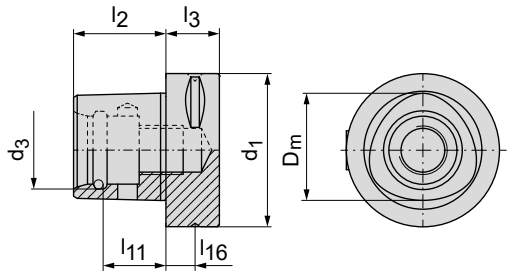


Maximum recommended rpm
for steep taper toolholders:
SK / BT 30 to 20,000 $^{1}/_{min.}$
SK / BT 40 to 20,000 $^{1}/_{min.}$
SK / BT 50 to 16,000 $^{1}/_{min.}$

	D_1 mm	D_3 mm	D_5 mm	l_1 mm	g	e mm	t mm	y mm	b mm
BT 30	31,75	38	46	48,4	M 12	22	16,3	2	16,1
BT 40	44,45	53	63	65,4	M 16	27	22,5	2	16,1
BT 50	69,85	85	100	101,8	M 24	38	35,3	3,2	25,7

Technical Data for Polygon shank adapters

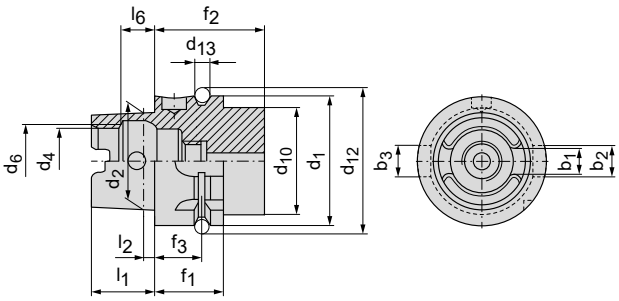
ISO 26623-1



Shank size	d_1 mm	d_3 $^{\pm0,05}$ mm	l_2 $^{\pm0,1}$ mm	l_3 mm	l_{11} $^{\pm0,1}$ mm	l_{16} mm	D_m mm
32	32	16,5	19	15	13,5	9	22
40	40	20	24	20	17,5	12	28
50	50	24	30	20	22	12	35
63	63	32	38	22	26	12	44
80	80	38	48	30	34	12	55

Technical Data for HSK Adapters

ISO 12164 – HSK-A / HSK-C



Maximum rpm recommended for HSK adapters:

HSK-A 32 to 50.000 $^{1}/_{min.}$
HSK-A 40 to 42.000 $^{1}/_{min.}$
HSK-A 50 to 30.000 $^{1}/_{min.}$
HSK-A 63 to 25.000 $^{1}/_{min.}$
HSK-A 100 to 16.000 $^{1}/_{min.}$

	b_1 mm	b_2 mm	b_3 mm	d_1 mm	d_2 mm	d_4 mm	d_6 mm	d_{10} mm	d_{12} mm	d_{13} mm	f_1 mm	f_2 mm	f_3 mm	l_1 mm	l_2 mm	l_6 mm
HSK 32	7,05	7	9	32	24	17	19	26	37	4	20	35	16	16	3,2	8,92
HSK 40	8,05	9	11	40	30	21	23	34	45	4	20	35	16	20	4	11,42
HSK 50	10,54	12	14	50	38	26	29	42	59,3	7	26	42	18	25	5	14,13
HSK 63	12,54	16	18	63	48	34	37	53	72,3	7	26	42	18	32	6,3	18,13
HSK 100	20,02	20	22	100	75	53	58	88	109,75	7	29	45	20	50	10	28,56

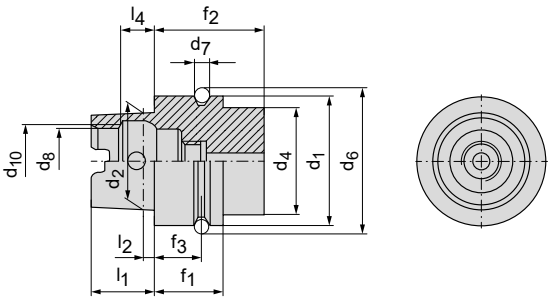
ISO 12164 – HSK-A

- Applied for machining centres, milling and special machines with automatic tool change
- **Central axial coolant supply via the coolant pipe**
- Torque transmission via 2 driving grooves at the taper end
- 2 grooves on the flange for the tool magazine, positioning notch, bore for data storage medium DIN 69873 in the flange

ISO 12164 – HSK-C

- Applied for machine spindles without automatic tool change as well as tool extensions and reducers
- **Central axial coolant supply via the coolant pipe**
- Torque transmission via 2 driving grooves at the taper end

ISO 12164 – HSK-E



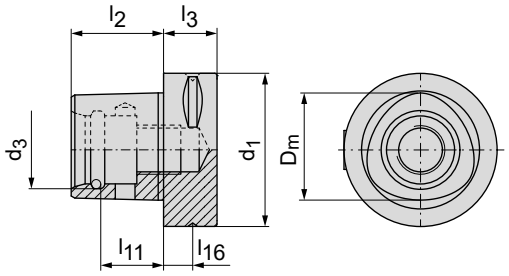
	d_1 mm	d_2 mm	d_4 mm	d_6 mm	d_7 mm	d_8 mm	d_{10} mm	f_1 mm	f_2 mm	f_3 mm	l_1 mm	l_2 mm	l_4 mm
HSK 40	40	30	34	45	4	21	23	20	35	16	20	4	11,42
HSK 50	50	38	42	59,3	7	26	29	26	42	18	25	5	14,13
HSK 63	63	48	53	72,3	7	34	37	26	42	18	32	6,3	18,13

ISO 12164 – HSK-E

- Applied for high rpm (HSC) for high speed spindles with automatic tool change
- Rotation symmetrical, without driving grooves
- Torque transmission through friction
- **Possibility of central coolant supply via coolant pipe**

Technical Information for Polygon Shank Adapters

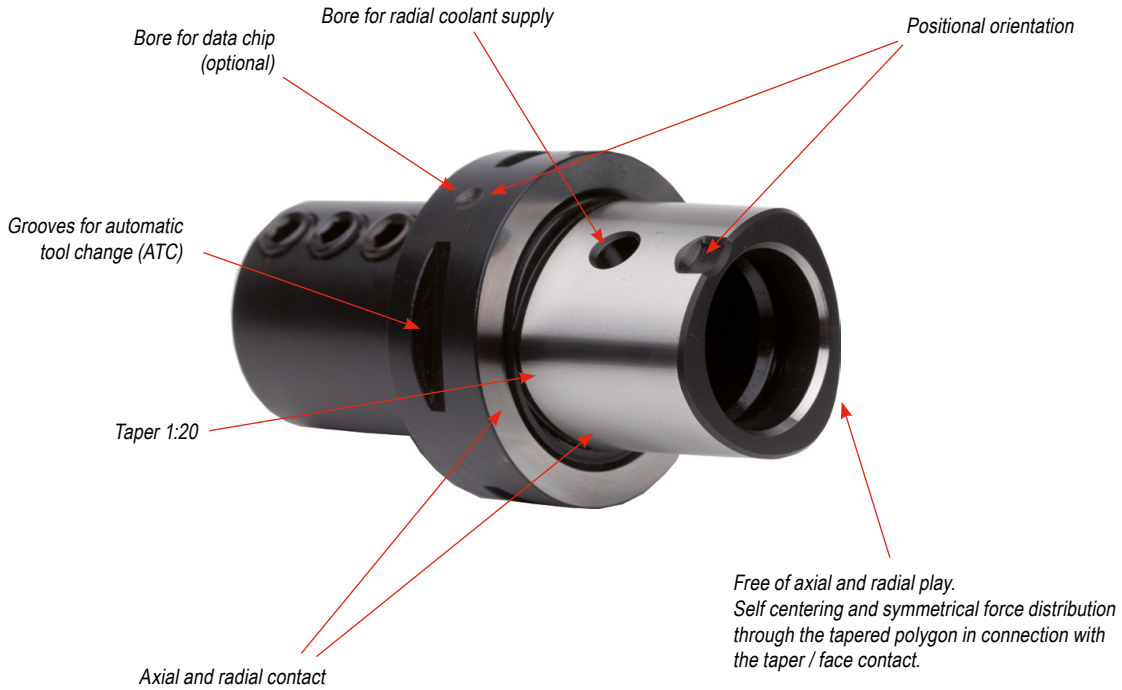
ISO 26623-1



Shank size	d_1	d_3 ± 0,05	l_2 ± 0,1	l_3	l_{11} ± 0,1	l_{16}	D_m
32	32	16,5	19	15	13,5	9	22
40	40	20	24	20	17,5	12	28
50	50	24	30	20	22	12	35
63	63	32	38	22	26	12	44
80	80	38	48	30	34	12	55

Advantages of the PSC interface

The repeatability of the PSC shank is ± 2 microns



The tapered polygon in conjunction with the tight tolerance provides backlash-free centering also acts as pull back. The PSC cone has very high rigidity and bending strength. The main advantages of this interface are the transmittable torque stability, the resistance against radial forces acting on the tool and the exact center height. This means high feed rates can be achieved on large material cross sections. The PSC interface is ideally suited for all machining operations such as drilling, turning and milling.

HyPower / HyTens

The right hydraulic chuck for so many different machining scenarios!

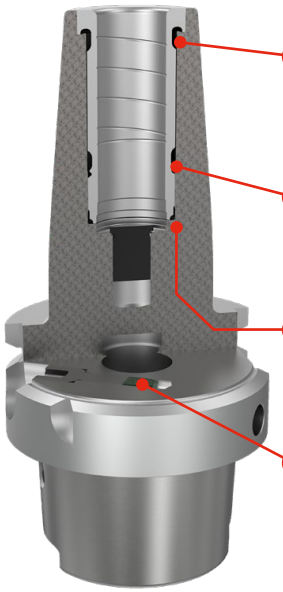
Are you looking for higher cutting speeds to enhance productivity and facilitate handling? The entire range of **HyPower** high pressure chucks and the range of **HyTens** hydraulic chucks from CERATIZIT guarantee easy, process-secure tool clamping for every application.

HyPower –	High pressure chuck	Application range
Rough	Milling with strong forces > roughing	▽▽▽ ▽▽ ▽
Complus	All-rounder	▽▽▽ ▽▽ ▽
Access 3°	Optimum accessibility	▽▽▽
Access 4.5°	Optimum accessibility thanks to same interference contour as heat shrink adapter, latest technology	▽▽▽ ▽▽

HyTens –	Hydraulic chuck	Application range
Fit	All-rounder	▽▽▽ ▽▽
Turn	Perfect for turning operations	▽▽▽ ▽▽
Compact	affordable all-round alternative	▽▽▽ ▽▽

Main Application	▽▽▽	▽▽	▽
Extended application	▽▽	▽	
	Finishing	Roughing - Finishing	Roughing

Maximum performance and productivity



New chamber design makes it possible to reverse the force at critical solder joints (from tensile to compression load), enabling significantly higher radial loads during machining.

New chamber design significantly reduces the technology's susceptibility to temperature (up to 80°C even during milling operations lasting up to 240 minutes)

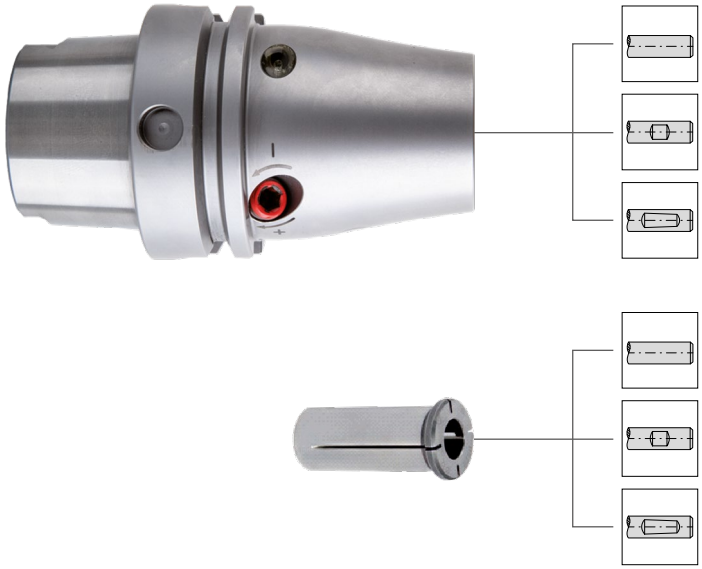
If there are multiple instances of unintended shrinking, the soldering system includes an emergency outlet to prevent potential injuries.

Double-lip sealing system dramatically increases the service life of the hydraulic chuck (over 10,000 clamping cycles under laboratory conditions)

HyPower / HyTens

Clamping of shanks with flats possible with or without reduction sleeve

HSS shank DIN1835 and
Solid Carbide shank DIN6535



The main applications for Milling Chuck

- ▲ HPC Milling
- ▲ HSC Milling
- ▲ Hard Machining
- ▲ Drilling
- ▲ Reaming

Clamping Force Comparison with Different Systems

This comparison shows the higher retention forces of the Milling Chuck **(HyPower)**. Especially with larger diameters high holding force is important when HPC machining so that the tool is not pulled out of the holder. **HyPower** now offers this process reliability.

Key Benefits

- ▲ Increased Process Security
- ▲ Longer Tool Life
- ▲ Improved Surface Quality
- ▲ Extended spindle life

Shank type & size	16	18	20	25	32	mm
	Maximum transmissible torque with shank tolerance h6					
HyTens – Hydraulic chuck	170	240	330	400	650	Nm
HyPower – High pressure chuck	350	430	520	650–750	800–890	Nm
Heat Shrink Adapter	200	290	450	530	700	Nm

Symbol explanation


Plain cylindrical shank


Cylindrical shank with lateral driving face „Weldon“


Cylindrical shank with angled clamping flat „Whistle Notch“

Clamping Torque Values (Md) and minimum shank clamping depths for hydraulic- and high pressure chucks





Minimum shank clamping depths

	Shank type & size	6	8	10	12	14	16	18	20	25	32	mm
HyTens	Minimum clamping depth	27	27	31	36	36	39	39	41	47	51	mm
HyPower	Minimum clamping depth						39	39	41	47	51	mm

Clamping Torque Values (Md) for direct clamping

	Clamping diameter (d1 h6)	6	8	10	12	14	16	18	20	25	32	mm
HyTens	Md with shank at minimum size	20	30	47	80	100	160	200	330	400	650	Nm
HyTens	Md with shank at maximum size	30	45	85	140	160	230	270	400	470	730	Nm
HyPower	Md with shank at minimum size						280	360	550	650	800	Nm
HyPower	Md with shank at maximum size						380	450	650	750	890	Nm

Clamping Torque Values (Md) for clamping with reduction sleeve Ø 32 mm

	Clamping diameter (d1 h6)	6	8	10	12	14	16	18	20	25	mm
HyTens	Md with shank at minimum size	30	45	60	120	120	180	220	250	330	Nm
HyTens	Md with shank at maximum size	45	65	110	170	170	230	300	320	440	Nm

Clamping Torque Values (Md) for clamping with reduction sleeve Ø 20 mm

	Clamping diameter (d1 h6)	3	4	5	6	8	10	12	14	16	mm
HyTens	Md with shank at minimum size	6	9	16	30	55	90	120	135	190	Nm
HyTens	Md with shank at maximum size	10	12	22	40	75	120	150	170	260	Nm

Clamping Torque Values (Md) for clamping with reduction sleeve Ø 12 mm

	Clamping diameter (d1 h6)	3	4	5	6	8	mm
HyTens	Md with shank at minimum size	3	4	7	12	18	Nm
HyTens	Md with shank at maximum size	4	8	12	20	26	Nm

For Shrink Fit Adapter

Shank type & size	3	4	5	6	8	10	12	14	16	18	20	25	32	mm
Minimum clamping depth	12	16	20	26	26	31	37	37	40	40	42	48	52	mm
permissible torque moment	4	11	17	24	45	82	145	190	200	290	450	530	700	Nm

Static clamping moments

Static clamping moments of the Centro-P and HDC ER precision collet chucks with different tightening torques measured at the lock nut.

Centro-P

Clamping diameter (d1 h6)	2	3	3,5	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	mm
ER 16 torque moment 30 Nm	2	3,5	5																						Nm
ER 16 torque moment 50 Nm				12	20	30	45	60	72	80															Nm
ER 25 torque moment 40 Nm				10	20	40																			Nm
ER 25 torque moment 75 Nm							62	75	85	95															Nm
ER 25 torque moment 90 Nm											122	145	160	175	190	200									Nm
ER 32 torque moment 60 Nm				20	30	40																			Nm
ER 32 torque moment 120 Nm							75	90	110	120	135	150	160	180	190										Nm
ER 32 torque moment 140 Nm																220	240	260	280	300					Nm
ER 40 torque moment 70 Nm				60	75	90	100																		Nm
ER 40 torque moment 110 Nm								110	125	140	150														Nm
ER 40 torque moment 150 Nm												200	220	240	260	300	350								Nm
ER 40 torque moment 200 Nm																			420	440	460	480	515	530	Nm

HDC – Heavy Duty Chuck

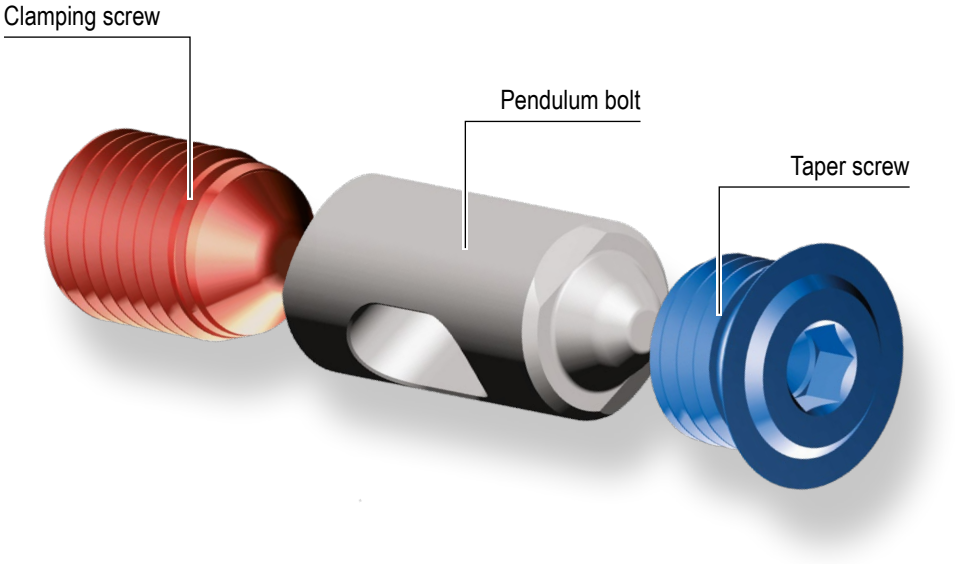
Clamping diameter (d1 h6)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	mm
ER 32 tightening torque 40 Nm			25	37	50															Nm
ER 32 torque moment 120 Nm						93	112	137	150	168	187	200	225	237						Nm
ER 32 torque moment 140 Nm															275	300	325	350		Nm
ER 32 tightening torque 180 Nm																			375	Nm

Measurement of the specified clamping forces was performed exclusively statically. The actual clamping forces that arise during machining may deviate due to various influences (vibrations, oscillations, machining situation).

Technical information – ABS

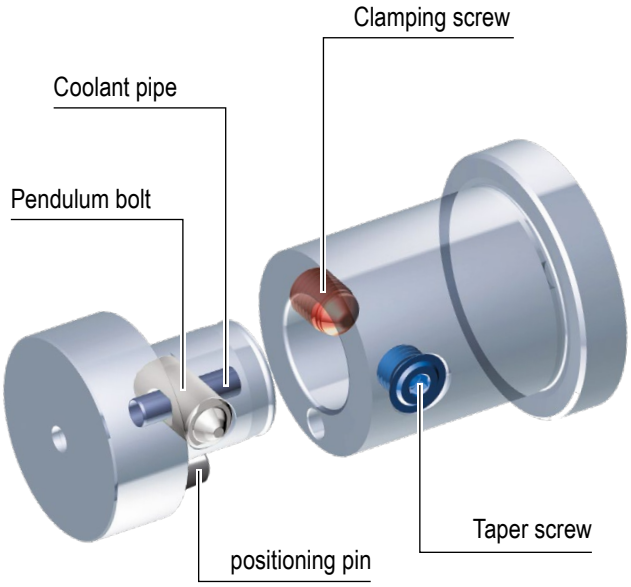
Even better connected

The extension of the proven ABS system complements the existing portfolio and continues to meet the high demands on accuracy. The adapter is an important element in tooling systems between the cutting tool and the machine. It must be able to reliably transmit the cutting forces that are produced. Adapters also have a considerable impact on the quality of the machining result. They also contribute to the cost-effectiveness of the machining process.



Advantages

- ▲ Improved force transmission
- ▲ Optimum machining result
- ▲ Higher cutting values possible
- ▲ Less noise pollution in production
- ▲ System fully compatible upwards and downwards
- ▲ Suitable for ABS, ABS N and ABS T



Spare parts ABS	Taper screw	Pendulum bolt	Clamping screw	Range 1	Coolant pipe	positioning pin	Range 2	Sealing ring
25	84 950 27000	84 950 26000	84 950 26800	84 950 99700	84 950 24400	84 950 23600	84 950 98900	84 950 30400
32	84 950 27100	84 950 26100	62 950 13989	84 950 99600	84 950 24500	84 950 23700	84 950 98800	84 950 30500
40	84 950 27200	84 950 26200	84 950 26900	84 950 99500	84 950 24600	84 950 23800	84 950 98700	84 950 30600
50	84 950 20400	84 950 20000	84 950 20300	84 950 99800	84 950 20100	84 950 20200	84 950 99900	84 950 30700
63	84 950 27300	84 950 26300	84 950 25500	84 950 99400	84 950 24700	84 950 23900	84 950 98600	84 950 30800
80	84 950 25100	84 950 26400	84 950 25600	84 950 99300	84 950 24800	84 950 24000	84 950 98500	84 950 30900
100	84 950 25200	84 950 26500	84 950 25700	84 950 99200	84 950 24900	84 950 24100	84 950 98400	84 950 31000
125	84 950 25300	84 950 26600	84 950 25800	84 950 99100	84 950 25000	84 950 24200	84 950 98300	
160	84 950 25400	84 950 26700	84 950 25900		84 950 23500	84 950 24300		

DAH compensation holders

- ▲ Compensation systems for µ-precision run-out
- ▲ Simple correction of run-out and axis errors
- ▲ Optimised for high rpm
- ▲ Designed for internal coolant supply
- ▲ Rotary tools provide long tool life

84 327 ...

DAH adapter for tools
with ABS adapter



DAH hydraulic expansion adapter
for tools with cylindrical shank



84 329 ...

With HSK interface
ISO 12164



With ABS interface



84 329 ...

SK steep taper per
ISO 7388-1



BT steep taper per
ISO 7388-2



DAH 50 HS compensation holder for high-speed machining

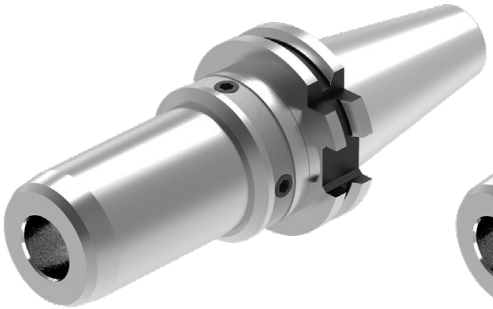
- ▲ Tried and tested hydraulic expansion clamping technology
- ▲ Maximum run-out and repeatability precision < 1 µ ensures consistent cutting action
- ▲ Very simple run-out adjustment
- ▲ Compact design
- ▲ Unbeatable vibration damping, meaning outstanding surface quality
- ▲ Flexible clamping range with reduction sleeves
- ▲ Speeds of up to 25,000 rpm
- ▲ Suitable for minimum quantity lubrication (MMS)

84 326 ...

With HSK interface
ISO 12164



SK steep taper per
ISO 7388-1



BT steep taper per
ISO 7388-2



A detailed operating manual is available for download in the online shop next to the product.


ZSG mini
CERATIZIT GROUP
MNG mini

New products for clamping technology

NEW Mechanical Zero-point Clamping System – MNG mini



149–151

MNG mini Weight-optimized consoles, pyramids and clamping towers integrated zero point clamping system for small clamping devices.

NEW CentriClamp – ZSG mini



92–100

ZSG mini The ZSG mini is ideal for clamping small workpieces.

NEW PolyClamp – Verso



111–124

Verso The new flexible multiple vice with quick jaw change system for many small and large workpieces.

Solid drilling and bore machining
1 HSS drilling
2 Solid carbide drilling
3 Indexable insert drilling
4 Reaming and Countersinking
5 Spindle Tooling

Threading
6 Taps and thread formers
7 Circular and Thread Milling
8 Thread turning

Turning
9 Turning Tools
10 Multifunctional Tools – EcoCut and FreeTurn
11 Grooving Tools
12 Miniature turning tools

Milling
13 HSS Milling Cutters
14 Solid Carbide milling cutters
15 Milling tools with indexable inserts

Clamping technology
16 Adaptors and Accessories
17 Workpiece clamping
18 Material examples and article no. Index

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PolyClamp – Verso	4
Clamping systems overview	5
Toolfinder – Clamping systems	6–9
Product programme	10–183
General top jaws overview	164–173
Workpiece supports overview	174–177
Accessories General Overview	178+179
Clamping levers overview	180+181
Screws Overview	182+183

WNT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

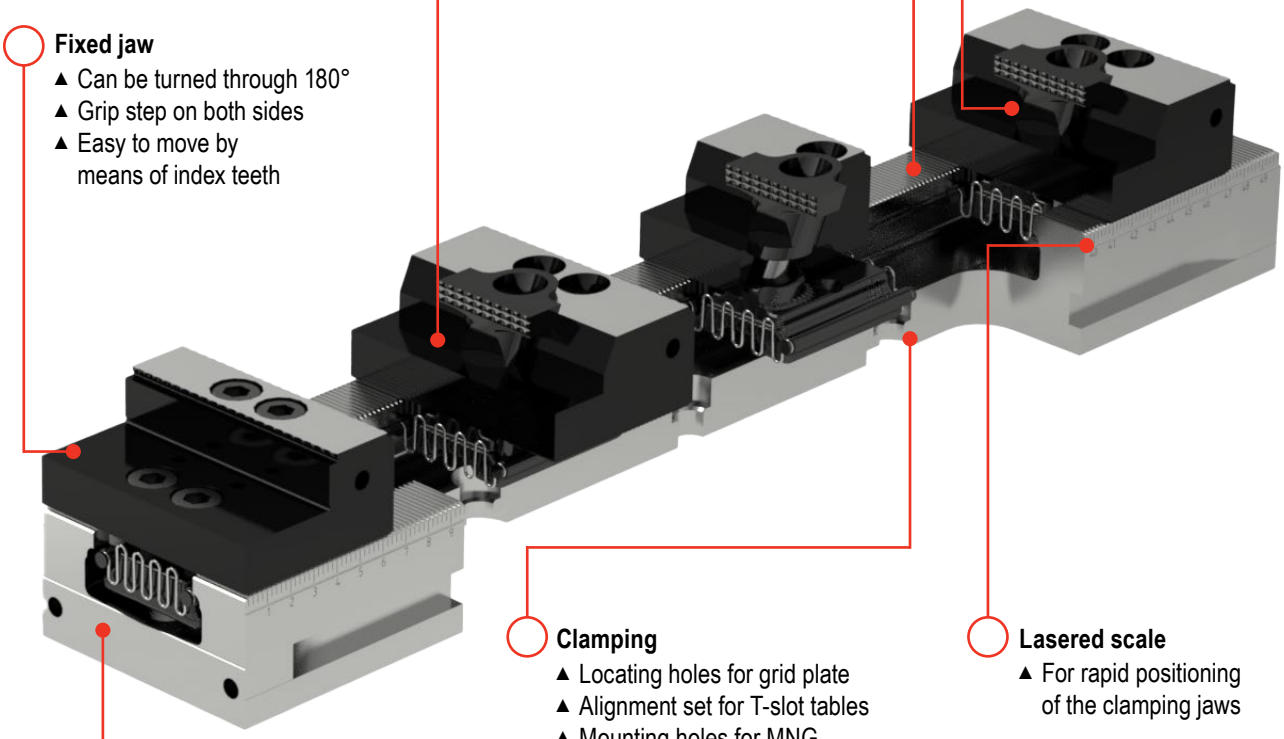
PolyClamp – Verso

Moveable jaw
- Just one screw size for the entire system
- Quick and easy handling thanks to jaw positioning from above

Teeth hardened and ground
- High precision and dimensional stability
- Protection against damage and wear

Jaws
- Screws in and out for quick change
- Pull-down jaw 40 mm
- Parallel clamping jaws 40 / 65 / 90 mm
- Pendulum jaw grip 90 mm

Fixed jaw
- Can be turned through 180°
- Grip step on both sides
- Easy to move by means of index teeth



Clamping
- Locating holes for grid plate
- Alignment set for T-slot tables
- Mounting holes for MNG mounting bolts

Lasered scale
- For rapid positioning of the clamping jaws

Extremely rigid clamping bar
- Width 90 mm
- Lengths from 260 mm to 650 mm

Clamping systems overview

SoloClamp – Single clamping vice

- Power-assisted systems NCG, HDG 2 and H5G
- Fixed jaws as reference
- High repeatability
- Very good angular accuracy



High precision and force amplification

CentriClamp – Centric vice

- symmetrical clamping
- very good accessibility for 5-sided machining
- part datum always centered
- high repeatability



High process security with encapsulated system

PolyClamp – Multiple vice

- Faster set up times
- multifunctional use
- optimum utilization of the machine table
- high repeatability



Increased machine uptime

Stationary three-jaw chuck – SBF 3

- Suitable for 3/5-axis machining of round components
- Compatible with PNG and MNG zero point clamping systems
- Wedge bar drive
- Hardened and stiff base body
- Optimised lubrication system



Ø 200 mm



Ø 315 mm

The perfect clamping situation for round components

Clamping variants

- Zero point clamping systems
- Zero point clamping system grid plates
- MNG – Mechanical zero point clamping system
- PNG – Pneumatic zero point clamping system



Reduction in setup times

Clamping Towers

- Double sided clamping tower
- Triangular clamping tower
- Cruciform clamping tower
- Cube clamping tower

A variety of clamping towers can be found in our online shop at cuttingtools.ceratizit.com



Automation made easy

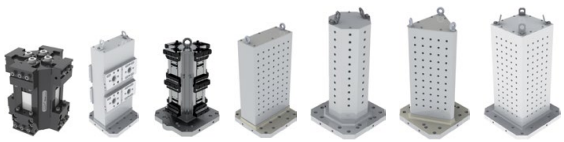
Toolfinder clamping systems

	Type		Description	3 axis	4 axis	5 axis
SoloClamp – Single clamping vice	NCG		▲ 160° quick clamping ▲ rapid installation and removal of the spindle assembly ▲ quick span adjustment	✓	✓	
	NCG 5A		▲ 160° quick clamping ▲ for 5 axis machining ▲ quick span adjustment	✓		✓
	H5G		▲ fast handle clamping ▲ 5 axis high power vice ▲ 100% encapsulated	✓		✓
	H5G -Z		▲ Fast handle clamping ▲ 5-axis high power vice ▲ 100% encapsulated ▲ With movable fixed jaw	✓		✓
	X5G -Z		▲ 100 % encapsulated ▲ Optimum accessibility ▲ 5- and 6-sided machining possible ▲ Fast jaw changeover without tools	✓		✓
	ESG 4		▲ 100 % encapsulated ▲ Precision base body ▲ High clamping force ▲ Large clamping range	✓	✓	✓
	ESG 5		▲ New version of the sealed centric vice ZSG 4 as single vice ▲ Identical dimensions and function as the ZSG 4	✓	✓	✓
	HDG 2		▲ mechanical power transmission ▲ clamping force with only one turn of the handle ▲ infinitely variable clamping force setting	✓		
CentriClamp – Centric vice	ZSG 4		▲ ball bearing, backlash free spindle ▲ high precision, clamping force and process security ▲ repeatability ±0.01 mm	✓	✓	✓
	ZSG mini		▲ Fast jaw changeover without tools ▲ compact and precise ▲ optimum accessibility from all sides ▲ stainless, hardened base body	✓	✓	✓

Jaw width in mm	Body length in mm	max. clamping range in mm	cubic workpieces	assymetrical workpieces	round workpieces	max. clamping force in kN	Page No.
100 125 160	305 390 530	245 343 506	✓	✓	✓	30 40 40	10–21
100 125	305 390	199 269	✓		✓	18 24	13–21
125	300	249	✓	✓	✓	40	22–36
125	330 430 500 630	396 466 578	✓	✓	✓	40	26–36
125	330 430 500 630 800	80-210 80-310 80-380 80-510 80-688	✓	✓	✓	40	37
80 125 160	214 362 480	192 308 434	✓	✓	✓	25 40 50	49–58
80 125 160	130+190 160+235+300 280+480	63-171 84-281 125-448	✓	✓	✓	35 35 50	59–66
100 125 160	342 400 544	278 338 470	✓		✓	30 40 60	68–71
80 125 160	130+190 160+235+300 280+480	121–185 163–303 134–462	✓	✓	✓	25 40 50	72–90
45 70	80 100	7–77	✓	✓	✓	16	92–100

Toolfinder clamping systems

	Type		Description	3 axis	4 axis	5 axis
PolyClamp – Multiple vice	DSG 4		▲ Quick assembly and disassembly ▲ Flexible clamping system ▲ Can be converted into single vice	✓	✓	✓
	Verso		▲ Variable clamping system ▲ Clamp several small and large components ▲ Innovative multiple vice system	✓	✓	✓
Stationary three-jaw chuck	SBF 3		▲ Suitable for 3/5-axis machining of round components ▲ Compatible with PNG and MNG zero point clamping systems	✓		✓
			▲ Suitable for 3/5-axis machining of round components ▲ Compatible with PNG and MNG zero point clamping systems	✓		✓

		Type		Description
Zero point clamping systems	mechanical	MNG		▲ All round plate for all machine tables
		MNG mini		▲ For workpiece clamping in the smaller dimension range
	pneumatic	PNG		▲ Process security thanks to self-locking mechanism
Clamping Towers				▲ Increased machine uptime

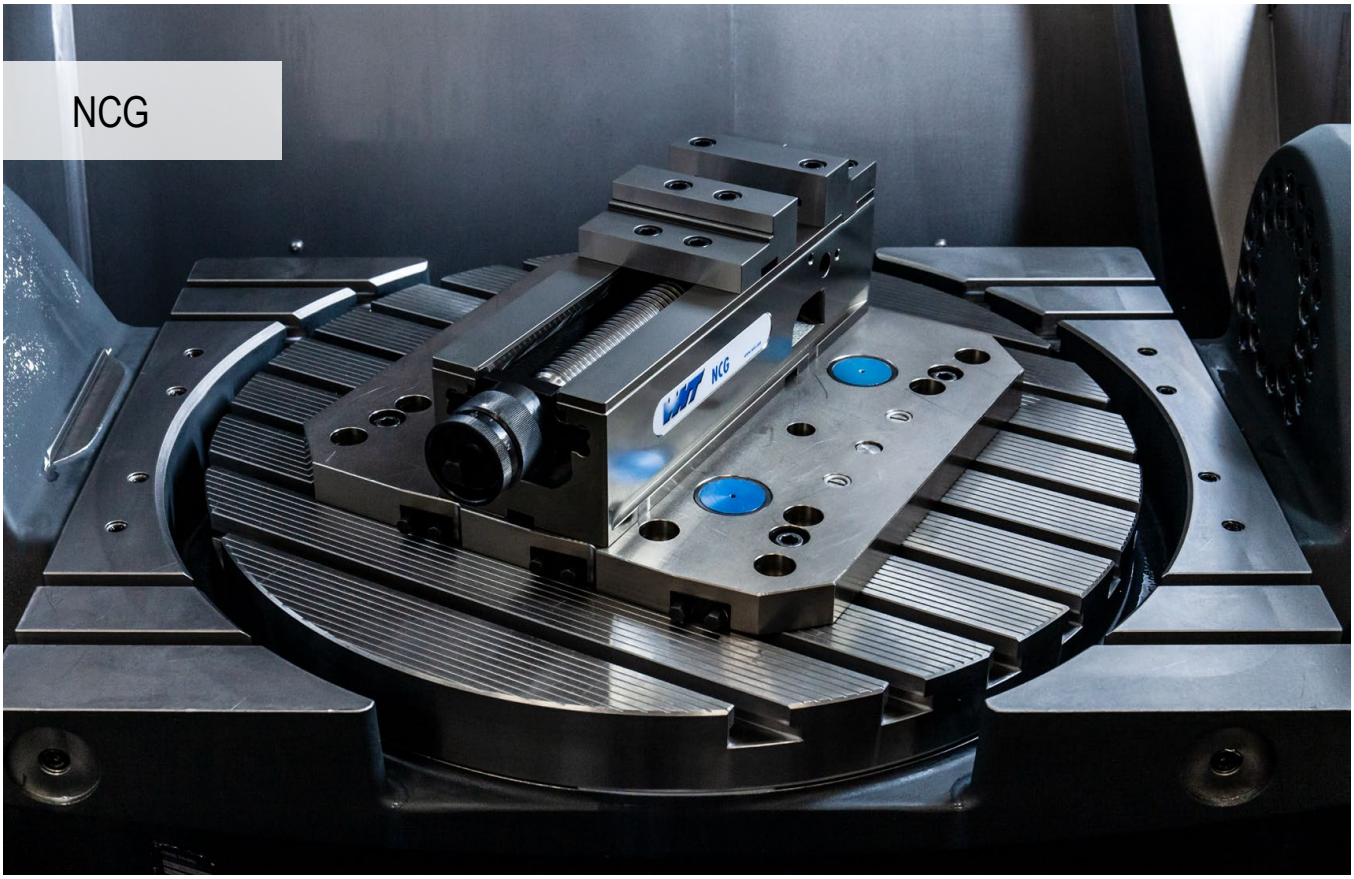
Manual machine vice

	Type		Description
Drilling machine vice	HSG		▲ fast jaw adjustment, compact and precise

Jaw width in mm	Body length in mm	max. clamping range in mm	cubic workpieces	assymetrical workpieces	round workpieces	max. clamping force in kN	Page No.
80 125	300 320+390+460 530+600+670+740	102 114+149+184 219+254+289+324	✓	✓	✓	25 40	101–110
40 65 90	260 -650	524	✓	✓	✓	30	111–124
	Ø 200	SB-H jaws 6–180			✓	100	125–130
	Ø 315	SB-H jaws 12–420			✓	180	

mechanical	pneumatic	Comments	Page No.
✓			134–148
✓			149–151
	✓		152–163
✓		This article can be found in our online shop at cuttingtools.ceratizit.com	
✓			131–133

17



Systematic clamping

Modular machine vice as system with clamping under tension.
Unique, patented fast handle clamping with mechanical power assist and minimum setup times.

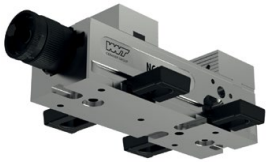
Your benefits:

- ▲ Quick adjustment using a crank handle
- ▲ Quick positioning with MNG on the machine table without an intermediate pallet
- ▲ Clamping force can be continuously adjusted 4 – 40 kN
- ▲ 160° quick clamping
- ▲ Quick and easy jaw change with 4 screws
- ▲ Easy cleaning thanks to rapid disassembly of the entire spindle unit
- ▲ Extensive modular jaw range

Clamping/aligning:



Clamping with two dowel screws dia. 12_{f7} / M12 (NCG 100) **Article no. 80 890 313** or dia. 16_{g5} / M16 (NCG 125 / 160) **Article no. 80 890 314**



Alignment through 20^{H7} precision slot nuts in the base body and clamping with clamping claws



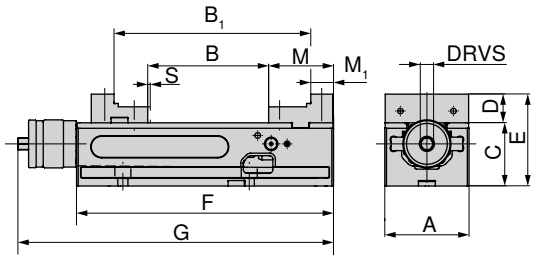
Alignment and clamping with MNG zero point clamping system (2-3 mounting bolts)

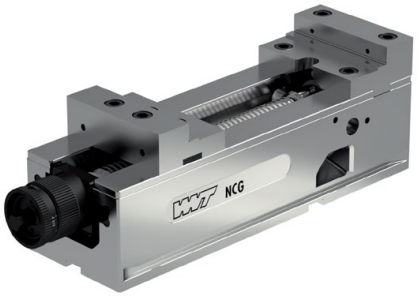
SoloClamp – NCG

▲ NC-quick clamping vice with combi reversible jaw plus
▲ thanks to additional threads, top jaws with heights of 18 mm and 40 mm can be used

Scope of supply:
NC-quick vice, including 4 clamping claws, 2 combi reversible jaw plus, clamping lever

NCG | **MNG**





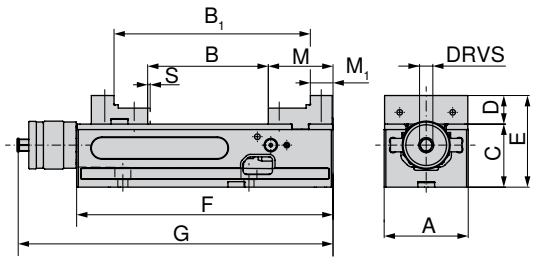
A	B	B_1	C -0.02	D	E	F	G	M	M_1	S	DRVS	MXC	WT	80 890 ... £	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kN	kg	Y4	
125	0 - 212	96 - 307	100	39	139	390	457	89	39	3	14	4 - 40	34	2,989.65	**12500**

SoloClamp – NCG

▲ NC-quick clamping vice with combination jaw
▲ Fast 160° handle clamping
▲ Rapid installation and removal of the spindle assembly
▲ S = powerstroke

Scope of supply:
NC-quick vice, including 4 clamping claws, 2 combi reversible jaws (one side stepped, one side smooth), clamping lever

NCG | **MNG**





A	B	B_1	C -0.02	D	E	F	G	M	M_1	S	DRVS	MXC	WT	80 890 ... £	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kN	kg	Y4	
100	0 - 155	91 - 245	75	34	109	305	374	77	27	2,5	14	4 - 30	19	2,561.66	**602**
125	0 - 212	96 - 307	100	39	139	390	457	89	39	3	14	4 - 40	34	2,960.28	**627**
160	0 - 314	113 - 426	115	49	164	530	600	108	52	3	14	4 - 40	68	3,886.55	**662**

Vice guide

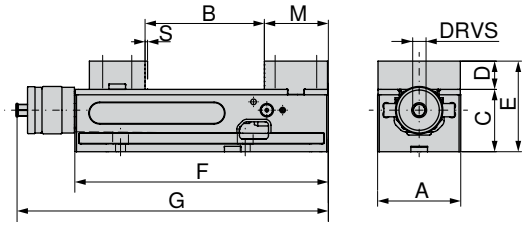
Underside Dimensions	14	System accessories	16–21
MNG-/PNG zero point clamping system	134–163	General accessories	164–183

SoloClamp – NCG

▲ NC-quick clamping vice with standard jaw
▲ Fast 160° handle clamping
▲ Rapid installation and removal of the spindle assembly
▲ S = powerstroke

Scope of supply:
NC-quick vice, including 4 clamping claws, 2 standard reversible jaws (one side smooth, one side serrated), clamping lever

NCG **MNG**





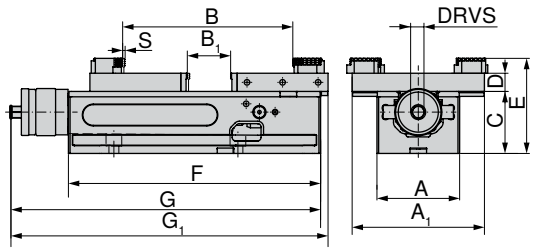
A	B	C -0.02	D	E	F	G	M	S	DRVS	MXC	WT	80 890 ... £	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kN	kg	Y4	
100	0 - 155	75	34	109	305	374	77	2,5	14	4 - 30	19.5	2,481.93	**600**
125	0 - 212	100	39	139	390	457	89	3	14	4 - 40	35.0	2,890.00	**625**
160	0 - 314	115	49	164	530	600	108	3	14	4 - 40	70.0	3,806.82	**660**

SoloClamp – NCG

▲ NC-quick clamping vice with adapter and pendulum jaws
▲ fast 160° lever clamping
▲ rapid installation and removal of the spindle assembly
▲ S = powerstroke
▲ simple raw part clamping
▲ free positioning of the 6-face reversible jaw which can be found in the accessories

Scope of supply:
NC-quick vice (type NCG base body) with 1 fixed adapter plate and 1 pendulum jaw, clamping lever, 4 clamping claws, without 6-face indexable jaws

NCG **MNG**





A	A_1	B	B_1	C -0.02	D	E	F	G	G_1	S	DRVS	MXC	WT	80 890 ... £	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kN	kg	Y4	
100	160	10 - 230	0 - 77	75	22	115	305	374	383	2,5	14	4 - 30	19	2,661.31	**636**
125	192	16 - 343	0 - 152	100	22	140	390	457	478	3	14	4 - 40	34	3,099.80	**637**
160	256	15 - 506	0 - 237	115	22	155	530	600	631	3	14	4 - 40	68	4,085.86	**638**

Vice guide

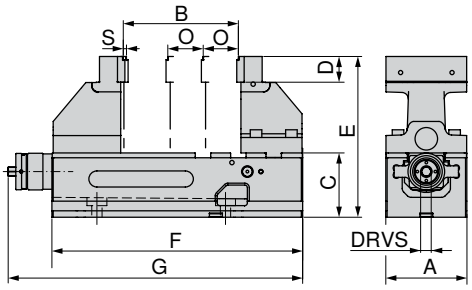
Underside Dimensions	14	System accessories	16–21
MNG-/PNG zero point clamping system	134–163	General accessories	164–183

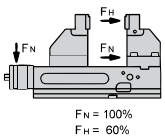
SoloClamp – NCG 5A

- ▲ NC quick vice 5A with high support jaws
- ▲ Fast 160° handle clamping
- ▲ Rapid installation and removal of the spindle assembly
- ▲ S = powerstroke
- ▲ Ideally suited to 5-axis machining due to optimum accessibility
- ▲ Reversible jaws for clamping range extension
- ▲ 100 mm base body has 2 slots for moving the fixed jaw
- ▲ 125 mm base body has 3 slots for moving the fixed jaw

Scope of supply:
NC quick clamping vice incl. 2 high base jaws, 2 'grip' stepped jaws 5 mm, 1 clamping lever, 4 clamping claws

NCG 5A | **MNG**







80 890 ...

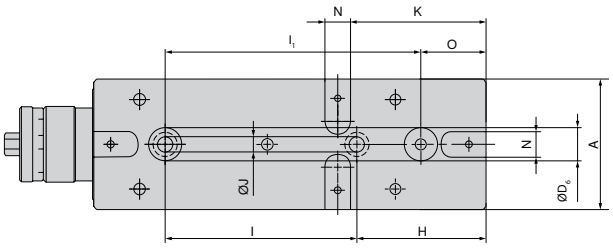
A mm	B mm	C mm	D mm	E mm	F mm	G mm	O mm	S mm	DRVS mm	MXC kN	WT kg	£ Y4	
100	6 - 127	75	35	200	305	374	50	2,5	14	4 - 18 (30)	21.5	3,089.31	**605**
125	6 - 179	100	40	250	390	457	55	3	14	4 - 24 (40)	42.0	3,567.65	**635**

Vice guide

Underside Dimensions	14	Structural dimension tables for the different jaws	15
System accessories	16–21	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

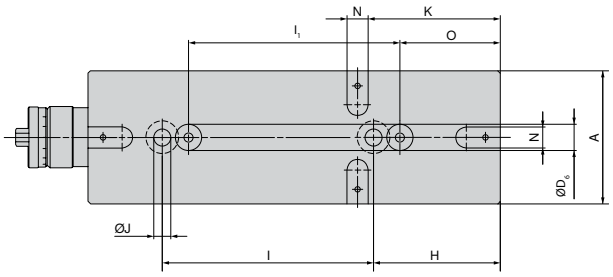
NCG underside dimensions

Base width 100 mm



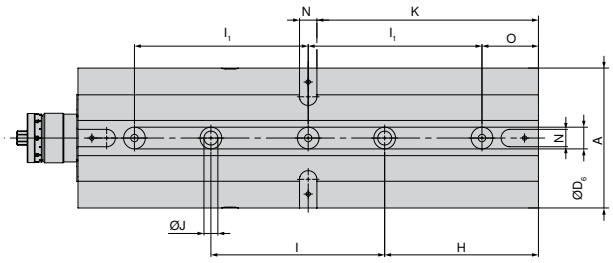
A mm	H mm	$l_{\pm 0,015}$ mm	J_{F7} mm	K mm	N_{H7} mm	O mm	$l_{1\ \pm 0,015}$ mm	$D_{6\ H7}$ mm
100	100	150	12	105	20	50	200	25

Base width 125 mm



A mm	H mm	$l_{\pm 0,015}$ mm	J_{F7} mm	K mm	N_{H7} mm	O mm	$l_{1\ \pm 0,015}$ mm	$D_{6\ H7}$ mm
125	120	200	16	125	20	95	200	25

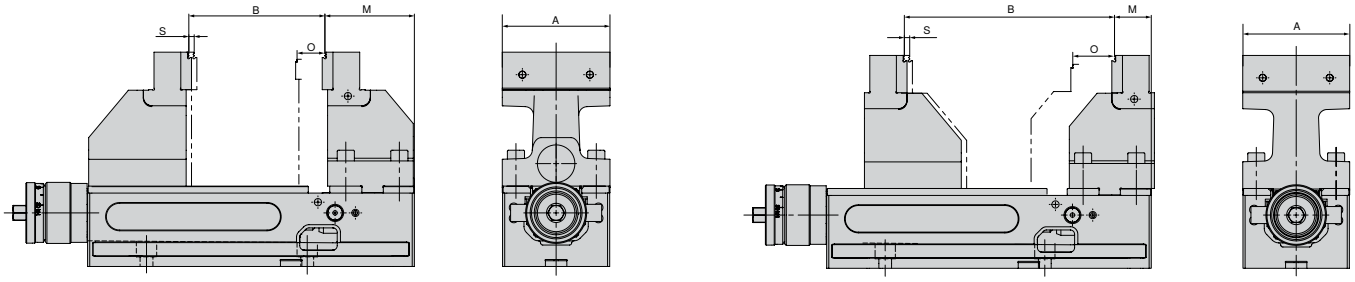
Base width 160 mm



A mm	H mm	$l_{\pm 0,015}$ mm	J_{F7} mm	K mm	N_{H7} mm	O mm	$l_{1\ \pm 0,015}$ mm	$D_{6\ H7}$ mm
160	177	200	16	255	20	65	200	25

NCG 5A structural dimension table for different jaw positions

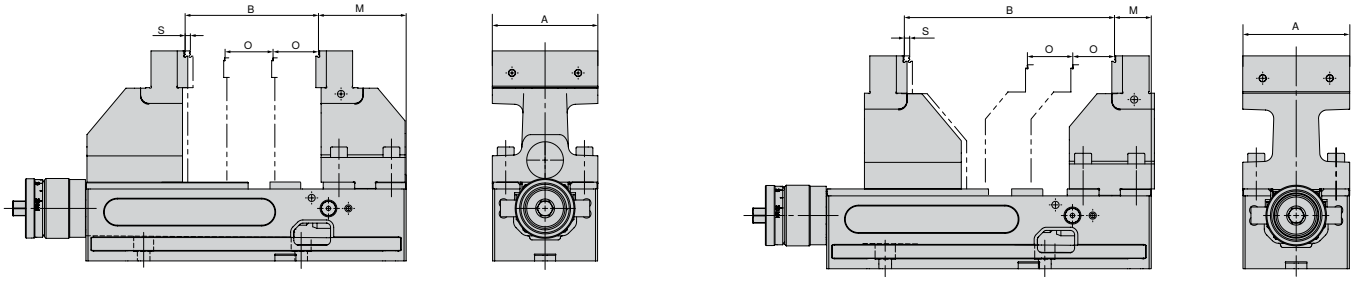
NCG 5A 100 mm



A mm	B mm	M mm	O mm	S mm
100	6 - 127	84,5	50	2,5

A mm	B mm	M mm	O mm	S mm
100	97 - 199	34,5	50	2,5

NCG 5A 125 mm



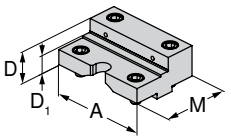
A mm	B mm	M mm	O mm	S mm
125	6 - 182	91	55	3

A mm	B mm	M mm	O mm	S mm
125	117 - 269	36	55	3

System jaws overview

Combi reversible jaw plus, fixed

▲ For the extension of the clamping range
▲ Jaws hardened
▲ includes fixing bolts
▲ price per piece

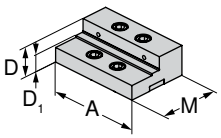


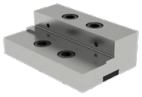


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		39,8	22			88			362.95	**80 890 35100**	●										

Combi reversible jaw plus, movable

▲ For the extension of the clamping range
▲ Jaws hardened
▲ includes fixing bolts
▲ price per piece

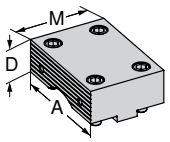




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		39,8	22			82			362.95	**80 890 35200**	●										

Standard reversible jaw, fixed

▲ 1 side smooth, 1 side grooved
▲ includes fixing bolts
▲ price per piece

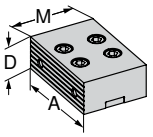




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100		34				76			237.07	**80 890 323**	●										
125	125		39				88			310.50	**80 890 324**	●										
160	160		49				108			391.28	**80 890 325**	●										

Standard reversible jaw, movable

▲ 1 side smooth, 1 side grooved
▲ includes fixing bolts
▲ price per piece



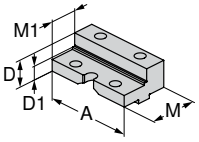


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100		34				67			237.07	**80 890 327**	●										
125	125		39				82			310.50	**80 890 328**	●										
160	160		49				108			391.28	**80 890 329**	●										

System jaws overview

Combi reversible jaw, fixed

- For the extension of the clamping range
- Jaws hardened
- includes fixing bolts
- price per piece

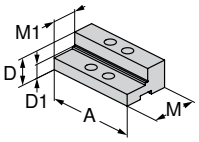




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100		34	23			76	50		273.79	**80 890 343**	●										
125	125		39	25			88	50		349.32	**80 890 344**	●										
160	160		49	28			108	56		429.04	**80 890 342**	●										

Combi reversible jaw, movable

- For the extension of the clamping range
- Jaws hardened
- includes fixing bolts
- price per piece

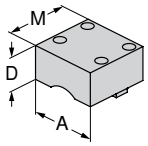




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100		34	23			67	40		273.79	**80 890 347**	●										
125	125		39	25			82	45		349.32	**80 890 348**	●										
160	160		49	28			108	56		429.04	**80 890 346**	●										

Soft jaw, steel, fixed

- Material: 16MnCr5
- For producing shaped jaws (hardenable)
- Without fixing screws
- Price per piece

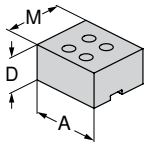




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100		50				95			130.08	**80 890 763**	●										
125	125		50				110			135.32	**80 890 764**	●										

Soft jaw, steel, movable

- Material: 16MnCr5
- For producing shaped jaws (hardenable)
- Without fixing screws
- Price per piece





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100		50				85			130.08	**80 890 767**	●										
125	125		50				100			137.42	**80 890 768**	●										

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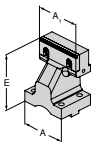
System jaws overview

5A carrier jaw, fixed

▲ Price per piece
▲ With stepped grip jaw, 5 mm

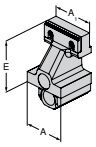




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100	100				125				532.89	**80 890 364**	●										
125	125	125				150				640.94	**80 890 366**	●										

5A carrier jaw, movable

▲ Price per piece
▲ With stepped grip jaw, 5 mm

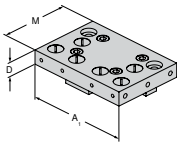




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100	100				125				567.51	**80 890 365**	●										
125	125	125				150				702.83	**80 890 367**	●										

Fixed adaptor jaw

▲ for holding 6-way reversible jaws
▲ price per piece
▲ incl. 6 cover screws

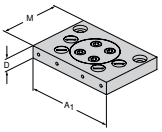


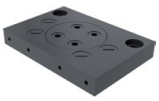


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100	160	22				110			267.50	**80 890 321**	●										
125	125	192	22				130			381.84	**80 890 337**	●										
160	160	256	22				170			501.42	**80 890 339**	●										

Pendulum jaw, movable

▲ for holding 6-way reversible jaws
▲ price per piece
▲ incl. 6 cover screws (with A = 100 mm, 4 pieces)



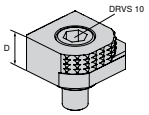


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	100	160	22				110			386.03	**80 890 322**	●										
125	125	192	22				130			454.22	**80 890 338**	●										
160	160	256	22				170			560.17	**80 890 340**	●										

System jaws overview

6 function indexable jaw

- ▲ 1 = Smooth, carbide coated
- ▲ 2 = Grip with 3 mm step
- ▲ 3 = Grip with 8 mm step
- ▲ 4 = Grip with 18 mm step
- ▲ 5 = Rough grip with 8 mm step
- ▲ 6 = Round grip
- ▲ M_{max} = 60 Nm
- ▲ Including fixation screws

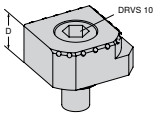


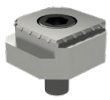


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							77.63	**80 892 246**	●	●	●	●			●		●	●	

6x indexable jaw, carbide grip

- ▲ 1 = Smooth
- ▲ 2 = Carbide grip
- ▲ 3 = Carbide grip with 3 mm step
- ▲ 4 = Carbide grip with 8 mm step
- ▲ 5 = Round carbide grip with 8 mm step
- ▲ 6 = Round carbide grip
- ▲ Incl. fixing screws





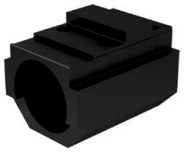
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							112.24	**80 890 35300**	●	●	●	●			●		●	●	

System accessories overview

Spindle body

▲ For the conversion of the NCG 5AC into an NCG vice

NCG | NCG 5A



for width mm	80 890 ... £ Y4	
100	178.33	385
125	189.87	387
160	215.05	389

Carrying handle

▲ for simple and safe transporting

Scope of supply:
1 piece Hand grip including fixing bolts

NCG | NCG 5AC



for width mm	80 890 ... £ Y4	
100/125	13.64	685

Drawbar extension

▲ For connecting 2 NCG vices

NCG | NCG 5A

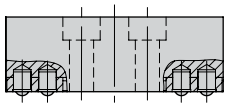


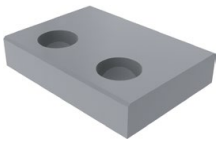
for width mm	B mm	80 890 ... £ Y4	
100	305 - 460	306.31	460
125	390 - 602	335.68	470

Protection plate

▲ For standard moving and combi reversible jaw

NCG

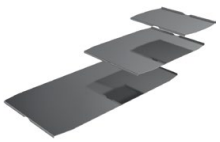




for width mm	80 890 ... £ Y4	
100	4.20	010
125	3.15	012
160	32.52	013

Cover plate set

NCG | NCG 5AC



for width mm	80 890 ... £ Y4	
100	26.23	442
125	29.37	443
160	31.47	444

Spring Loaded Locator

NCG



for width mm	80 890 ... £ Y4	
100/125	2.10	008
160	2.10	014

System accessories overview

Clamping lever

▲ including control accessories

NCG | NCG 5A | H5G



for width mm	DRVS mm	80 890 ... £ Y4	
100/125/160	14	122.73	501

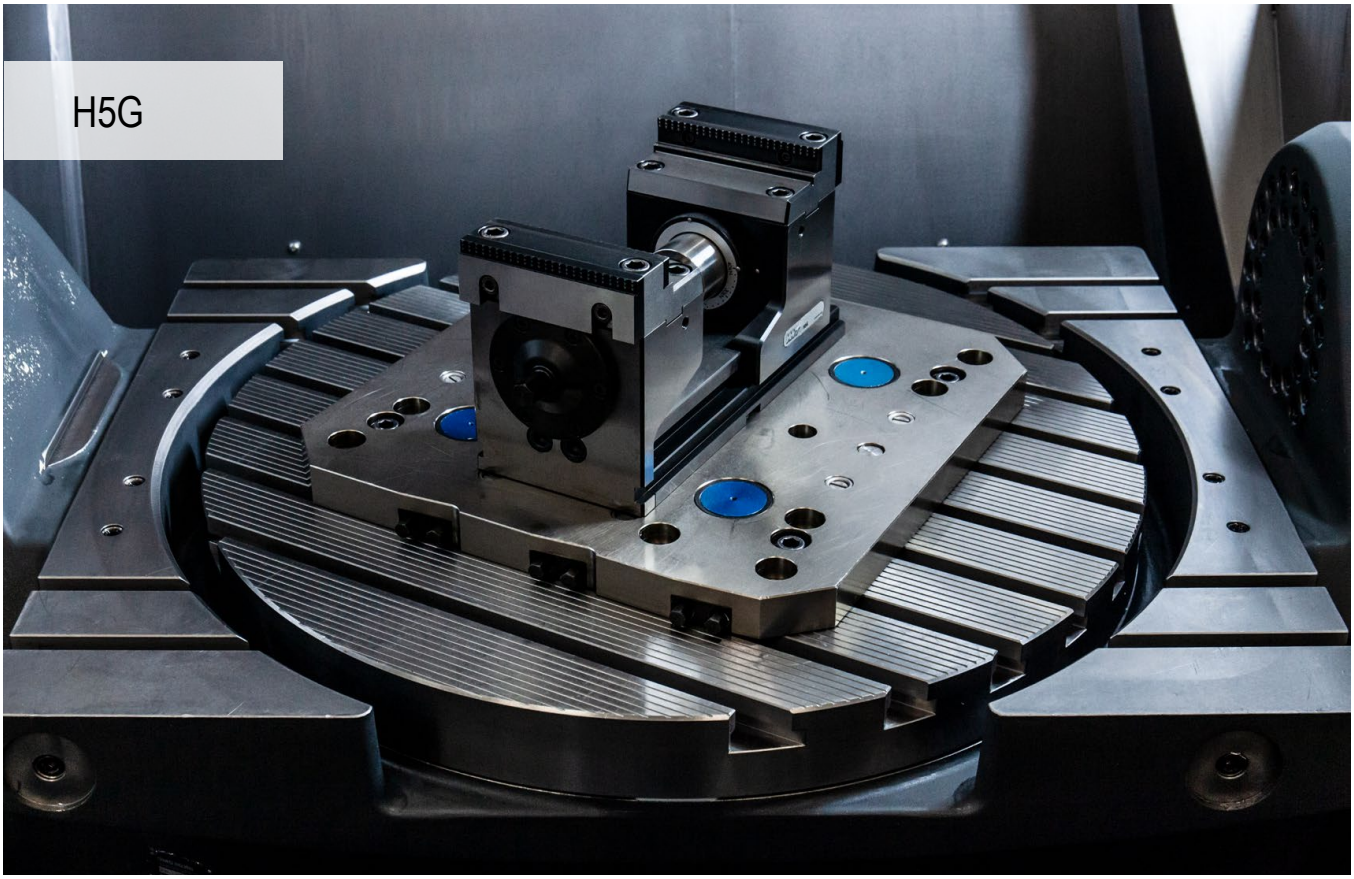
High-speed operation device

▲ For faster span adjustment with removable grip

NCG | NCG 5AC



for width mm	80 890 ... £ Y4	
100	60.84	550
125/160	72.38	551



5-axis-optimised clamping system

The power-assisted clamping system for ‘real’ 5-axis complete and simultaneous machining.
1 and 2-sided machining with clamping under tension and 40 kN directly on the workpiece.

Your benefits:

- ▲ Quick conversion – adjustment of entire clamping range in just a few seconds
- ▲ Quick positioning with MNG on the machine table without an intermediate plate
- ▲ Clamping force can be continuously adjusted 4 – 40 kN
- ▲ 160° quick clamping
- ▲ Rotate jaws – quick and easy jaw change with 4 screws
- ▲ Easy cleaning, spindle fully protected
- ▲ Extensive modular jaw range

Clamping/aligning:



Clamping with two dowel screws dia. 12_{f7} / M12
Article no. 80 895 019

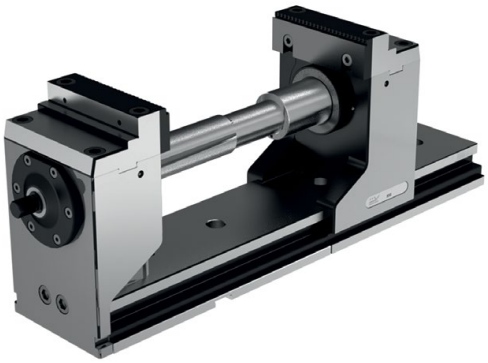


Alignment through 20^{H7} precision slot nuts in the base body (H5G) and alignment sets 14 / 16 / 18 in the machine table's T-slot. Clamping with clamping claws.



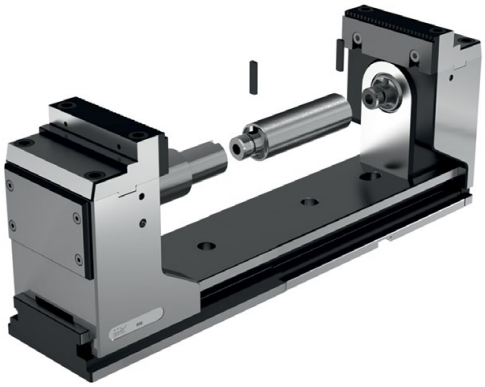
Alignment and clamping with MNG zero point clamping system (2-3 mounting bolts).
Optional: Positioning and fixing holes at the customer's request.

Alignment of extension base body:



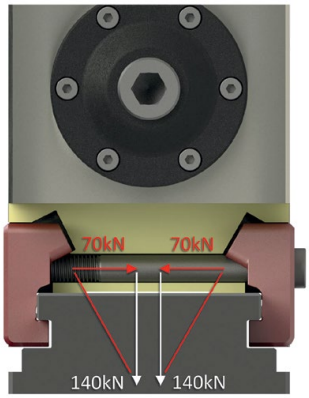
- ▲ Loosely mount the extension base body
- ▲ Distance to basic base body 0.2 – 10 mm
- ▲ Slide movable supporting jaw overlapping onto both base bodies
- ▲ Align the extension base body so it is parallel with the basic base body
- ▲ Secure the extension base body

Fitting the drawbar extension:



- ▲ Fit the extension base body (see alignment above)
- ▲ Screw the drawbar extension onto the spindle
- ▲ Insert the first anti-twist protection
- ▲ Slide the movable supporting jaw onto the extension base body
- ▲ Connect the extended drawbar to the fixed supporting jaw
- ▲ Insert the second anti-twist protection

Movable fixed jaw functional principle:



Double-acting screw = double the force
angled surfaces = double the force

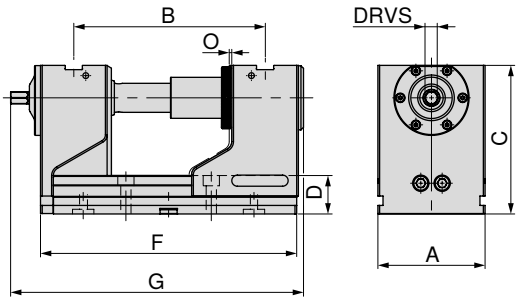
In the case of the H5G-Z and H5G-Z-S, both supporting jaws can be moved as desired. The movable fixed jaw can be clamped on any position on the base body via 1 or 2 screws (1 = H5G-Z / 2 = H5G-Z-S) (tighten screw with 90 Nm). The clamping force of the fixed jaw is almost identical to that of the H5G which is secured with four screws.

SoloClamp – H5G

▲ 5-axis vice with quick adjustment, 174 mm height
▲ Crank handle quick clamping
▲ Vice with quick span adjustment
▲ 100 % encapsulated
▲ Vice with longitudinal and transverse grooves 20 H7 and alignment holes Ø 12 F7

Scope of supply:
Vice incl. 4 clamping claws, hand crank and clamping wrench

H5G **MNG**



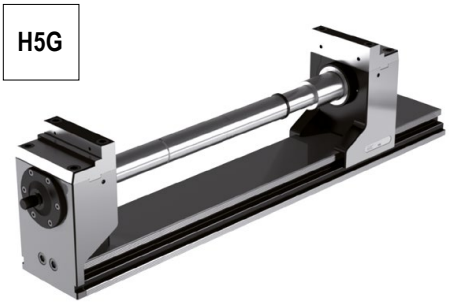


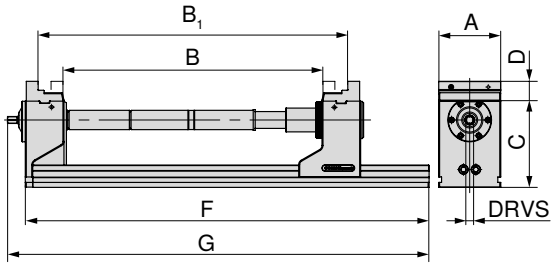
A mm	B mm	C mm	D mm	F mm	G mm	O mm	DRVS mm	MXC kN	WT kg	80 898 ... £ Y4	
125	97 - 223	174	45	300	336,5	1	14	40	30.2	3,059.93	**125**

SoloClamp – H5G

▲ 5 axis high power vice, long version, 174 mm height

H5G





A mm	C mm	D mm	F mm	G mm	DRVS mm	Clamping force kN
125	174	40	815	851	14	40

B	B1	Article no.
0 – 126	123 – 251	**80 898 125**
125 – 252	248 – 374	**80 898 125** + **80 898 826** + **80 898 725**
250 – 376	372 – 499	**80 898 125** + **80 898 827** + **80 898 725**
375 – 501	498 – 624	**80 898 125** + **80 898 826** + **80 898 827** + **80 898 725**
500 – 626	622 – 749	**80 898 125** + 2 x **80 898 827** + **80 898 725**

The H5G 125 mm can be extended by a maximum of 250 mm with 2 extensions. The extension results in approximately 10% loss of clamping force.
Base plate available in long version with the desired hole pattern **on request**.

Vice guide

Underside Dimensions	27	Structural dimension tables for the different jaws	28–32
System accessories	33–36	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

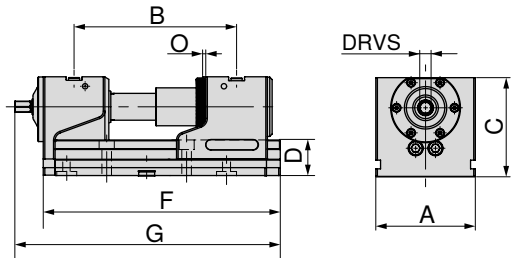
SoloClamp – H5G-S

- ▲ 5-Axis vice with quick adjustment, 125 mm height
- ▲ Crank handle quick clamping
- ▲ Vice with quick span adjustment
- ▲ 100 % encapsulated
- ▲ Length F = 300 mm with Ø 25 H7 centering
- ▲ Length F = 265 mm with Ø 32 H6
- ▲ Vice with longitudinal and transverse grooves 20 H7 and alignment holes Ø 12 F7

Scope of supply:

Vice incl. 4 clamping claws, hand crank and clamping wrench

H5G -S | **MNG**





A mm	B mm	C mm	D mm	F mm	G mm	O mm	DRVS mm	MXC kN	WT kg	80 898 ... £ Y4	
125	97 - 186	125	45	265	301,5	1	14	40	21.0	2,800.83	**123** 1)
125	97 - 223	125	45	300	336,5	1	14	40	22.6	2,860.62	**124**

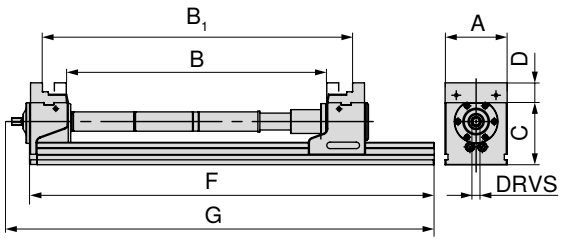
1) not standardised

SoloClamp – H5G-S

- ▲ 5 axis high power vice, long version, 125 mm height

H5G -S





A mm	C mm	D mm	F mm	G mm	DRVS mm	Clamping force kN
125	125	40	815	851	14	40

B	B_1	Article no.
0 – 126	123 – 250	**80 898 124**
125 – 251	248 – 374	**80 898 124** + **80 898 826** + **80 898 725**
250 – 376	372 – 499	**80 898 124** + **80 898 827** + **80 898 725**
375 – 501	498 – 624	**80 898 124** + **80 898 826** + **80 898 827** + **80 898 725**
500 – 626	622 – 749	**80 898 124** + 2 x **80 898 827** + **80 898 725**

The H5G-S 125 mm can be extended by a maximum of 250 mm with 2 extensions. The extension results in approximately 10% loss of clamping force.
Base plate available in long version with the desired hole pattern **on request**.

Vice guide

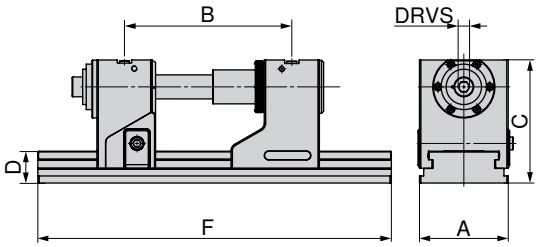
Underside Dimensions	27	Structural dimension tables for the different jaws	28–32
System accessories	33–36	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

SoloClamp – H5G-Z

▲ 5-Axis vice with movable fixed jaw, 174 mm height
▲ Crank handle quick clamping
▲ Vice with quick span adjustment
▲ 100 % encapsulated
▲ Clamping on the machine table is possible with MNG/PNG, or directly through the base body

Scope of supply:
Incl. clamping key with hexagonal pin insert

H5G -Z | **MNG**





A mm	B ±0,015 mm	C mm	D mm	F mm	DRVS mm	MXC kN	WT kg	80 907 ... £ Y4	
125	131 - 246	174	45	330	14	40	32.5	3,448.06	**12800**
125	131 - 352	174	45	430	14	40	36.0	3,507.86	**125**
125	131 - 422	174	45	500	14	40	38.5	3,667.30	**126**
125	131 - 552	174	45	630	14	40	43.0	3,976.76	**127**

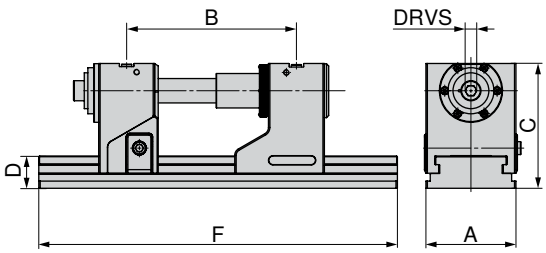
→ **Page 36**
Here you will find the additional drawbar extensions that must be used to reach the maximum clamping ranges.

SoloClamp – H5G-Z-S

▲ 5-Axis vice with movable fixed jaw, 125 mm height
▲ Crank handle quick clamping
▲ Vice with quick span adjustment
▲ 100 % encapsulated
▲ Clamping on the machine table is possible with MNG/PNG, or directly through the base body

Scope of supply:
Incl. clamping key with hexagonal pin insert

H5G -Z-S | **MNG**

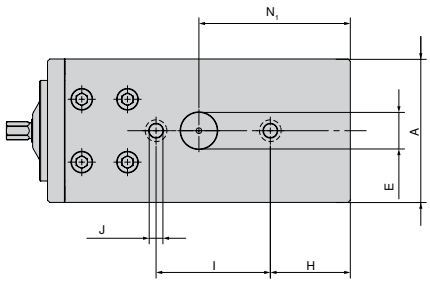




A mm	B ±0,015 mm	C mm	D mm	F mm	DRVS mm	MXC kN	WT kg	80 907 ... £ Y4	
125	131 - 246	125	45	330	14	40	24.5	3,248.75	**22500**
125	131 - 352	125	45	430	14	40	28.5	3,299.11	**22600**
125	131 - 422	125	45	500	14	40	30.5	3,467.99	**22700**
125	131 - 552	125	45	630	14	40	35.5	3,777.45	**22800**

H5G/H5G-Z underside dimensions

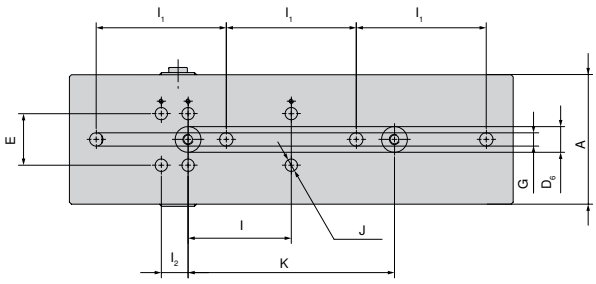
Base width 125 mm and 265 mm length



A mm	E H6 mm	H mm	I ±0,015 mm	J F7 mm	N1 mm
125	32	70	100	12	132,5

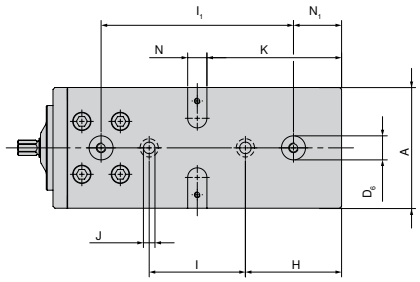
H5G with 265 mm length is not compatible with MNG

Base width 125 mm and 430 mm length



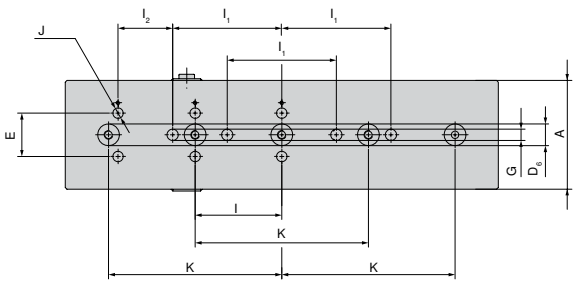
A mm	E ±0,01 mm	I1 ±0,3 mm	I2 mm	I ±0,015 mm	K ±0,015 mm	J H7 mm	G mm	D6 H6 mm
125	50	126	26	100	200	12	13	25

Base width 125 mm and length 300 mm



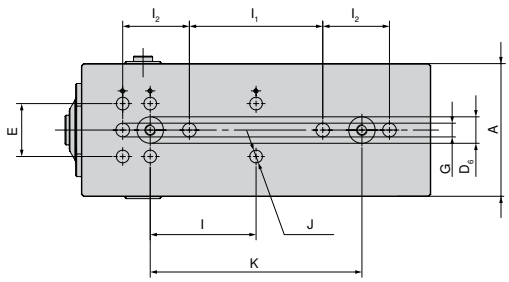
A mm	D6 H7 mm	H mm	I ±0,015 mm	J F7 mm	K mm	N H7 mm	I1 ±0,015 mm	N1 mm
125	25	100	100	12	140	20	200	50

Base width 125 mm and 500 mm length



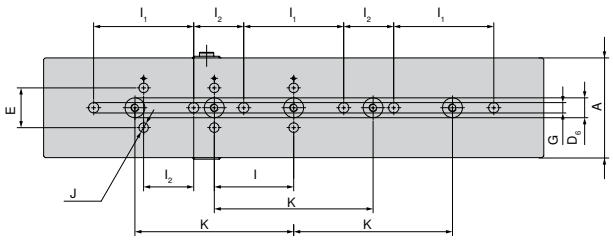
A mm	E ±0,01 mm	I1 ±0,3 mm	I ±0,015 mm	K ±0,015 mm	I2 mm	G mm	D6 H6 mm	J H7 mm
125	50	126	100	200	63	13	25	12

Base width 125 mm and 330 mm length



A mm	E ±0,01 mm	I ±0,015 mm	I2 mm	I1 ±0,3 mm	D6 H6 mm	J H7 mm	K ±0,015 mm	G mm
125	50	100	26	126	25	12	200	13

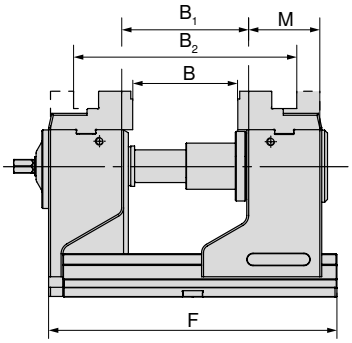
Base width 125 mm and 630 mm length



A mm	E ±0,01 mm	I1 ±0,3 mm	I2 mm	I ±0,015 mm	K ±0,015 mm	G mm	D6 H6 mm	J H7 mm
125	50	126	63	100	200	13	25	12

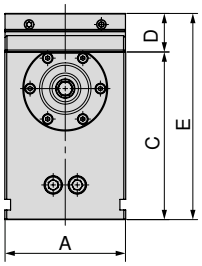
H5G/H5G-S – Structural dimension table for the different jaws

With combi jaws



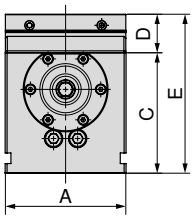
F mm	B mm	B_1 mm	B_2 mm	M mm	Article no. System jaws
265	0 - 89	22 - 112	123 - 212	76	**80 898 225**
300	0 - 126	22 - 149	123 - 249	76	**80 898 225**

H5G



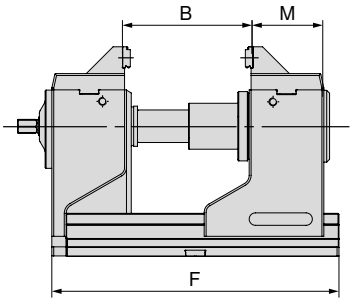
A mm	C mm	D mm	E mm
–	–	–	–
125	174	40	214

H5G-S



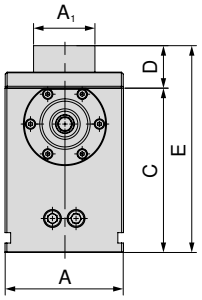
A mm	C mm	D mm	E mm
125	125	40	165
125	125	40	165

With 5A top jaws, jaw width 65 mm



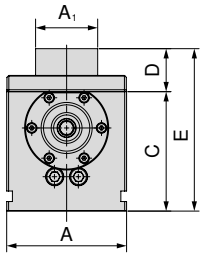
F mm	B mm	M mm	Article no. System jaws
265	16 - 105	79,5	**80 898 325**
300	16 - 142	79,5	**80 898 325**

H5G



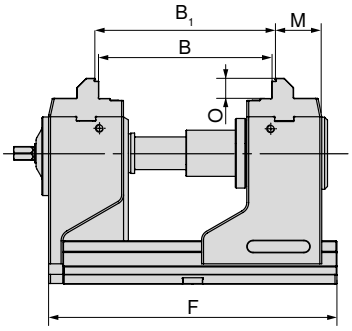
A mm	A_1 mm	C mm	D mm	E mm
–	–	–	–	–
125	65	174	45	219

H5G-S



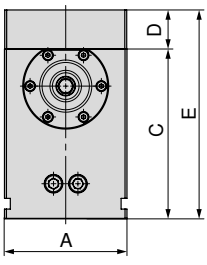
A mm	A_1 mm	C mm	D mm	E mm
125	65	125	45	170
125	65	125	45	170

With 5A top jaws, jaw width 125 mm



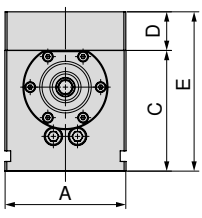
F mm	B mm	B_1 mm	O mm	M mm	Article no. System jaws
265	74 - 162	80 - 168	21	49	**80 907 300**
300	74 - 199	80 - 205	21	49	**80 907 300**

H5G



A mm	C mm	D mm	E mm
–	–	–	–
125	174	40	214

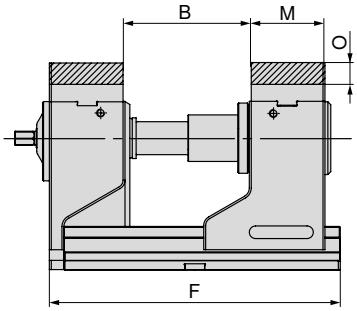
H5G-S



A mm	C mm	D mm	E mm
125	125	40	165
125	125	40	165

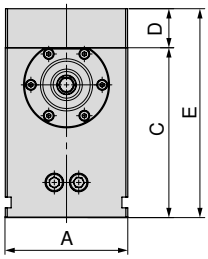
H5G/H5G-S – Structural dimension table for the different jaws

with soft jaws



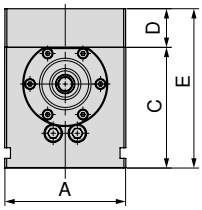
F mm	B mm	O mm	M mm	Article no. System jaws
265	23 - 112	22	76	**80 898 625**
300	23 - 149	22	76	**80 898 625**

H5G



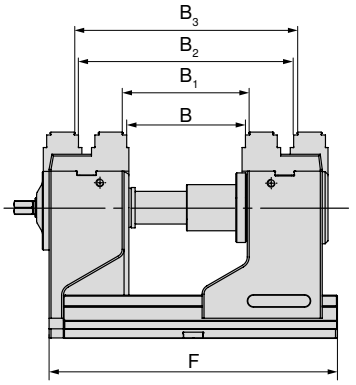
A mm	C mm	D mm	E mm
–	–	–	–
125	174	40	214

H5G-S



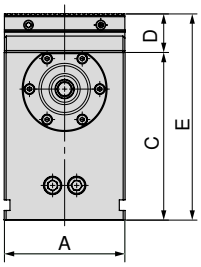
A mm	C mm	D mm	E mm
125	125	40	165
125	125	40	165

With indexable jaws, grip 3 mm



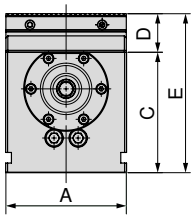
F mm	B mm	B_1 mm	B_2 mm	B_3 mm	Article no. System jaws
265	17 - 106	23 - 112	117 - 206	123 - 212	**80 898 35000**
300	17 - 140	23 - 146	117 - 240	123 - 246	**80 898 35000**

H5G



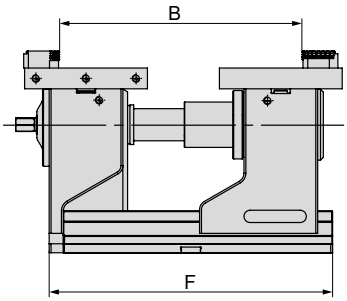
A mm	C mm	D mm	E mm
–	–	–	–
125	174	40	214

H5G-S



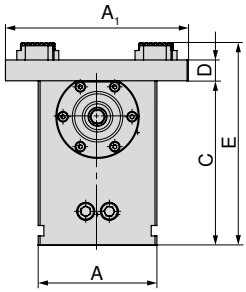
A mm	C mm	D mm	E mm
125	125	40	165
125	125	40	165

With pendulum and adapter plate



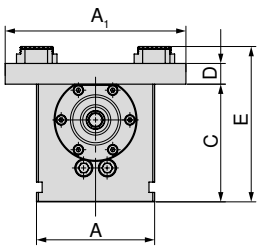
F mm	B mm	Article no. System jaws
265	17 - 236	**80 898 525 + 80 898 425**
300	17 - 274	**80 898 525 + 80 898 425**

H5G



A mm	A_1 mm	C mm	D mm	E mm
–	–	–	–	–
125	192	174	22	214

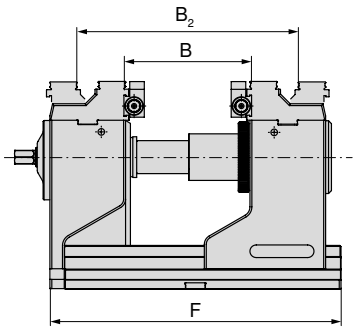
H5G-S



A mm	A_1 mm	C mm	D mm	E mm
125	192	125	22	165
125	192	125	22	165

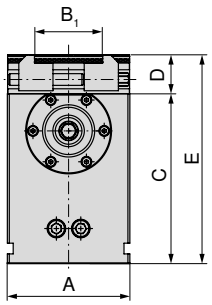
H5G/H5G-S – Structural dimension table for the different jaws

With 6-face jaw system



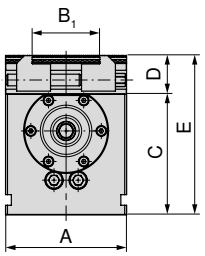
F mm	B mm	B_2 mm	O mm	M mm	Article no. System jaws
265	39 - 115	119 - 191	22	76	**80 898 230**
300	39 - 152	119 - 228	22	76	**80 898 230**

H5G



A mm	B_1 mm	C mm	D mm	E mm
–	–	–	–	–
125	37 - 101	174	40	214

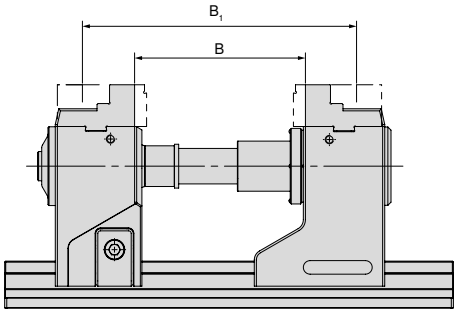
H5G-S



A mm	B_1 mm	C mm	D mm	E mm
125	37 - 101	125	40	165
125	37 - 101	125	40	165

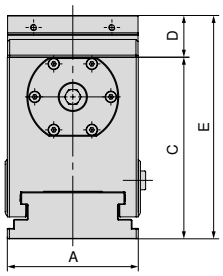
H5G-Z/-S structural dimension table for the different jaws

With combi jaws



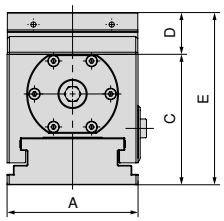
Variant	B mm	B_1 mm	Article no. System jaws
H5G-Z	57 - 182	157 - 282	**80 898 225**
H5G-Z-S	47 - 172	147 - 272	**80 898 225**

H5G-Z



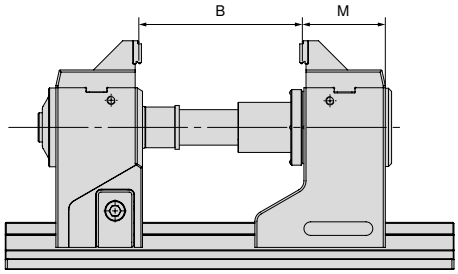
A mm	C mm	D mm	E mm
125	174	40	214
–	–	–	–

H5G-Z-S



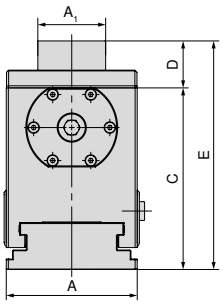
A mm	C mm	D mm	E mm
–	–	–	–
125	125	40	165

With 5A stepped top jaws



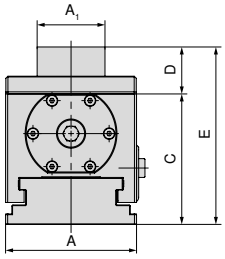
Variant	B mm	M mm	Article no. System jaws
H5G-Z	50 - 175	74	**80 898 325**
H5G-Z-S	40 - 165	74	**80 898 325**

H5G-Z



A mm	A_1 mm	C mm	D mm	E mm
125	65	174	45	214
–	–	–	–	–

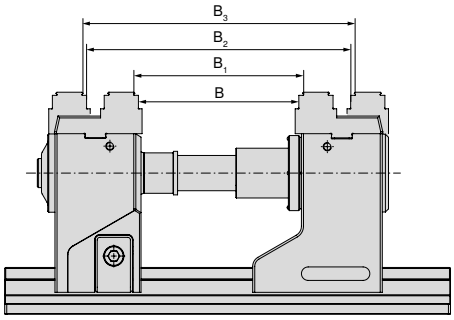
H5G-Z-S



A mm	A_1 mm	C mm	D mm	E mm
–	–	–	–	–
125	65	125	45	165

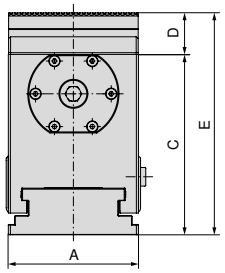
H5G-Z/-S structural dimension table for the different jaws

With indexable jaw grip 3 mm and 16 mm smooth step



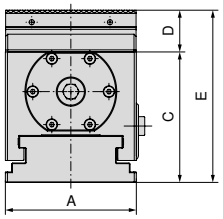
Variant	B mm	B1 mm	B2 mm	B3 mm	Article no. System jaws
H5G-Z	48 - 173	54 - 179	148 - 273	154 - 279	2 x **80 898 35000**
H5G-Z-S	38 - 173	44 - 169	138 - 263	144 - 269	2 x **80 898 35000**

H5G-Z



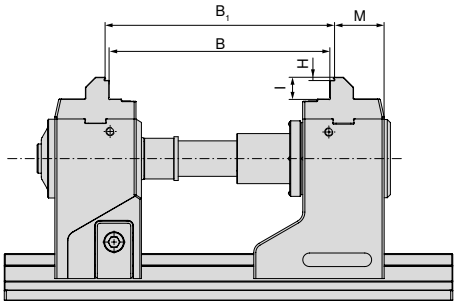
A mm	C mm	D mm	E mm
125	174	40	214
–	–	–	–

H5G-Z-S



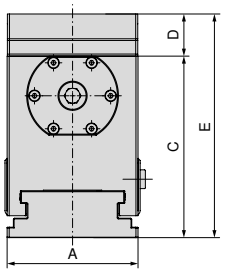
A mm	C mm	D mm	E mm
–	–	–	–
125	125	40	165

With 5A top jaw, jaw width 125 mm



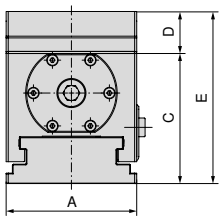
Variant	B mm	B1 mm	H mm	I mm	M mm	Article no. System jaws
H5G-Z	105 - 230	111 - 236	3	21	48,7	2 x **80 907 300**
H5G-Z-S	95 - 220	101 - 226	3	21	48,7	2 x **80 907 300**

H5G-Z



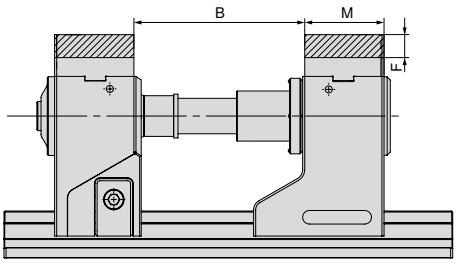
A mm	C mm	D mm	E mm
125	174	40	214
–	–	–	–

H5G-Z-S



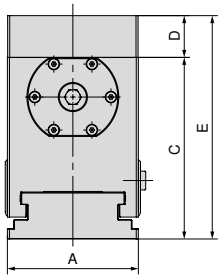
A mm	C mm	D mm	E mm
–	–	–	–
125	125	40	165

with soft jaws



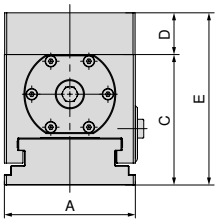
Variant	B mm	F mm	M mm	Article no. System jaws
H5G-Z	57 - 182	22	76	**80 898 625**
H5G-Z-S	47 - 172	22	76	**80 898 625**

H5G-Z



A mm	C mm	D mm	E mm
125	174	40	214
–	–	–	–

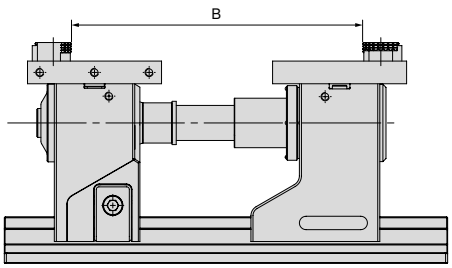
H5G-Z-S



A mm	C mm	D mm	E mm
–	–	–	–
125	125	40	165

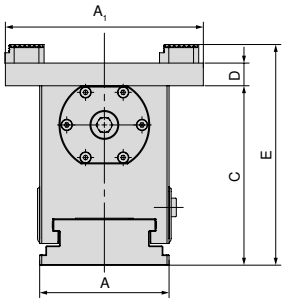
H5G-Z/-S structural dimension table for the different jaws

With pendulum and adapter plate



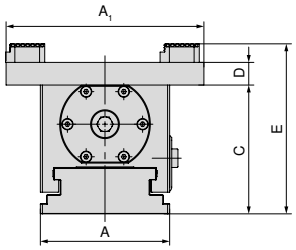
Variant	B mm	Article no. System jaws
H5G-Z	11 - 300	**80 898 525** + **80 898 425**
H5G-Z-S	11 - 290	**80 898 525** + **80 898 425**

H5G-Z



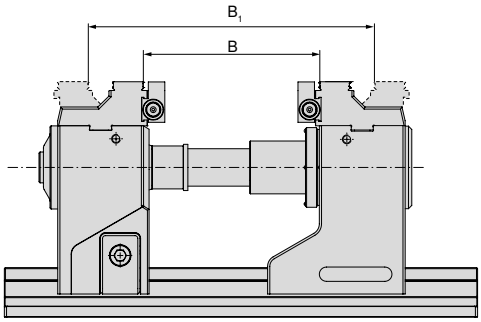
A mm	A_1 mm	C mm	D mm	E mm
125	192	174	40	214
–	–	–	–	–

H5G-Z-S



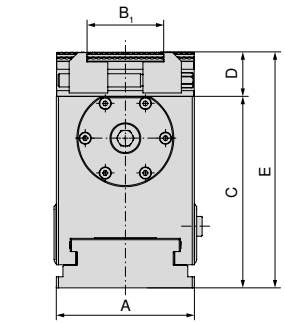
A mm	A_1 mm	C mm	D mm	E mm
–	–	–	–	–
125	192	125	40	165

With 6-face jaw system



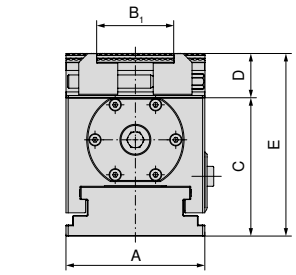
Variant	B mm	B_2 mm	Article no. System jaws
H5G-Z	52 - 177	152 - 277	**80 898 230**
H5G-Z-S	42 - 167	142 - 267	**80 898 230**

H5G-Z



A mm	B_1 mm	C mm	D mm	E mm
125	37 - 101	174	40	214
–	–	–	–	–

H5G-Z-S



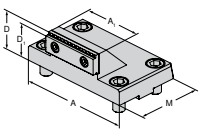
A mm	B_1 mm	C mm	D mm	E mm
–	–	–	–	–
125	37 - 101	125	40	165

Clamping ranges also apply to 500 mm and 630 mm base bodies. Extended clamping ranges with drawbar extension possible.
The specified clamping ranges can sometimes only be achieved using top jaws.

System jaws overview

5A stepped top jaw

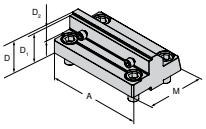
▲ including 125/65 mm attachment and 3 mm grip step
▲ price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125	65	45	42			76			362.95	**80 898 325**		●									

5A – Top jaw

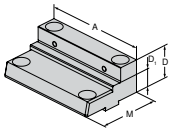
▲ Improved accessibility through tapered rear section
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40	37	18		78			340.93	**80 907 300**		●									

Combi reversable jaw

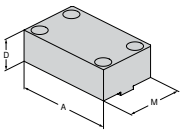
▲ to extend the clamping range
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40	22			76			362.95	**80 898 225**		●									

Soft Alu-jaw

▲ for producing shaped jaws
▲ Price per piece



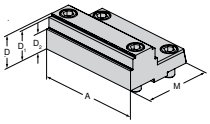

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40				76			107.00	**80 898 625**		●									

17

System jaws overview

Indexable jaw, grip 3 mm, 16 mm smooth step, on both sides

▲ Price per piece

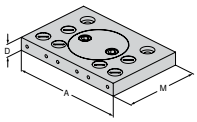




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40	37	24		82,5			383.93	**80 898 35000**		●									

Pendulum jaw, movable

▲ to accommodate 6-way reversible jaws
▲ Price per piece

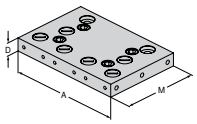




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	192		22				130			472.05	**80 898 525**		●									

Adapter plate

▲ to accommodate 6-way reversible jaws
▲ Price per piece

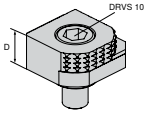




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	192		22				130			398.62	**80 898 425**		●									

6 function indexable jaw

▲ 1 = Smooth, carbide coated
▲ 2 = Grip with 3 mm step
▲ 3 = Grip with 8 mm step
▲ 4 = Grip with 18 mm step
▲ 5 = Rough grip with 8 mm step
▲ 6 = Round grip
▲ M_{max} = 60 Nm
▲ Including fixation screws



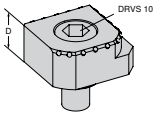


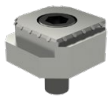
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							77.63	**80 892 246**	●	●	●	●			●		●	●	

System jaws overview

6x indexable jaw, carbide grip

- ▲ 1 = Smooth
- ▲ 2 = Carbide grip
- ▲ 3 = Carbide grip with 3 mm step
- ▲ 4 = Carbide grip with 8 mm step
- ▲ 5 = Round carbide grip with 8 mm step
- ▲ 6 = Round carbide grip
- ▲ Incl. fixing screws





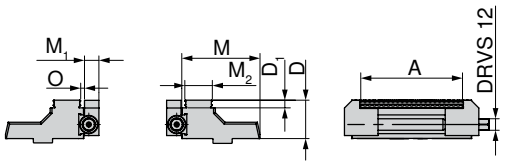
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							112.24	**80 890 35300**	●	●	●	●			●		●	●	

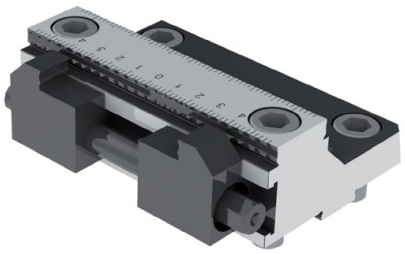
6 face jaw system for 125 mm jaw width

Scope of supply:

2 System jaws with 2 pairs of transverse jaws in T-slot guidance incl. fixing screws

H5G -S





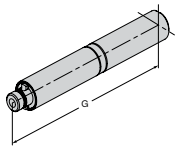
for width	A	D	D_1	M	M_1	M_2	O	WT	80 898 ... £ Y4	
mm	mm	mm	mm	mm	mm	mm	mm	kg		
125	37 - 101	40	8	81,5	15	28,7	3,2	4.5	1,694.14	**230**

System accessories overview

Drawbar

▲ Incl. anti-rotation

H5G | H5G -S | H5G -Z

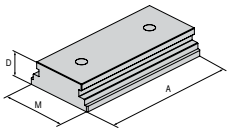


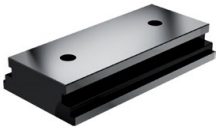


G mm	80 898 ... £ Y4	
125	346.17	826
250	392.33	827

Base plate to extend

H5G

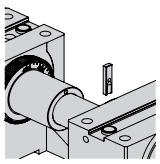




A mm	D mm	M mm	80 898 ... £ Y4	
250	45	125,5	619.96	725

Anti-twist plate

H5G | H5G -S | H5G -Z | H5G -Z-S





80 898 ... £ Y4	
11.54	024

Hand crank

▲ for fast adjustment



DRVS mm	H5G-Z X5G-Z 80 907 ... £ Y4		H5G-S H5G-Z-S 80 898 ... £ Y4		H5G 80 898 ... £ Y4	
14	77.63	500	77.63	026	77.63	025

Protection plugs

▲ Price per piece

H5G -Z



D_1 mm	80 907 ... £ Y4	
19	1.05	501

Clamping lever

▲ including control accessories

NCG | NCG 5A | H5G



DRVS mm	80 890 ... £ Y4	
14	122.73	501

Clamping Handle with Joint

▲ without socket

H5G -Z | H5G -Z-S | ESG 4 | ESG mini | ZSG 4



Square	80 891 ... £ Y4	
1/2"	73.43	600

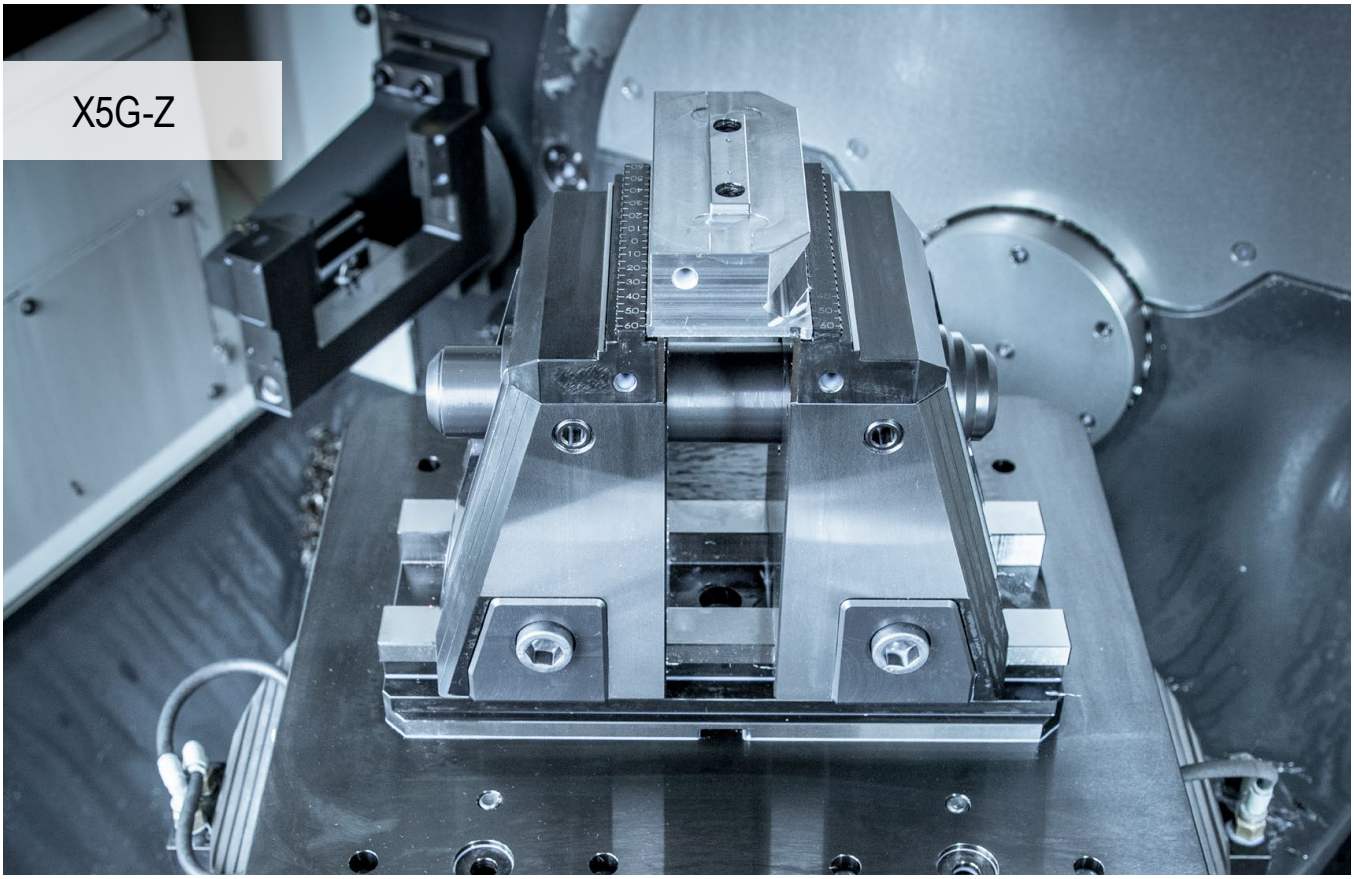
Socket

▲ Suitable for 1/2" or 3/8" square drive

H5G -Z | ESG mini | MSG 2 | Verso | MNG



Square	DRVS mm	80 877 ... £ Y4	
1/2"	14	17.83	214



5-axis machining to perfection

Maximum ease of handling and integrated pull-down action for 6-sided machining. X5G-Z is the new 5-axis vice from CERATIZIT. All the advantages that ensure optimum and simple 5- and 6-sided machining combined in a single clamping device.

Your benefits:

- ▲ Either 5 and 6-axis machining thanks to clamping of one or both supporting jaws
- ▲ Fast jaw changeover without tools
- ▲ Optimum accessibility from all sides and large base clamping stroke of 130 mm
- ▲ Fully encapsulated, mechanical spindle
- ▲ Integrated, internal elastomer damping to minimise vibrations
- ▲ Extensive modular jaw range

Clamping/aligning:



Clamping with two dowel screws dia. 12_{f7} / M12 and clamping screws **Article no. 80 895 019**



Alignment through 20^{H7} precision slot nuts in the base body in the machine table's T-slot. Clamping with clamping claws.



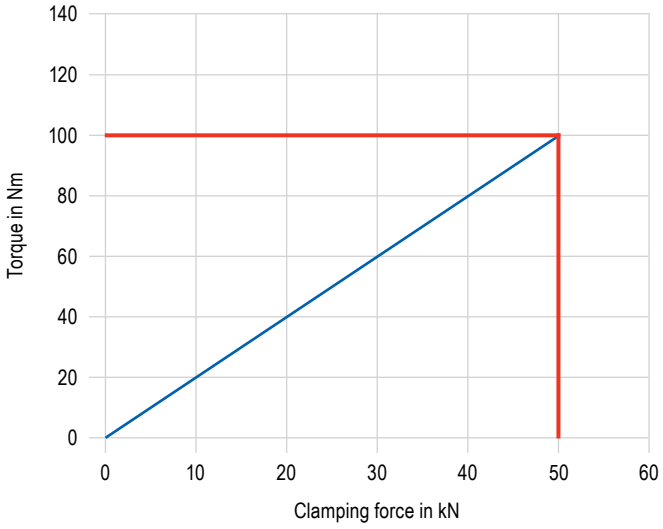
Alignment and clamping with MNG zero point clamping system (2-3 mounting bolts). **Optional:** Positioning and fixing holes at the customer's request.

Clamping force:

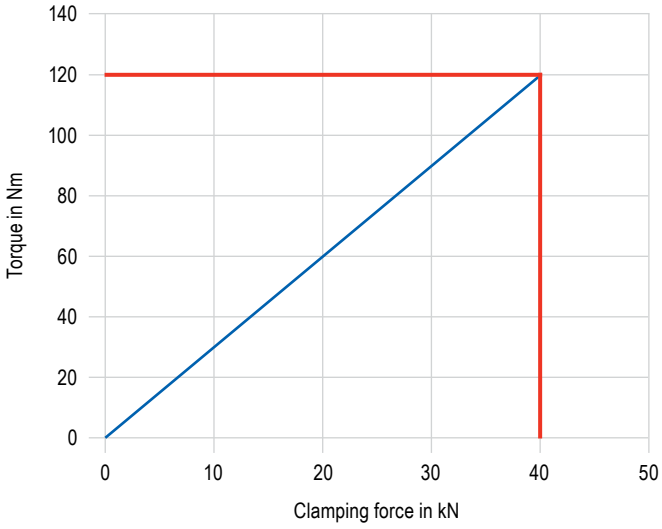
Size		Max. tightening torque in Nm	max. clamping force in kN
X5G-Z	Blank clamping	100	50
X5G-Z	Precision clamping	120	40
X5G-Z-S	Blank clamping	100	50
X5G-Z-S	Precision clamping	120	34

X5G-Z tightening torque/clamping force

Blank clamping

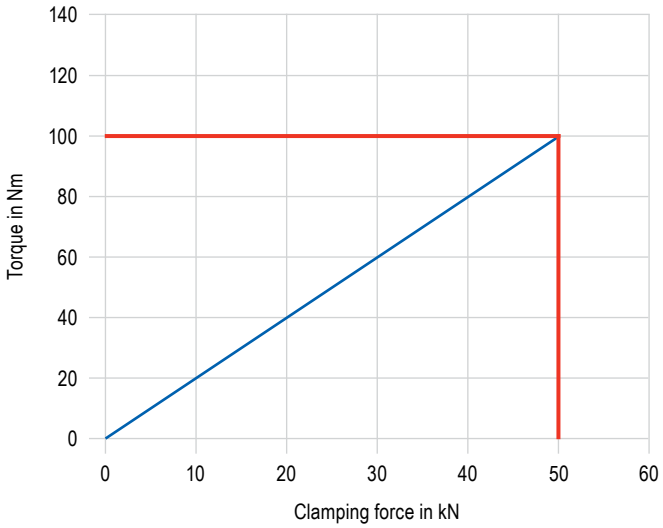


Precision clamping

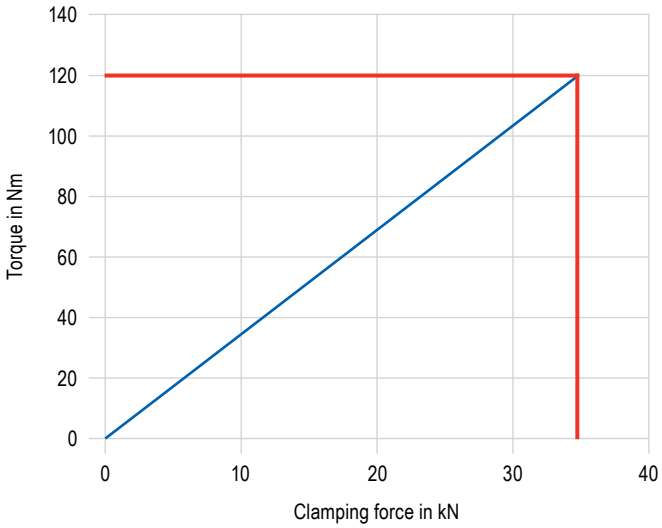


X5G-Z-S tightening torque/clamping force

Blank clamping



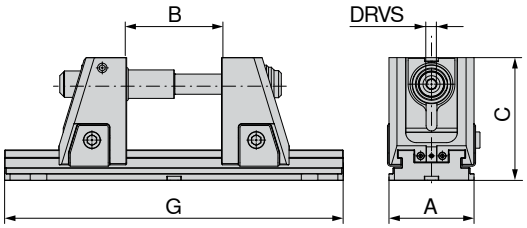
Precision clamping



SoloClamp – X5G-Z

- ▲ Mechanical 5-axis vice with movable fixed jaws, 181 mm height
- ▲ Without system jaws
- ▲ Optimum accessibility
- ▲ 5- and 6-sided machining possible
- ▲ Fast jaw changeover
- ▲ Clamping on the machine table is possible with MNG/PNG, or directly through the base body

X5G -Z





A mm	B mm	C mm	G mm	DRVS mm	MXC kN	WT kg	80 908 ... £ Y4	
125	4 - 134	181	330	14	40	33.2	3,049.44	**52500**
125	4 - 234	181	430	14	40	36.1	3,268.68	**52600**
125	4 - 304	181	500	14	40	38.1	3,408.20	**52700**
125	4 - 434	181	630	14	40	41.8	3,657.86	**52800**
125	4 - 604	181	800	14	40	46.6	3,986.20	**52900**

Basic clamping stroke 130 mm

→ **Page 48**
Here you will find the additional drawbar extensions that must be used to reach the maximum clamping ranges.

→ **Page 42–44**
Here you will fin the structural dimension tables for the different jaws.

Vice guide

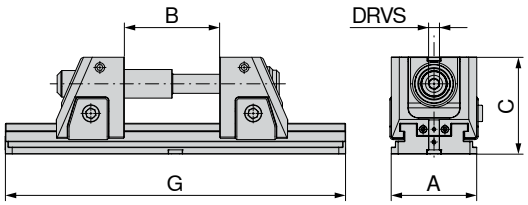
Underside Dimensions	41	System accessories	45
MNG-/PNG zero point clamping system	134–163	General accessories	164–183

17

SoloClamp – X5G-Z-S

- ▲ Mechanical 5-axis vice with movable fixed jaws, 142 mm height
- ▲ Without system jaws
- ▲ Optimum accessibility
- ▲ 5- and 6-sided machining possible
- ▲ Fast jaw changeover
- ▲ Clamping on the machine table is possible with MNG/PNG, or directly through the base body

X5G -Z-S





A mm	B mm	C mm	G mm	DRVS mm	MXC kN	WT kg	£ Y4	80 908 ...
125	4 - 134	142	330	14	40	27.3	2,770.41	42500
125	4 - 234	142	430	14	40	30.2	2,989.65	42600
125	4 - 304	142	500	14	40	32.2	3,129.17	42700
125	4 - 434	142	630	14	40	35.9	3,378.83	42800
125	4 - 604	142	800	14	40	40.7	3,707.17	42900

Basic clamping stroke 130 mm

→ **Page 48**
Here you will find the additional drawbar extensions that must be used to reach the maximum clamping ranges.

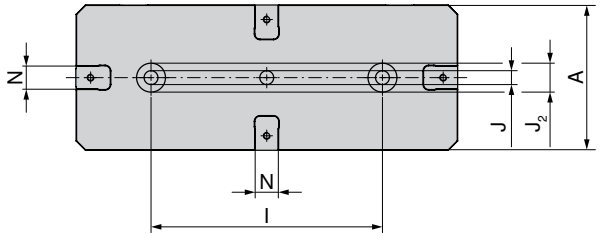
→ **Page 42–44**
Here you will fin the structural dimension tables for the different jaws.

Vice guide

Underside Dimensions	41	System accessories	45
MNG-/PNG zero point clamping system	134–163	General accessories	164–183

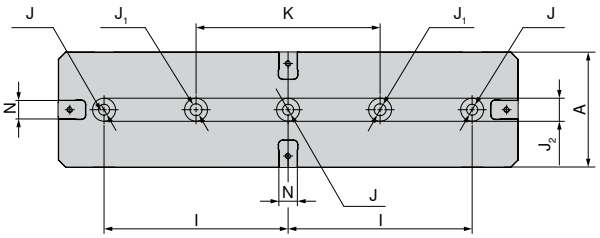
X5G-Z/-S underside dimensions

Base width 125 mm and 330 mm length



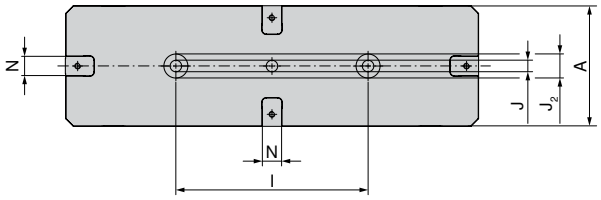
A mm	l ±0,02 mm	J H7 mm	J2 H6 mm	N H7 mm
125	200	12	25	20

Base width 125 mm and 630 mm length



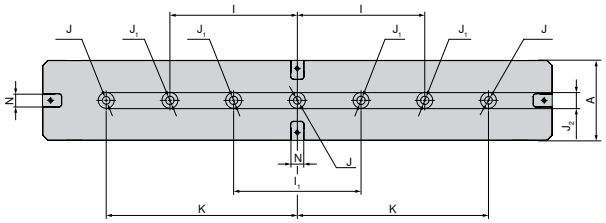
A mm	l ±0,02 mm	J H7 mm	J1 mm	J2 H6 mm	K ±0,02 mm	N H7 mm
125	200	12	13	25	200	20

Base width 125 mm and 430 mm length



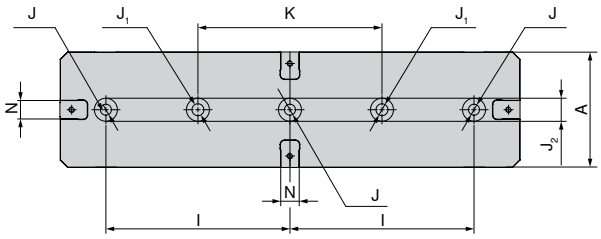
A mm	l ±0,02 mm	J H7 mm	J2 H6 mm	N H7 mm
125	200	12	25	20

Base width 125 mm and 800 mm length



A mm	l ±0,02 mm	l1 ±0,02 mm	J H7 mm	J1 mm	J2 H6 mm	K ±0,02 mm	N H7 mm
125	200	200	12	13	25	300	20

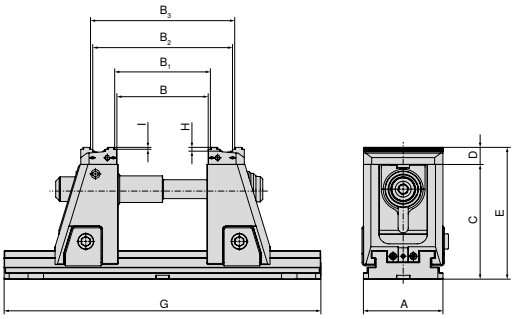
Base width 125 mm and 500 mm length



A mm	l ±0,02 mm	J H7 mm	J1 mm	J2 H6 mm
125	200	12	13	25

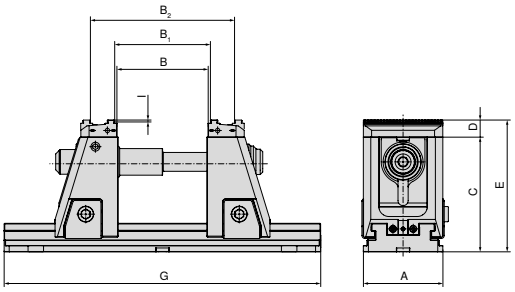
X5G-Z/-S structural dimension table for the different jaws

With indexable jaws, grip 3 mm



Type	Drawbar 430 mm 80 908 80000	Drawbar 500 mm 80 908 80100	Drawbar 630 mm 80 908 80200	Drawbar 800 mm 80 908 80300	A	B	B_1	B_2	B_3	C	D	E	G	H	I
80 908 52500					125	5–134	12–141	80–210	88–217	181	27	208	330	6	3
80 908 42500					125	5–134	12–141	80–210	88–217	142	27	169	330	6	3
80 908 52600	1 x				125	5–234	12–241	80–310	88–317	181	27	208	430	6	3
80 908 42600	1 x				125	5–234	12–241	80–310	88–317	142	27	169	430	6	3
80 908 52700	1 x	1 x			125	5–304	12–311	80–380	88–387	181	27	208	500	6	3
80 908 42700	1 x	1 x			125	5–304	12–311	80–380	88–387	142	27	169	500	6	3
80 908 52800	1 x	1 x	1 x		125	5–434	12–441	80–510	88–517	181	27	208	630	6	3
80 908 42800	1 x	1 x	1 x		125	5–434	12–441	80–510	88–517	142	27	169	630	6	3
80 908 52900	1 x	1 x	1 x	1 x	125	5–604	12–611	80–680	88–687	181	27	208	800	6	3
80 908 42900	1 x	1 x	1 x	1 x	125	5–604	12–611	80–680	88–687	142	27	169	800	6	3

With indexable jaws, grip 5 mm

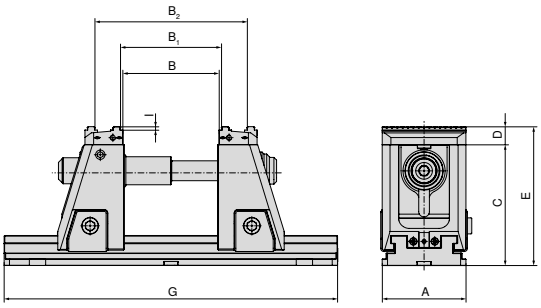


Type	Drawbar 430 mm 80 908 80000	Drawbar 500 mm 80 908 80100	Drawbar 630 mm 80 908 80200	Drawbar 800 mm 80 908 80300	A	B	B_1	B_2	C	D	E	G	I
80 908 52500					125	5–134	12–141	88–217	181	27	208	330	5
80 908 42500					125	5–134	12–141	88–217	142	27	169	330	5
80 908 52600	1 x				125	5–234	12–241	88–317	181	27	208	430	5
80 908 42600	1 x				125	5–234	12–241	88–317	142	27	169	430	5
80 908 52700	1 x	1 x			125	5–304	12–311	88–387	181	27	208	500	5
80 908 42700	1 x	1 x			125	5–304	12–311	88–387	142	27	169	500	5
80 908 52800	1 x	1 x	1 x		125	5–434	12–441	88–517	181	27	208	630	5
80 908 42800	1 x	1 x	1 x		125	5–434	12–441	88–517	142	27	169	630	5
80 908 52900	1 x	1 x	1 x	1 x	125	5–604	12–611	88–687	181	27	208	800	5
80 908 42900	1 x	1 x	1 x	1 x	125	5–604	12–611	88–687	142	27	169	800	5

→ **Page 48**
Here you will find the suitable drawbar extensions.

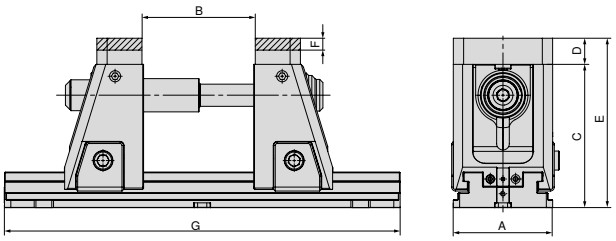
X5G-Z/-S structural dimension table for the different jaws

With stepped jaws, carbide grip 5 mm



Type	Drawbar 430 mm 80 908 80000	Drawbar 500 mm 80 908 80100	Drawbar 630 mm 80 908 80200	Drawbar 800 mm 80 908 80300	A	B	B_1	B_2	C	D	E	G	I
80 908 52500					125	5–134	12–141	88–217	181	27	208	330	5
80 908 42500					125	5–134	12–141	88–217	142	27	169	330	5
80 908 52600	1 x				125	5–234	12–241	88–317	181	27	208	430	5
80 908 42600	1 x				125	5–234	12–241	88–317	142	27	169	430	5
80 908 52700	1 x	1 x			125	5–304	12–311	88–387	181	27	208	500	5
80 908 42700	1 x	1 x			125	5–304	12–311	88–387	142	27	169	500	5
80 908 52800	1 x	1 x	1 x		125	5–434	12–441	88–517	181	27	208	630	5
80 908 42800	1 x	1 x	1 x		125	5–434	12–441	88–517	142	27	169	630	5
80 908 52900	1 x	1 x	1 x	1 x	125	5–604	12–611	88–687	181	27	208	800	5
80 908 42900	1 x	1 x	1 x	1 x	125	5–604	12–611	88–687	142	27	169	800	5

With soft jaws, steel



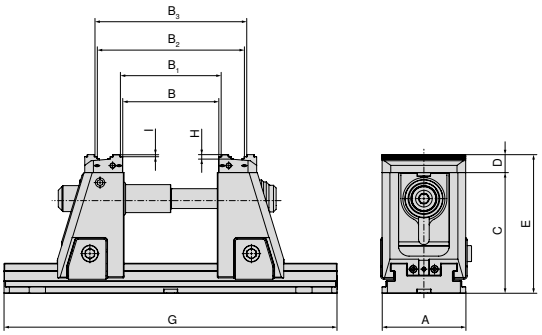
Article no. System jaws
2 x 80 909 31200

Type	Drawbar 430 mm 80 908 80000	Drawbar 500 mm 80 908 80100	Drawbar 630 mm 80 908 80200	Drawbar 800 mm 80 908 80300	A	B	C	D	E	F	G
80 908 52500					125	4–134	181	33	214	15	330
80 908 42500					125	4–134	142	33	175	15	330
80 908 52600	1 x				125	4–234	181	33	214	15	430
80 908 42600	1 x				125	4–234	142	33	175	15	430
80 908 52700	1 x	1 x			125	4–304	181	33	214	15	500
80 908 42700	1 x	1 x			125	4–304	142	33	175	15	500
80 908 52800	1 x	1 x	1 x		125	4–434	181	33	214	15	630
80 908 42800	1 x	1 x	1 x		125	4–434	142	33	175	15	630
80 908 52900	1 x	1 x	1 x	1 x	125	4–604	181	33	214	15	800
80 908 42900	1 x	1 x	1 x	1 x	125	4–604	142	33	175	15	800

→ Page 48
Here you will find the suitable drawbar extensions.

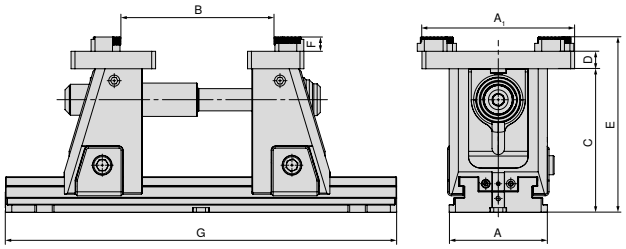
X5G-Z/-S structural dimension table for the different jaws

With indexable jaws embossed profile



Article no. System jaws															
															2 x 80 908 31200
Type	Drawbar 430 mm **80 908 80000**	Drawbar 500 mm **80 908 80100**	Drawbar 630 mm **80 908 80200**	Drawbar 800 mm **80 908 80300**	**A**	**B**	**B_1**	**B_2**	**B_3**	**C**	**D**	**E**	**G**	**H**	**I**
80 908 52500					125	5–134	12–141	82–210	89–217	181	27	208	330	6	3
80 908 42500					125	5–134	12–141	82–210	89–217	142	27	169	330	6	3
80 908 52600	1 x				125	5–234	12–241	82–310	89–317	181	27	208	430	6	3
80 908 42600	1 x				125	5–234	12–241	82–310	89–317	142	27	169	430	6	3
80 908 52700	1 x	1 x			125	5–304	12–311	82–380	89–387	181	27	208	500	6	3
80 908 42700	1 x	1 x			125	5–304	12–311	82–380	89–387	142	27	169	500	6	3
80 908 52800	1 x	1 x	1 x		125	5–434	12–441	82–510	89–517	181	27	208	630	6	3
80 908 42800	1 x	1 x	1 x		125	5–434	12–441	82–510	89–517	142	27	169	630	6	3
80 908 52900	1 x	1 x	1 x	1 x	125	5–604	12–611	82–680	89–687	181	27	208	800	6	3
80 908 42900	1 x	1 x	1 x	1 x	125	5–604	12–611	82–680	89–687	142	27	169	800	6	3

With pendulum and adapter plate



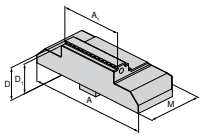
Article no. System jaws												
												80 909 31500 + 80 909 31300
Type	Drawbar 430 mm **80 908 80000**	Drawbar 500 mm **80 908 80100**	Drawbar 630 mm **80 908 80200**	Drawbar 800 mm **80 908 80300**	**A**	**B**	**C**	**D**	**E**	**F**	**G**
80 908 52500					125	42–210	181	22	221	18	330
80 908 42500					125	42–210	142	22	182	18	330
80 908 52600	1 x				125	42–310	181	22	221	18	430
80 908 42600	1 x				125	42–310	142	22	182	18	430
80 908 52700	1 x	1 x			125	42–380	181	22	221	18	500
80 908 42700	1 x	1 x			125	42–380	142	22	182	18	500
80 908 52800	1 x	1 x	1 x		125	42–510	181	22	221	18	630
80 908 42800	1 x	1 x	1 x		125	42–510	142	22	182	18	630
80 908 52900	1 x	1 x	1 x	1 x	125	42–680	181	22	221	18	800
80 908 42900	1 x	1 x	1 x	1 x	125	42–680	142	22	182	18	800

→ **Page 48**
Here you will find the suitable drawbar extensions.

System jaws overview

Indexable grip jaw, 3 mm

▲ Price per piece

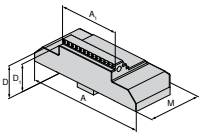




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125	40	27	24			57			289.52	**80 908 30300**			●								
125	125	65	27	24			57			302.11	**80 908 30200**			●								
125	125	80	27	24			57			302.11	**80 908 30100**			●								
125	125	125	27	24			57			311.55	**80 908 30000**			●								

Indexable grip jaw, 5 mm

▲ Price per piece

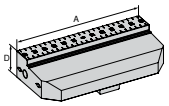




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125	40	27	22			57			289.52	**80 908 30700**			●								
125	125	65	27	22			57			302.11	**80 908 30600**			●								
125	125	80	27	22			57			302.11	**80 908 30500**			●								
125	125	125	27	22			57			311.55	**80 908 30400**			●								

Indexable smooth jaw

▲ Price per piece

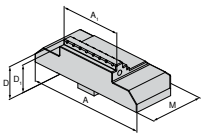




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		27							311.55	**80 908 31400**			●								

Stepped jaw, carbide grip 5 mm

▲ Price per piece



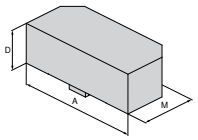
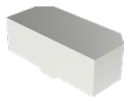


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125	40	27	22			57			344.07	**80 908 31100**			●								
125	125	65	27	22			57			355.61	**80 908 31000**			●								
125	125	80	27	22			57			366.10	**80 908 30900**			●								
125	125	125	27	22			57			376.59	**80 908 30800**			●								

System jaws overview

Soft jaw, steel

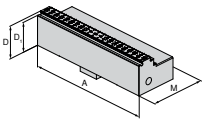
▲ Material: 16MnCr5
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		33				57			134.27	**80 909 31200**			●								

Indexable jaw embossed profile

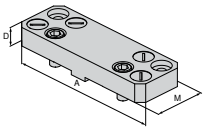
▲ Price per piece
▲ suitable for LANG embossed profile




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		27	24			57			311.55	**80 908 31200**			●								

Adapter plate

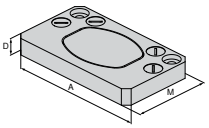
▲ for holding 6-function indexable jaws
▲ Price per piece
▲ incl. cover screws




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	180		22				104			398.62	**80 909 31500**			●								

Floating jaw

▲ for holding 6-function indexable jaws
▲ Price per piece
▲ incl. cover screws

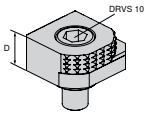



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	180		22				62			531.84	**80 909 31300**			●								

System jaws overview

6 function indexable jaw

- ▲ 1 = Smooth, carbide coated
- ▲ 2 = Grip with 3 mm step
- ▲ 3 = Grip with 8 mm step
- ▲ 4 = Grip with 18 mm step
- ▲ 5 = Rough grip with 8 mm step
- ▲ 6 = Round grip
- ▲ M_{max} = 60 Nm
- ▲ Including fixation screws

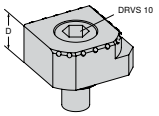


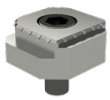


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							77.63	**80 892 246**	●	●	●	●			●		●	●	

6x indexable jaw, carbide grip

- ▲ 1 = Smooth
- ▲ 2 = Carbide grip
- ▲ 3 = Carbide grip with 3 mm step
- ▲ 4 = Carbide grip with 8 mm step
- ▲ 5 = Round carbide grip with 8 mm step
- ▲ 6 = Round carbide grip
- ▲ Incl. fixing screws

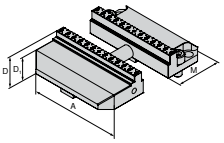




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							112.24	**80 890 35300**	●	●	●	●			●		●	●	

Precision jaw

- ▲ Price per set



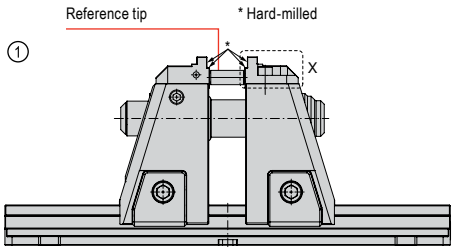


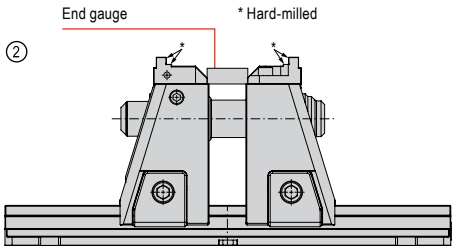
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		27	24			57			471.00	**80 908 31300**			●								

Procedure for hardened precision jaw set

The X5G-Z impresses with its extreme accuracy. All the components have been ground or hard-milled to a high level of precision. Despite this, there are still applications whereby the precision requirements cannot be satisfied in full due to the tolerance chain of the indexable grip jaws. For these situations we offer a hardened precision jaw set (article no. **80 908 31300**) that can be hard-milled by the customer on the clamping flat (both sides).

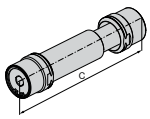
Hard machining is carried out in the precision vice (both screws on the supporting jaws tightened to 140 Nm). The precision jaws must be hard-milled as per the views shown (1+2). The reference tip supplied is used for clamping in the standard position (1). An end gauge can be used for clamping in the increased clamping range position (2).





System accessories overview

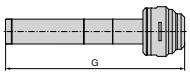
Spindle unit X5G-Z





C mm	WT kg	80 908 ... £ Y4	
227,5	2.5	376.59	**50100**

Drawbar





for width mm	G mm	80 908 ... £ Y4	
125	430	157.35	**80000**
125	500	169.94	**80100**
125	630	197.21	**80200**
125	800	226.58	**80300**

Torque Wrench

▲ without socket



Square	TQX Nm	80 884 ... £ Y4	
1/2"	10 - 100	269.59	**502**

Hand crank

▲ Version with external hex
▲ For quick adjustment



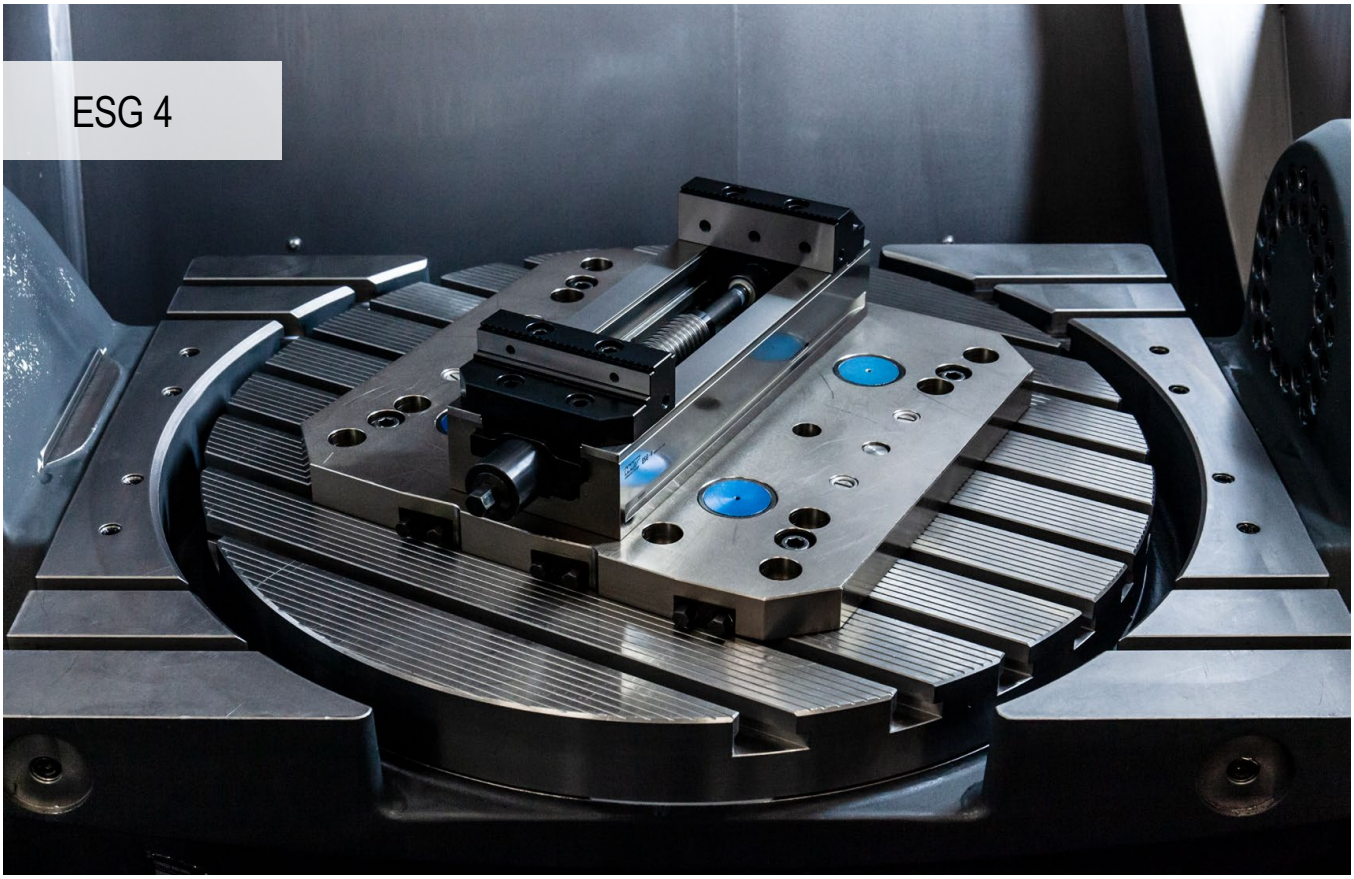
H5G-Z
X5G-Z

for width mm	DRVS mm	80 907 ... £ Y4	
125	14	77.63	**500**

Socket



Square	DRVS mm	80 877 ... £ Y4	
1/2"	14	17.83	**214**



Highly-efficient all-rounder for machining unfinished and finished parts

The ESG 4 single vice impresses with fast handle clamping, quick setting of the clamping range, a flat design and low weight.

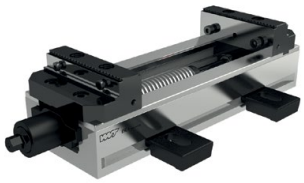
Your benefits:

- ▲ Several cooling lubricant flows for problem-free working and controlled outflow
- ▲ Quick and easy positioning on the MNG zero point clamping system
- ▲ High clamping force between 5 – 50 kN with low tightening torque
- ▲ Quick and easy jaw change with 2 screws
- ▲ Quick, simple disassembly of the spindle unit
- ▲ Extensive modular jaw range

Clamping/aligning:



ESG 4 – 80 mm = mounting with M8 screws through the base body
ESG 4 – 125 mm / 160 mm = mounting with M12 screws and dowel screws through the base body



Mounting with 4 clamping claws
Article no. 80 890 315

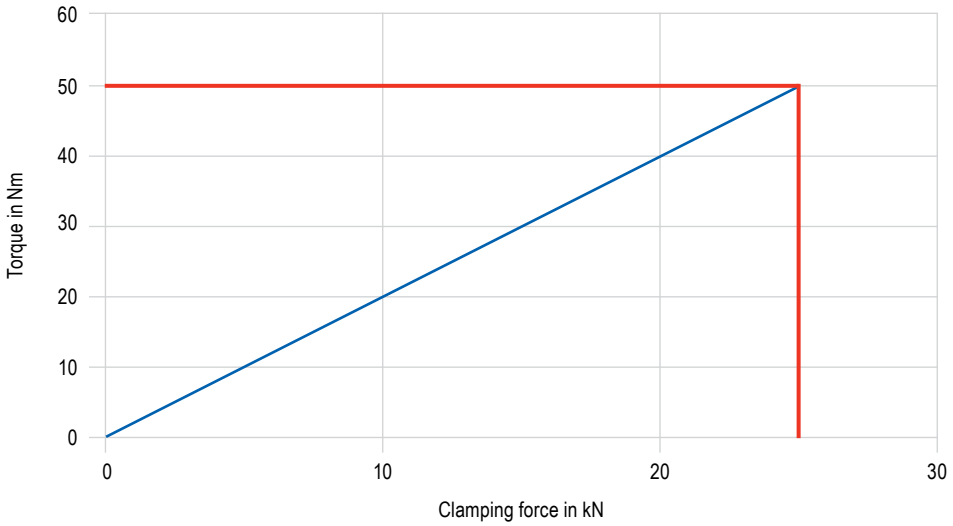


Mounting with zero point clamping systems
ESG 4 – 80 mm = 1 mounting bolt + anti-twist protection
ESG 4 – 125 / 160 mm = 2 mounting bolts, centre distance 200 mm

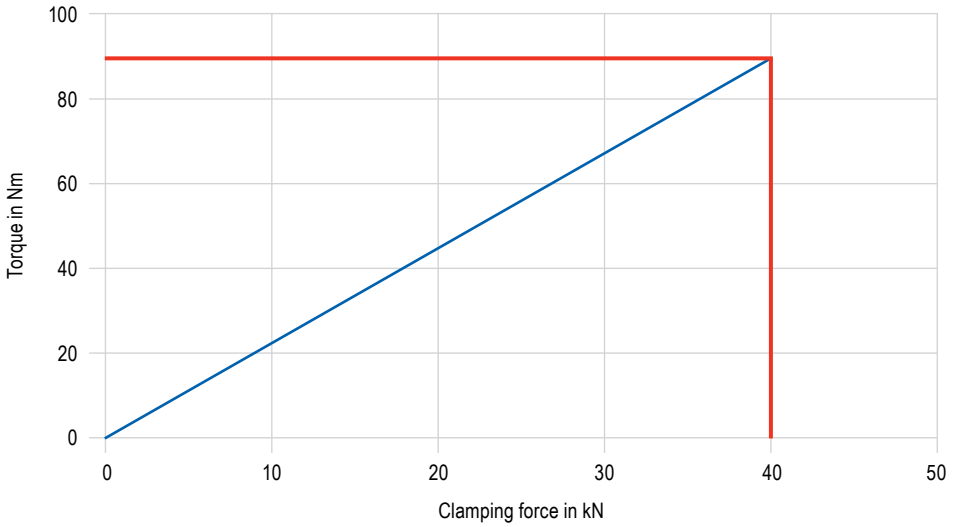
17

Clamping force:

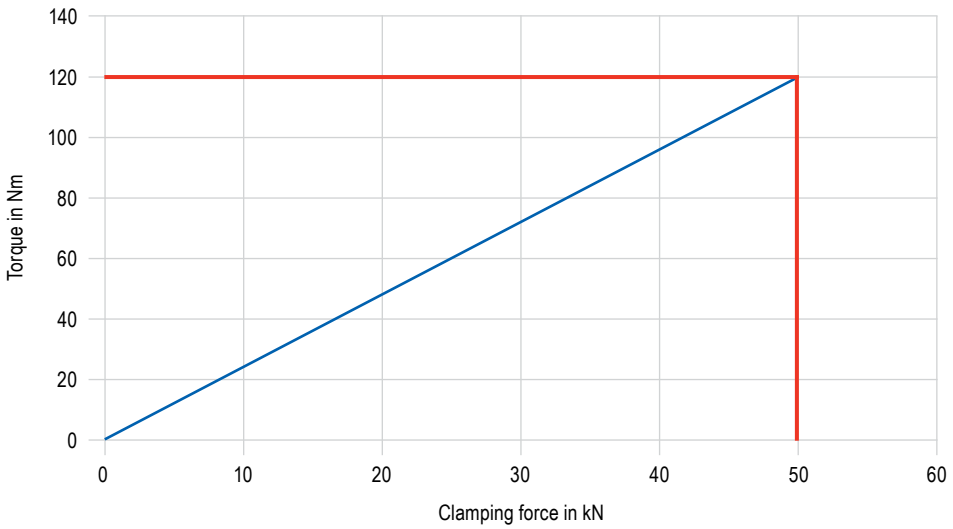
ESG 4 – 80 mm tightening torque / clamping force



ESG 4 – 125 mm tightening torque/clamping force



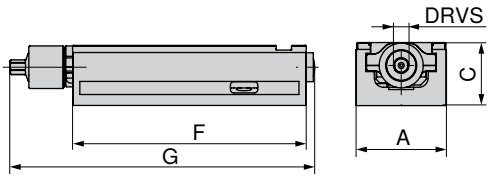
ESG 4 – 160 mm tightening torque / clamping force



SoloClamp – ESG 4

- ▲ Single vice without system jaws
- ▲ Fast 160° handle clamping with torque key
- ▲ Rapid installation and removal of the spindle assembly
- ▲ ±0.01 mm repeatability (±0.015 mm when A = 160 mm)

ESG 4 | **MNG**





A mm	C -0.02 mm	F mm	G mm	DRVS mm	MXC kN	WT kg	clamping range mm	80 901 ... £ Y4	
80	55	214	284	12	25	5.0	0-192	1,175.93	**080**
125	60	362	433	14	40	15.0	0-308	1,454.96	**125**
160	70	480	559	14	50	28.5	0-434	2,132.62	**160**

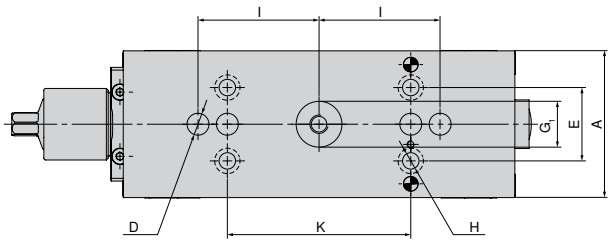
Vice guide

Underside Dimensions	52	Structural dimension tables for the different jaws	53+54
System accessories	55–58	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

17

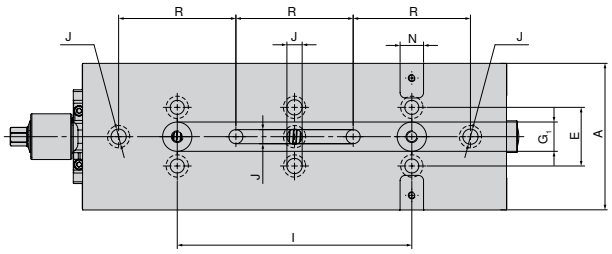
ESG 4 underside dimensions

Base width 80 mm and length 214 mm



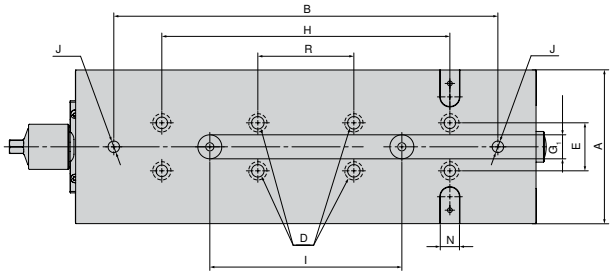
A	D	E	G_1	H	I	K
mm	mm	mm	mm	mm	mm	mm
80	12	40	25	9	66	100

Base width 125 mm and length 362 mm



A	E	G_1	I	J	N_{H7}	R
mm	mm	mm	mm	mm	mm	mm
125	50	25	200	13	20	100

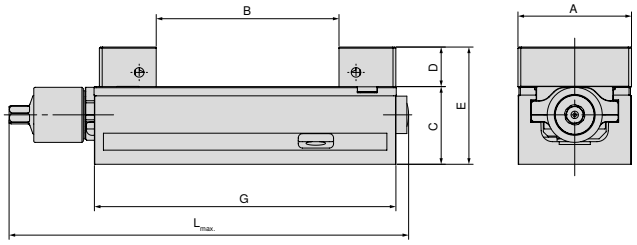
Base width 160 mm and length 480 mm



A	B	D	E	G_1	H	I	J	N_{H7}	R
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
160	400	13	50	25	300	200	12	20	100

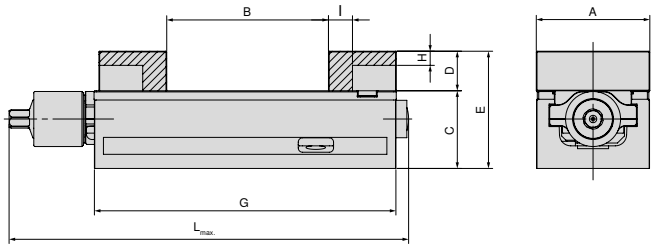
ESG 4 structural dimension table for the different jaws

With block jaws



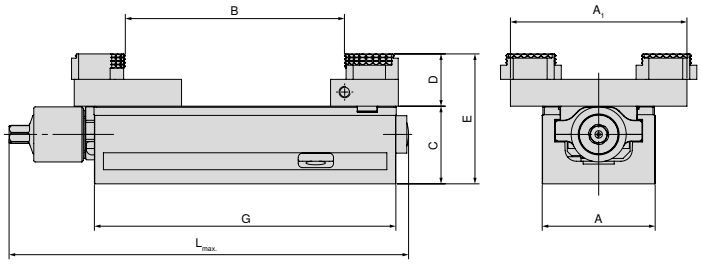
A mm	B mm	C mm	D mm	E mm	G mm	$L_{max.}$ mm	Article no. System jaws
80	0 - 130	55	28	83	214	308	**80 901 31200** + **80 901 31300**
125	0 - 231	60	40	100	362	432	**80 901 31400** + **80 901 31500**
160	0 - 312	70	50	120	480	559	**80 901 31600** + **80 901 31700**

With soft alu jaws



A mm	B mm	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
80	0 - 115	55	28	83	214	10	17	284	**80 901 307** + **80 878 850**
125	0 - 219	60	40	100	362	23	27	432	**80 901 304** + **80 878 550**
160	0 - 309	70	50	120	480	23	30	559	**80 901 301** + **80 878 305**

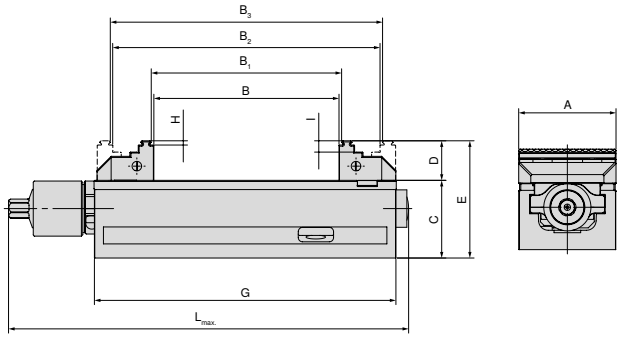
With pendulum and adapter plate



A mm	A_1 mm	B mm	C mm	D mm	E mm	G mm	$L_{max.}$ mm	Article no. System jaws
80	125	5 - 155	55	19	92	214	284	**80 878 870** + **80 901 501**
125	180	4 - 306	60	22	100	362	432	**80 878 570** + **80 901 502**
160	256	11 - 463	70	22	110	480	559	**80 878 670** + **80 901 503**

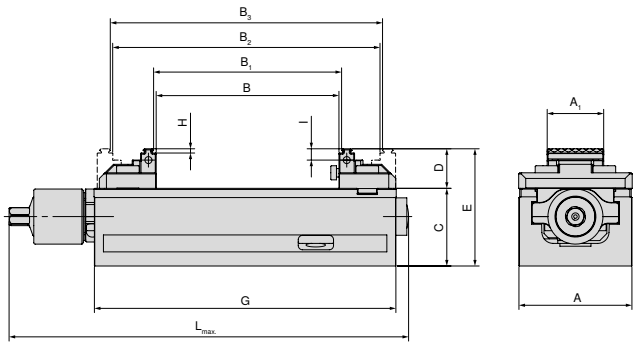
ESG 4 structural dimension table for the different jaws

With indexable jaws, grip 3 mm



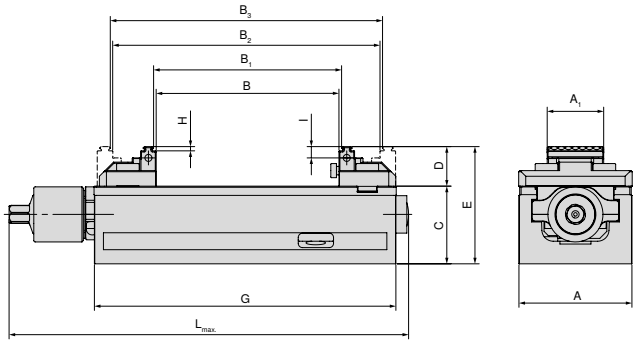
A mm	B mm	B_1 mm	B_2 mm	B_3 mm	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
80	0 - 130	4 - 134	59 - 188	63 - 192	55	28	83	214	3	8	284	**80 901 306** + **80 878 810**
125	0 - 231	8 - 238	71 - 301	78 - 308	60	40	100	362	3	18	433	**80 901 302** + **80 901 303**
160	0 - 310	8 - 317	117 - 427	125 - 434	70	50	120	480	3	10	559	**80 901 300** + **80 878 610**

With indexable jaws, grip 3 mm, width 40 mm



A mm	A_1 mm	B mm	B_1 mm	B_2 mm	B_3 mm	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
80	40	0 - 130	4 - 134	59 - 188	63 - 192	55	28	83	214	3	8	284	**80 901 308** + **80 878 81900**

With indexable jaws, grip 3 mm, height 65 mm

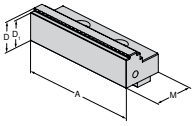


A mm	A_1 mm	B mm	B_1 mm	B_2 mm	B_3 mm	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
125	65	0 - 240	8 - 247	77 - 317	84 - 324	60	33	93	362	3	9	432	**80 901 305** + **80 878 51900**

System jaws overview

Indexable jaw, grip 3 mm, fixed

▲ Price per piece

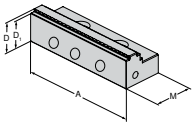




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			156.30	**80 901 306**				●	●						
125	125		40	37			66			215.05	**80 901 302**				●	●				●		
160	160		50	47			81			389.18	**80 901 300**				●	●						

Indexable jaw, grip 3 mm, movable

▲ Price per piece

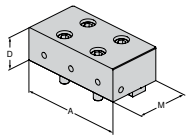




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			130.08	**80 878 810**				●	●		●		●		
125	125		40	37			66			215.05	**80 901 303**				●	●				●		
160	160		50	47			81			389.18	**80 878 610**				●	●		●				

Block jaw, fixed

▲ Price per piece

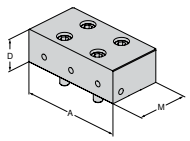


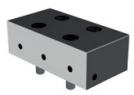


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				40			241.27	**80 901 31200**				●	●						
125	125		40				66			335.68	**80 901 31400**				●							
160	160		50				81			424.85	**80 901 31600**				●	●						

Block jaw, movable

▲ Price per piece



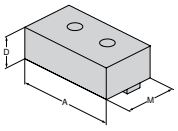
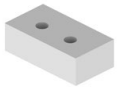


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				40			233.93	**80 901 31300**				●	●		●		●		
125	125		40				66			329.39	**80 901 31500**				●					●		
160	160		50				81			413.31	**80 901 31700**				●	●		●				

System jaws overview

Alu jaw, fixed

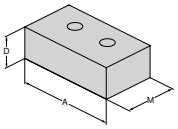
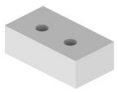
▲ for producing shaped jaws
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			96.51	**80 901 307**				●	●						
125	125		40				68			105.95	**80 901 304**				●							
160	160		50				85			118.54	**80 901 301**				●	●						

Alu jaw, movable

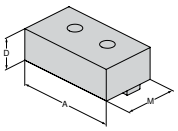
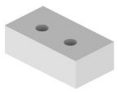
▲ for producing shaped jaws
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			82.87	**80 878 850**				●	●		●		●		
125	125		40				68			94.41	**80 878 550**				●					●		
160	160		50				85			118.54	**80 878 305**				●	●		●				

Soft jaw, steel, fixed

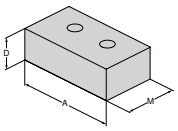
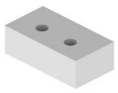
▲ Material: 16MnCr5
▲ for producing shaped jaws
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			115.39	**80 901 31800**				●	●						
125	125		40				68			138.47	**80 901 31900**				●	●						

Soft jaw, steel, movable

▲ Material: 16MnCr5
▲ for producing shaped jaws
▲ Price per piece

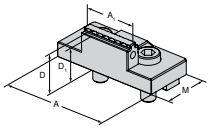



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			99.24	**80 878 32000**				●	●		●				
125	125		40				68			124.62	**80 878 32100**				●	●		●				

System jaws overview

Reversible grip jaw, width 40 mm, fixed

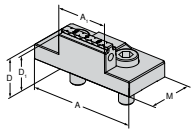
▲ Price per piece
▲ Double-sided grip step




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80	40	28	25			40			188.82	**80 901 308**				●							

Indexable grip jaw 3 mm, width 40 mm, movable

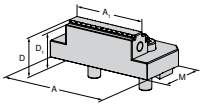
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80	40	28	25			40			172.04	**80 878 81900**				●			●				

5-axis reversible grip jaw, width 65 mm, fixed

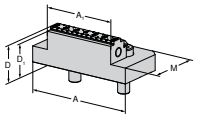
▲ price per piece
▲ double sided grip step




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	95	65	33	30			57			205.60	**80 901 305**				●							

5-axis indexable jaw, grip 3 mm, width 65 mm, movable

▲ double sided grip step
▲ price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	95	65	33	30			57			188.82	**80 878 51900**							●				

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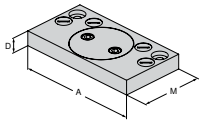
System jaws overview

Pendulum jaw, movable

▲ to accommodate 6-way reversible jaws
▲ Price per piece

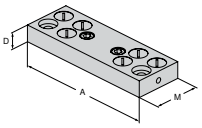




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	125		19				76			393.38	**80 878 870**				●			●		●		
125	180		22				95			409.11	**80 878 570**				●			●		●		
160	256		22				170			698.63	**80 878 670**				●			●				

Adapter jaw

▲ to accommodate 6-way reversible jaws
▲ Price per piece

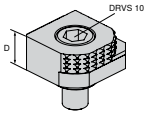


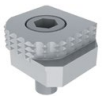


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	125		19				48			280.08	**80 901 501**				●							
125	180		22				62			332.53	**80 901 502**				●							
160	256		22				125			465.76	**80 901 503**				●							

6 function indexable jaw

▲ 1 = Smooth, carbide coated
▲ 2 = Grip with 3 mm step
▲ 3 = Grip with 8 mm step
▲ 4 = Grip with 18 mm step
▲ 5 = Rough grip with 8 mm step
▲ 6 = Round grip
▲ M_{max} = 60 Nm
▲ Including fixation screws

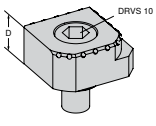


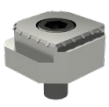


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							77.63	**80 892 246**	●	●	●	●			●		●	●	

6x indexable jaw, carbide grip

▲ 1 = Smooth
▲ 2 = Carbide grip
▲ 3 = Carbide grip with 3 mm step
▲ 4 = Carbide grip with 8 mm step
▲ 5 = Round carbide grip with 8 mm step
▲ 6 = Round carbide grip
▲ Incl. fixing screws





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							112.24	**80 890 35300**	●	●	●	●			●		●	●	



The optimised ESG 5 – Maximum precision and process security

The new ESG 5 retains all the cherished characteristics of its predecessor and raises the bar significantly with regard to user-friendliness and durability. Optimised handling and improved durability were top of the list in the update for the single vice.

Your benefits:

- ▲ Specially designed for second side machining through high angular accuracy
- ▲ Compact design with ideal accessibility
- ▲ Jaw change Quick and easy with two screws
- ▲ The same clamping ranges, significantly improved interference contour, comprehensive modular jaw range
- ▲ Sustainable model with nickel-plated base body ensures a long service life

Clamping/aligning:



Mounting with zero point clamping system
ESG 5 – 80 mm L-130 mm + L-190 mm
ESG 5 – 125 mm L-160 mm + L-235 mm

1 mounting bolt + MNG-indexing bolt



Mounting with zero point clamping system
ESG 5 – 125 mm + L-300 mm
ESG 5 – 160 mm + L-280 mm + L-480 mm

2 mounting bolts



Dia. 12^{JS} precision holes are present in all variants for positioning the ESG 5 with precision. All variants can be mounted with screws from above through the base body.

Clamping/aligning:

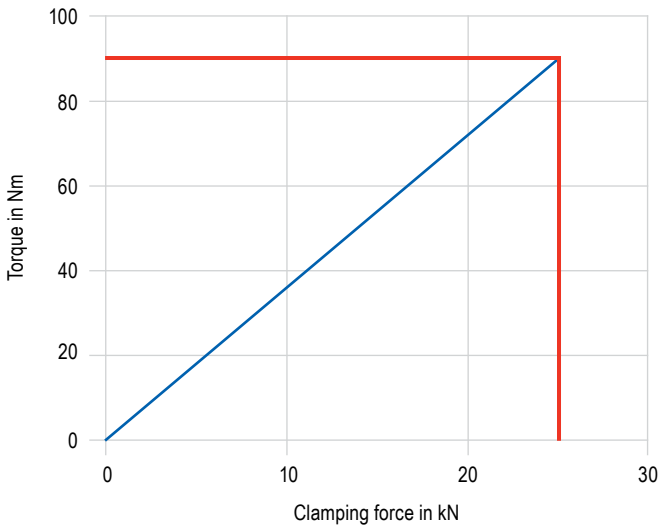


ESG 5 – 125 mm L-235 mm + L-300 mm
ESG 5 – 160 mm L-280 mm + L-480 mm

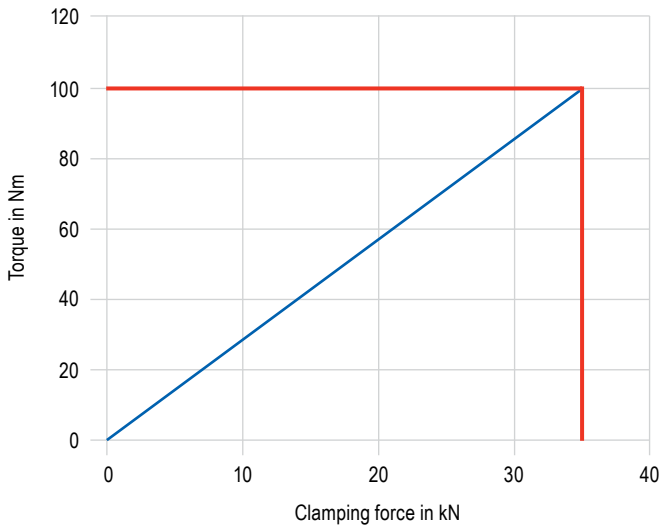
These 4 variants can also be clamped with clamping claws as an alternative.

Clamping force:

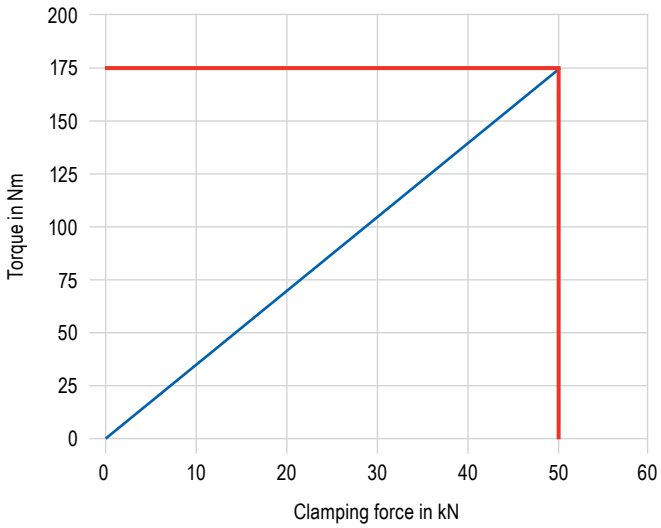
ESG 5 – 80 mm tightening torque / clamping force



ESG 5 – 125 mm tightening torque / clamping force



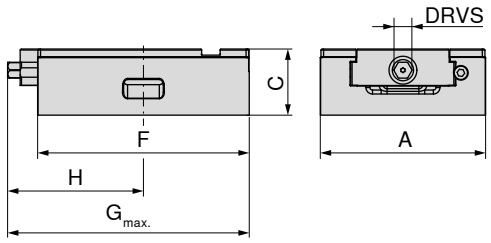
ESG 5 – 160 mm tightening torque / clamping force



SoloClamp – ESG 5

- ▲ Single vice without system jaws
- ▲ Specially designed for second side machining through high angular accuracy
- ▲ ±0.01 mm repeatability between the clamping processes
- ▲ Suitable for PNG and MNG

ESG 5 | **MNG**





A mm	C ±0,01 mm	F mm	G max. mm	H mm	DRVS mm	MXC kN	WT kg	80 857 ... £ Y4	
80	50	130	155.0	82	12	25	2.9	531.84	**08500**
80	50	190	203.0	102	12	25	4.4	639.89	**08600**
125	50	160	169.0	103	12	35	6.0	698.63	**15000**
125	50	235	235.0	132	12	35	8.4	891.65	**15100**
125	50	300	300.0	170	12	35	10.5	1,086.76	**15200**
160	70	280	309.0	169	14	50	25.0	1,644.83	**26100**
160	70	480	512.5	267	14	50	30.0	1,963.73	**26200**

Suitable for zero point clamping system							LANG Quick Point	LANG Quick Point
Article no.	Type	Width in mm	Height in mm	MNG	MNG mini	PNG	96 x 96	52 x 52
80 857 08500	ESG 5	80	130	✓	✓	✗	✗	✓
80 857 08600		80	190	✓	✗	✓	✗	✓
80 857 15000		125	160	✓	✗	✓	✓	✓
80 857 15100		125	235	✓	✗	✓	✓	✗
80 857 15200		125	300	✓	✗	✓	✓	✗
80 857 26100		160	280	✓	✗	✓	✓	✗
80 857 26200		160	480	✓	✗	✓	✗	✗

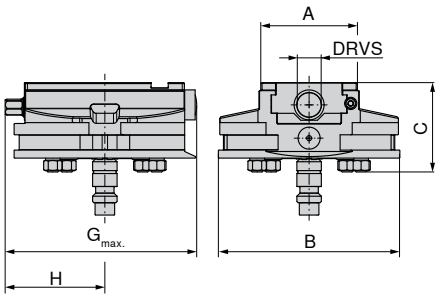
Vice guide

Underside Dimensions	63+64	Structural dimension tables for the different jaws	65
System accessories	66	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

SoloClamp – ESG 5

▲ Sealed single vice for Erowa ITS 148
▲ Without system jaws
▲ Specially designed for second side machining through high angular accuracy
▲ ±0.01 mm repeatability between the clamping processes

ESG 5





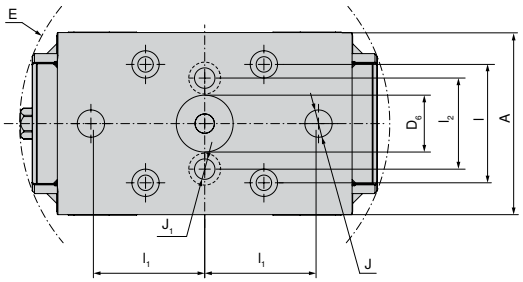
A	B	C	$G_{max.}$	H	DRVS	MXC	WT	80 857 ...
mm	mm	mm	mm	mm	mm	kN	kg	£ Y4
80	148	73	157	81	12	25	5.6	1,315.45 **08900**

Vice guide

Underside Dimensions	63+64	Structural dimension tables for the different jaws	65
System accessories	66	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

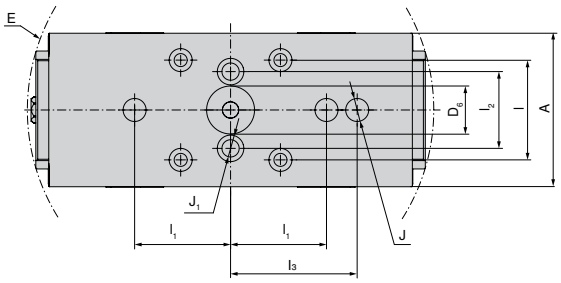
ESG 5 underside dimensions

Base width 80 mm and length 130 mm



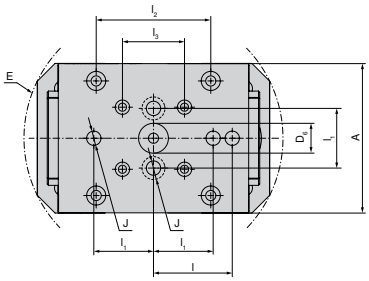
A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm	J_1 mm
80	25	163	52	50	40	12	9

Base width 80 mm and length 190 mm



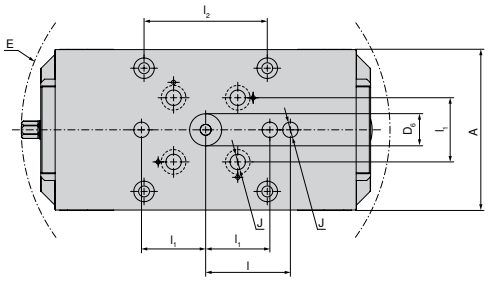
A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm	J_1 mm
80	25	213	52	50	40	66	12	9

Base width 125 mm and length 160 mm



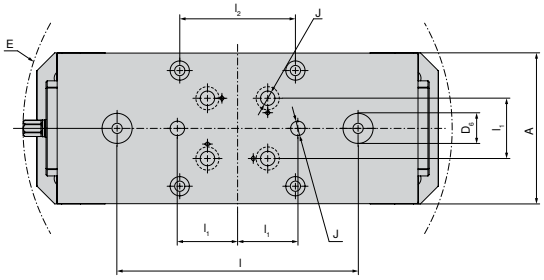
A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm
125	25	218	66	50	96	52	12

Base width 125 mm and length 235 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm
125	25	288	66	50	96	12

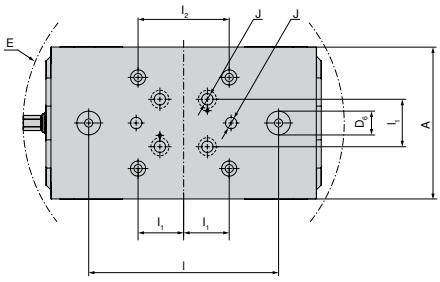
Base width 125 mm and length 300 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm
125	25	357	200	50	96	12

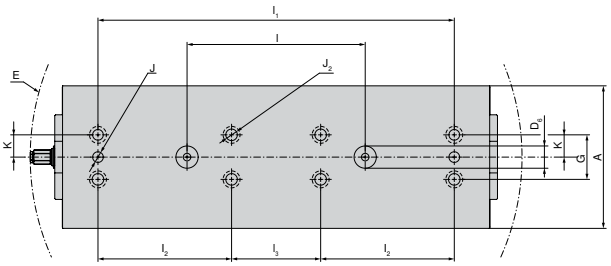
ESG 5 underside dimensions

Base width 160 mm and length 280 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm
160	25	339	200	50	96	12

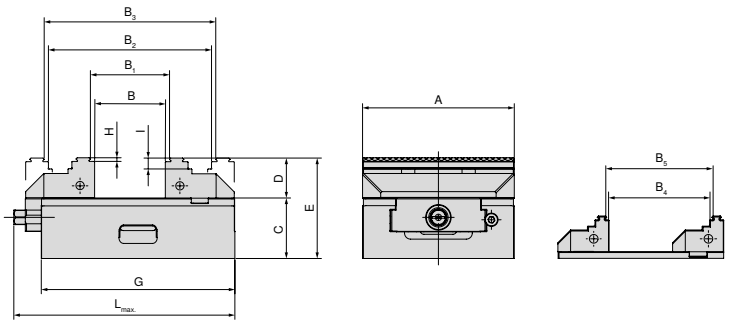
Base width 160 mm and length 480 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm	$J_{2\ F7}$ mm	$K_{\pm0,02}$ mm	G mm
160	25	553	200	400	150	100	12	12	25	50

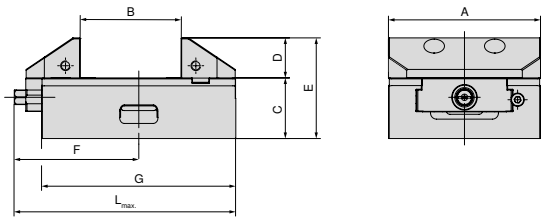
ESG 5 structural dimension table for the different jaws

With indexable jaw grip 3 mm, fixed and movable



A mm	B mm	B_1 mm	B_2 mm	B_3 mm	B_4 mm	B_5 mm	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
80	0-49	4-53	59-107	63-111	30-78	34-82	50	28	78	130	3	8	155	**80 901 306** + **80 878 810**
80	0-109	4-113	59-167	63-171	29-134	35-136	50	28	78	190	3	8	206	**80 901 306** + **80 878 810**
125	0-57	8-64	77-134	84-141	40-95	47-102	50	33	83	160	3	9	183	**80 857 30000** + **80 878 510**
125	0-127	8-134	77-204	84-211	40-165	47-172	50	33	83	235	3	9	250	**80 857 30000** + **80 878 510**
125	0-197	8-204	77-274	84-281	40-235	47-242	50	33	83	300	3	9	320	**80 857 30000** + **80 878 510**
160	0-121	8-128	118-238	125-245	–	–	70	50	120	280	3	10	328	**80 901 300** + **80 878 610**
160	0-324	8-331	118-441	125-448	–	–	70	50	120	480	3	10	506	**80 901 300** + **80 878 610**

With 5-axis jaws

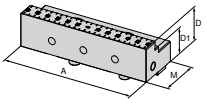


A mm	B mm	C mm	D mm	E mm	F mm	G mm	$L_{max.}$ mm	Article no. System jaws
125	25-82	50	33	83	103	160	183	**80 857 30200** + **80 857 30100**
125	25-152	50	33	83	132	235	250	**80 857 30200** + **80 857 30100**
125	25-222	50	33	83	170	300	320	**80 857 30200** + **80 857 30100**

System jaws overview

Indexable jaw, smooth, fixed

▲ Price per piece

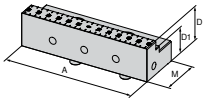




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	20			40			187.77	**80 857 30400**					●						
125	125		33	25			57			364.00	**80 857 30300**					●						

Indexable jaw, smooth, movable

▲ Price per piece

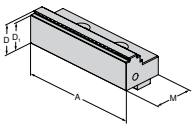




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	20			40			187.77	**80 878 34700**					●		●				
125	125		33	25			57			364.00	**80 878 34600**					●		●				

Indexable jaw, grip 3 mm, fixed

▲ Price per piece

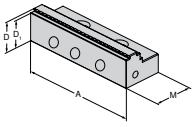




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			156.30	**80 901 306**				●	●						
125	125		33	30			57			212.95	**80 857 30000**					●						
160	160		50	47			81			389.18	**80 901 300**				●	●						

Indexable jaw, grip 3 mm, movable

▲ Price per piece



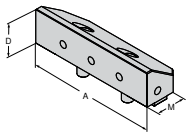
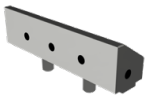


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			130.08	**80 878 810**				●	●		●		●		
125	125		33	30			57			144.76	**80 878 510**					●		●				
160	160		50	47			81			389.18	**80 878 610**				●	●		●				

System jaws overview

5-axis indexable jaw, fixed

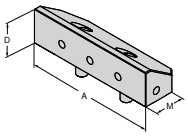
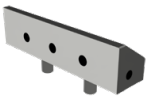
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		33				44,5			215.05	**80 857 30100**					●						

5-axis indexable jaw, movable

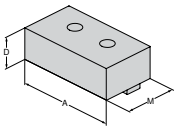
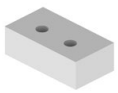
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		33				44,5			215.05	**80 857 30200**					●						

Soft jaw, steel, fixed

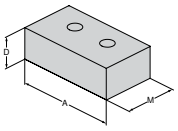
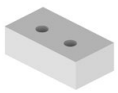
▲ Material: 16MnCr5
▲ for producing shaped jaws
▲ Price per piece

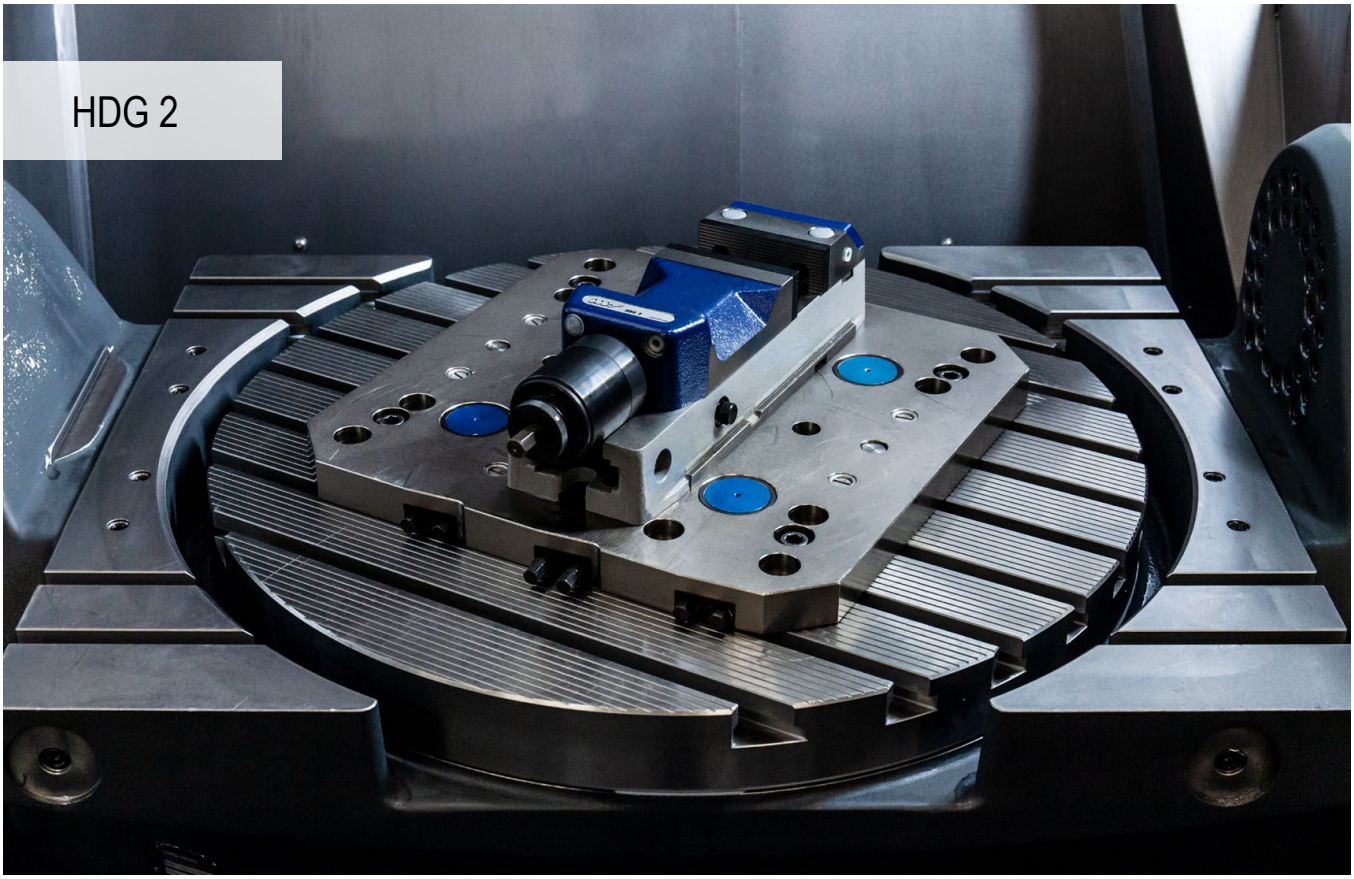
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			115.39	**80 901 31800**				●	●						
125	125		40				68			138.47	**80 901 31900**				●	●						

Soft jaw, steel, movable

▲ Material: 16MnCr5
▲ for producing shaped jaws
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			99.24	**80 878 32000**				●	●		●				
125	125		40				68			124.62	**80 878 32100**				●	●		●				



Tried-and-tested high pressure clamping system

Mechanical machine vice with continuous force adjustment from 10% to 100% of the clamping force with just one crank turn and always the same final crank position. Quick clamping range adjustment via locking pins.

Your benefits:

- ▲ Save time and effort – just one crank turn
- ▲ Clamping time of less than one second
- ▲ Easy handling
- ▲ Can be continuously adjusted without tools
- ▲ High machining precision

Clamping/aligning:



Alignment through precision slot nuts on the slot table with 20^{H7} longitudinal/transverse slot in the base body



Clamp with screws through the base body or laterally with clamping claws

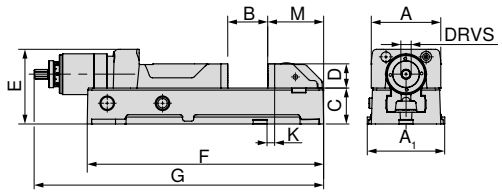
SoloClamp – HDG 2

- ▲ high pressure vice
- ▲ stepless power adjustment
- ▲ mechanical power transmission
- ▲ clamping force with only a single turn of the handle
- ▲ flexible Jaws, pre-machined to accommodate jaws for clamping range extension

Scope of supply:

High pressure vice incl. 4 clamping jaws, hand crank, 2 top jaws profiled and hardened

HDG 2





A	A_1	B	$C_{+0/-0,02}$	D	E	F	$G_{max.}$	$K_{\pm 0,015}$	M	DRVS	MXC	WT	80 892 ... £	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kN	kg	Y4	
100	112	0 - 159	52	35	108	342	521	11	81	12	4 - 30	20	1,973.17	**100**
125	140	0 - 201	62	40	118	400	584	28	85	12	4 - 40	27	2,252.20	**125**
160	176	0 - 300	78	50	149	544	784	40	112	12	5 - 60	55	3,029.51	**160**

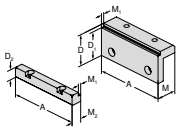
Vice guide

Underside Dimensions	71	System accessories	69–71
General accessories	164–183		

System jaws overview

Jaws for clamping range extension

▲ Price per set (1 fixed and 1 movable jaw)





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		56	50	22		37	5	19	351.42	**80 892 225**						●					
	125		56	50	22		37	5	19	475.20	**80 892 226**						●					
	160		71	65	23		47	5	23,5	516.11	**80 892 227**						●					

Illustration with extended clamping range

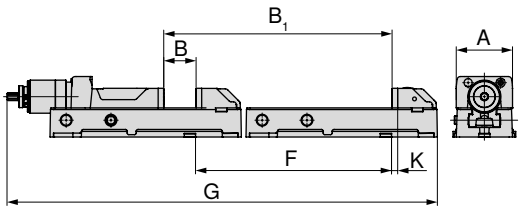


A	B	D	Vice Article Number	Jaw Article Number
100	118 - 278	56	**80 892 100**	**80 892 225**
125	137 - 338	56	**80 892 125**	**80 892 226**
160	169 - 470	71	**80 892 160**	**80 892 227**

SoloClamp – HDG 2

▲ Base body extension

HDG 2





A mm	B mm	B_1 mm	F mm	G mm	K mm	80 892 ... £ Y4	
100	0-159	350-509	450	871,3	11	1,116.14	**51000**
125	0-201	410-611	410	994,1	28	1,226.28	**51100**
160	0-300	550-850	550	1334,15	40	1,674.20	**51200**

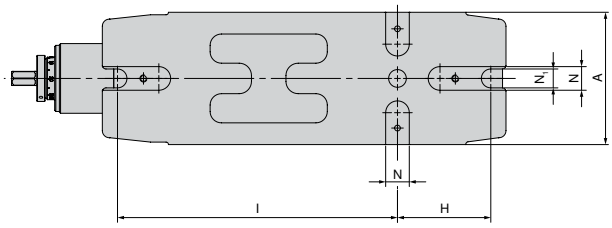
Shown with base body extension



A	B	D	Vice Article Number	Extension article number
100	350 - 509	35	**80 892 100**	**80 892 51000**
125	410 - 611	40	**80 892 125**	**80 892 51100**
160	550 - 850	50	**80 892 160**	**80 892 51200**

HDG 2 underside dimensions

Base width 100 mm, 125 mm, 160 mm



A mm	H mm	I mm	N_{H7} mm	N_1 mm
100	80	240	20	15
125	100	280	20	18
160	130	380	20	22

System accessories overview

Angular drive

HDG 2



for width mm		80 892 ... £ Y4	
100/125		442.68	**314**
160		480.44	**315**

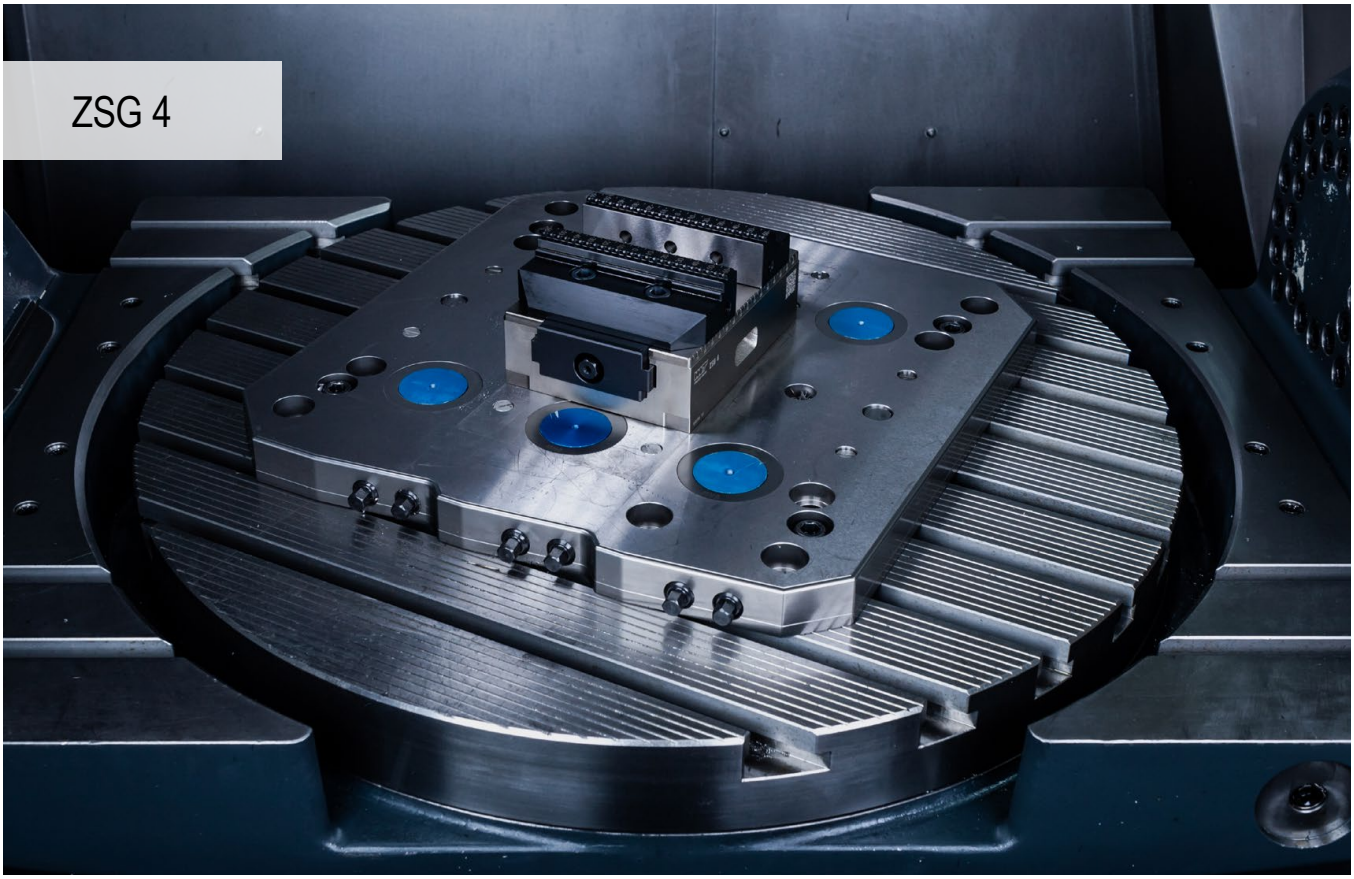
Hand crank

▲ for fast adjustment

HDG 2



for width mm	DRVS mm		80 892 ... £ Y4	
100/125	12		73.43	**124**
160	12		91.26	**164**



The optimised ZSG 4 – Maximum precision and process security

The new ZSG 4 retains all the cherished characteristics of its predecessor and raises the bar significantly with regard to user-friendliness and durability. Optimised handling and improved durability were top of the list in the update for the popular centric vice.

Your benefits:

- ▲ Specially designed for second side machining through high angular accuracy
- ▲ Compact design with ideal accessibility
- ▲ Jaw change Quick and easy with two screws
- ▲ The same clamping ranges, significantly improved interference contour, comprehensive modular jaw range
- ▲ Sustainable model with nickel-plated base body ensures a long service life

Clamping/aligning:



Mounting with zero point clamping system
ZSG 4 – 80 mm L-130 mm + L-190 mm
ZSG 4 – 125 mm L-160 mm + L-235 mm

1 mounting bolt + MNG-indexing bolt



Mounting with zero point clamping system
ZSG 4 – 125 mm + L-300 mm
ZSG 4 – 160 mm + L-280 mm + L-480 mm

2 mounting bolts



Dia. 12^{JS} precision holes are present in all variants for positioning the ZSG 4 with precision. All variants can be mounted with screws from above through the base body.

Clamping/aligning:



ZSG 4 – 125 mm L-235 mm + L-300 mm
ZSG 4 – 160 mm L-280 mm + L-480 mm

These 4 variants can also be clamped with clamping claws as an alternative.

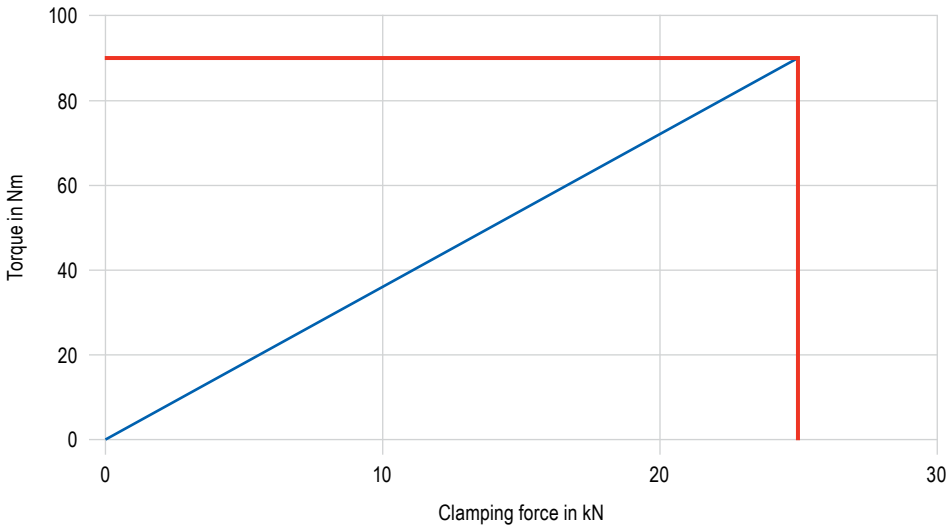


ZSG 4 – 80 mm L-130 mm + L-190 mm
ZSG 4 – 125 mm L-160 mm + L-235 mm + L-300 mm
ZSG 4 – 160 mm L-280 mm

All 5 variants are also available with mounting holes for the LANG zero point clamping system.

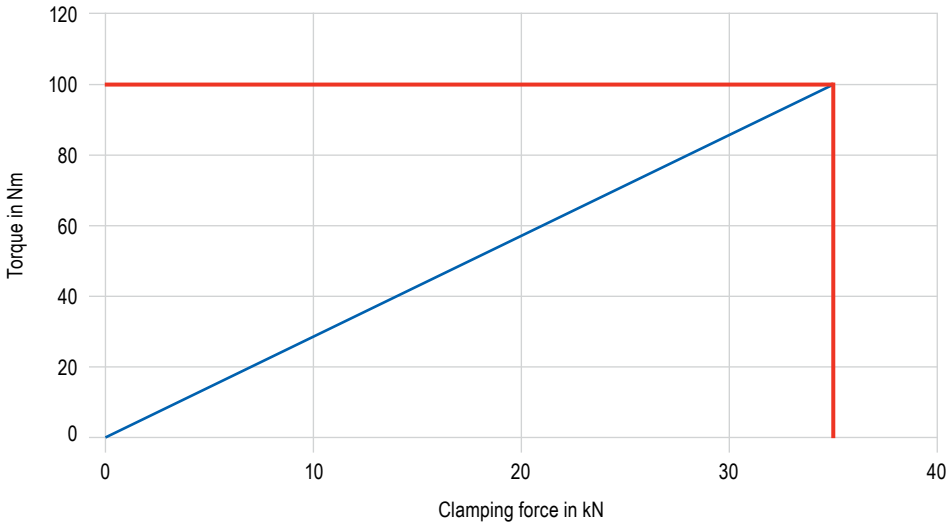
Clamping force:

ZSG 4 – 80 mm tightening torque/clamping force

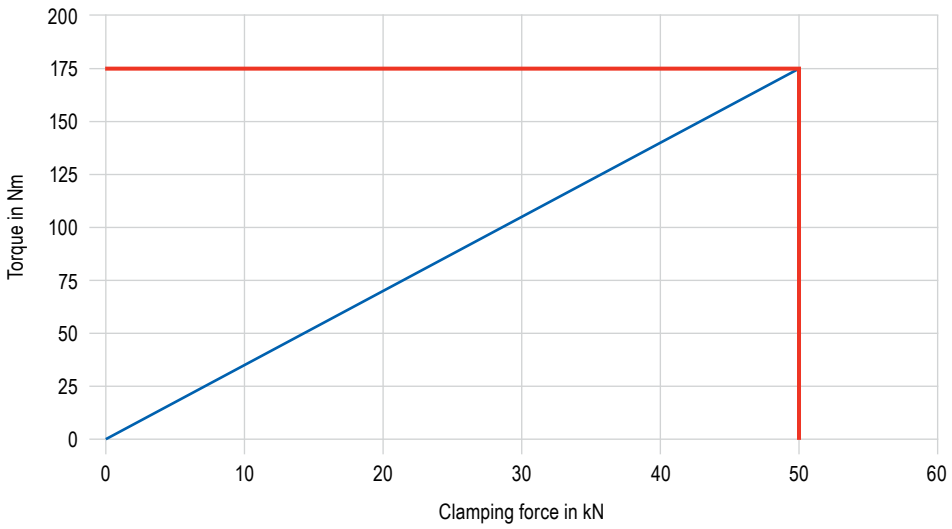


Clamping force:

ZSG 4 – 125 mm tightening torque / clamping force



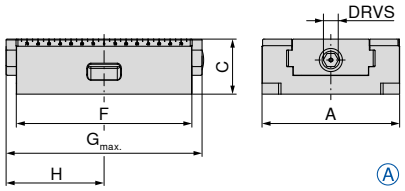
ZSG 4 – 160 mm tightening torque / clamping force



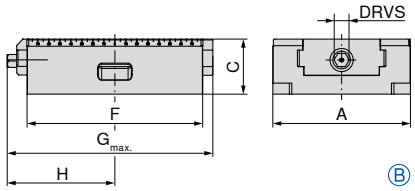
CentriClamp – ZSG 4

- ▲ Sealed centric vice
- ▲ Without system jaws
- ▲ Ball bearing mounted spindle
- ▲ ±0.01 mm repeatability between the clamping processes
- ▲ Suitable for PNG and MNG

ZSG 4 | **MNG**



Internal actuating spindle



External actuating spindle



A mm	C ±0,01 mm	F mm	$G_{max.}$ mm	H mm	DRVS mm	MXC kN	WT kg	Designation	80 878 ... £ Y4	
80	50	130	157	81	12	25	3.1	A	531.84	**08500**
80	50	190	206	104	12	25	4.5	B	639.89	**08600**
125	50	160	200	111,5	12	35	6.3	A	698.63	**15000**
125	50	235	272	143,5	12	35	9.5	B	891.65	**15100**
125	50	300	340	181	12	35	12.5	B	1,086.76	**15200**
160	70	280	315	172	14	50	25.0	A	1,644.83	**26100**
160	70	480	524	276	14	50	35.0	B	3,109.24	**26200**

Suitable for zero point clamping system							LANG Quick Point	LANG Quick Point
Article no.	Type	Width in mm	Length in mm	MNG	MNG mini	PNG	96 x 96	52 x 52
80 878 08500	ZSG 4	80	130	✓	✓	✗	✗	✓
80 878 08600		80	190	✓	✗	✓	✗	✓
80 878 15000		125	160	✓	✗	✓	✓	✓
80 878 15100		125	235	✓	✗	✓	✓	✗
80 878 15200		125	300	✓	✗	✓	✓	✗
80 878 26100		160	280	✓	✗	✓	✓	✗
80 878 26200		160	480	✓	✗	✓	✗	✗

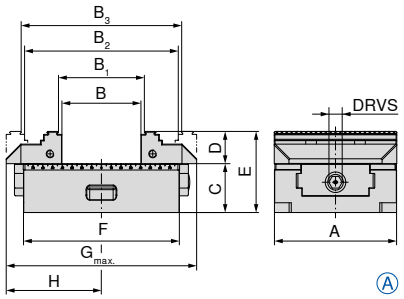
Vice guide

Underside Dimensions	78+79	Structural dimension tables for the different jaws	80–83
System accessories	85–90	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

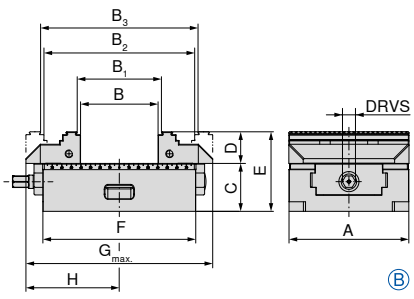
CentriClamp – ZSG 4

- ▲ Sealed centric vice
- ▲ With grip jaws, 3 mm
- ▲ Ball bearing mounted spindle
- ▲ ±0.01 mm repeatability between the clamping processes
- ▲ Suitable for PNG and MNG

ZSG 4 | **MNG**



Internal actuating spindle



External actuating spindle



80 878 ...

A mm	B mm	B_1 mm	B_2 mm	B_3 mm	C ±0,01 mm	D mm	E mm	F mm	$G_{max.}$ mm	H mm	DRVS mm	MXC kN	WT kg	Designation	£ Y4	
80	0 - 59	4 - 63	59 - 117	63 - 121	50	28	78	130	157	81	12	25	3.9	A	747.94	**08700**
80	0 - 123	4 - 127	59 - 181	63 - 185	50	28	78	190	206	104	12	25	5.5	B	854.94	**08800**
125	0 - 80	8 - 87	77 - 156	84 - 163	50	33	83	160	208	111,5	12	35	8.7	A	943.05	**15300**
125	0 - 155	8 - 162	77 - 218	84 - 225	50	33	83	235	272	143,5	12	35	12.0	B	1,136.07	**15400**
125	0 - 220	8 - 227	77 - 296	84 - 303	50	33	83	300	348	181	12	35	14.0	B	1,335.38	**15500**

It is not possible to fit top jaws with a height of 40 mm, if this height is required, please use the reversible jaws with D = 40 mm (Article No. **80 878 520**).

Suitable for zero point clamping system							LANG Quick Point	LANG Quick Point
Article no.	Type	Width in mm	Length in mm	MNG	MNG mini	PNG	96 x 96	52 x 52
80 878 08700	ZSG 4	80	130	✓	✓	✗	✗	✓
80 878 08800		80	190	✓	✗	✓	✗	✓
80 878 15300		125	160	✓	✗	✓	✓	✓
80 878 15400		125	235	✓	✗	✓	✓	✗
80 878 15500		125	300	✓	✗	✓	✓	✗

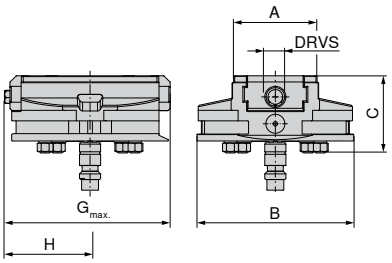
Vice guide

Underside Dimensions	78+79	Structural dimension tables for the different jaws	80–83
System accessories	85–90	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

CentriClamp – ZSG 4

- ▲ Sealed centric vice for Erowa ITS 148
- ▲ Without system jaws
- ▲ Ball bearing mounted spindle
- ▲ ±0.01 mm repeatability between the clamping processes

ZSG 4 | **MNG**





A	B	C	$G_{max.}$	H	DRVS	MXC	WT	80 878 ...
mm	mm	mm	mm	mm	mm	kN	kg	£ Y4
80	148	73	157	81	12	25	5.6	1,315.45 **08900**

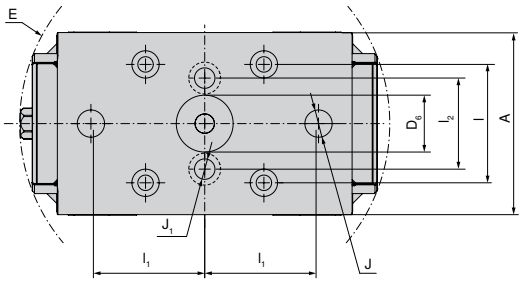
Vice guide

Underside Dimensions	78+79	Structural dimension tables for the different jaws	80–83
System accessories	85–90	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

17

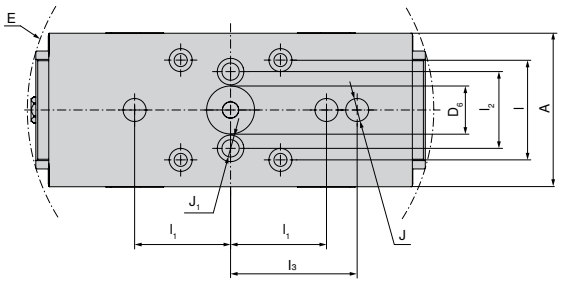
ZSG 4 underside dimensions

Base width 80 mm and length 130 mm



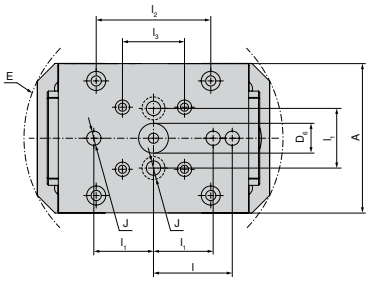
A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm	J_1 mm
80	25	163	52	50	40	12	9

Base width 80 mm and length 190 mm



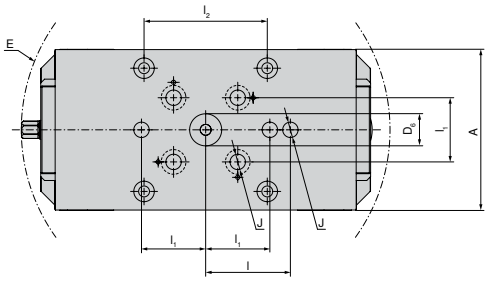
A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm	J_1 mm
80	25	213	52	50	40	66	12	9

Base width 125 mm and length 160 mm



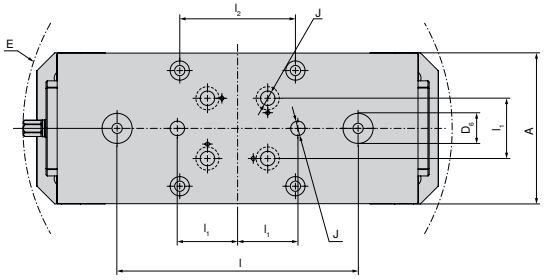
A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm
125	25	218	66	50	96	52	12

Base width 125 mm and length 235 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm
125	25	288	66	50	96	12

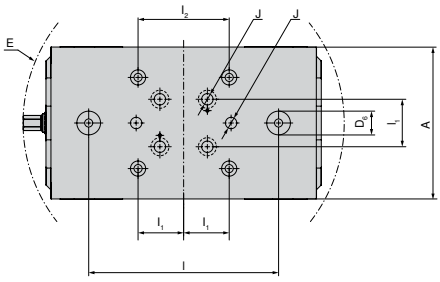
Base width 125 mm and length 300 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm
125	25	357	200	50	96	12

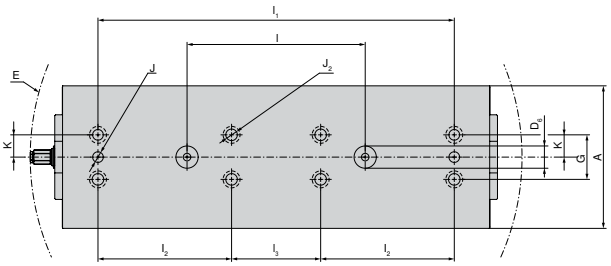
ZSG 4 underside dimensions

Base width 160 mm and length 280 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm
160	25	339	200	50	96	12

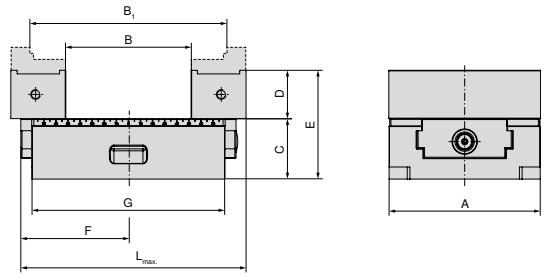
Base width 160 mm and length 480 mm



A mm	$D_{6\ H6}$ mm	E mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm	$J_{2\ F7}$ mm	$K_{\pm0,02}$ mm	G mm
160	25	553	200	400	150	100	12	12	25	50

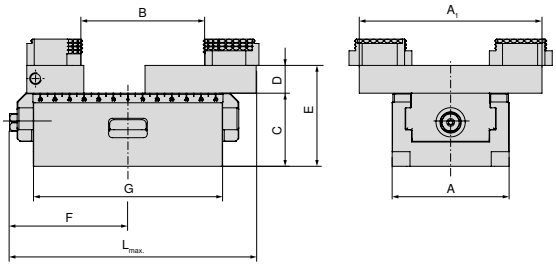
ZSG 4 structural dimension table for the different jaws

With combi jaws



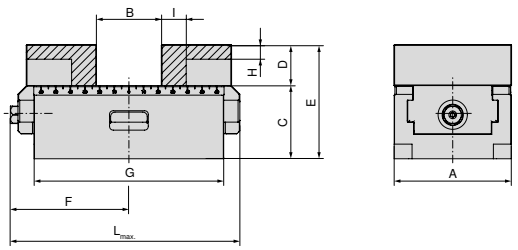
A mm	B mm	B1 mm	C mm	D mm	E mm	F mm	G mm	Lmax. mm	Article no. System jaws
125	23 - 103	82 - 161	50	40	90	111,5	160	208	2 x **80 878 530**
125	23 - 165	82 - 223	50	40	90	143,5	235	272	2 x **80 878 530**
125	23 - 241	82 - 300	50	40	90	181	300	348	2 x **80 878 530**

With pendulum and adapter plate



A mm	A1 mm	B mm	C mm	D mm	E mm	F mm	G mm	Lmax. mm	Article no. System jaws
80	125	3 - 84	50	28	78	81	130	157	**80 878 890** + **80 878 870**
80	125	3 - 145	50	28	78	104	190	206	**80 878 890** + **80 878 870**
125	180	7 - 126	50	22	90	111,5	160	212	**80 878 590** + **80 878 570**
125	180	7 - 207	50	22	90	143,5	235	272	**80 878 590** + **80 878 570**
125	180	7 - 250	50	22	90	181	300	352	**80 878 590** + **80 878 570**
160	256	16 - 292	70	22	110	170	280	315	**80 878 690** + **80 878 670**
160	256	16 - 406	70	22	110	276	480	524	**80 878 690** + **80 878 670**

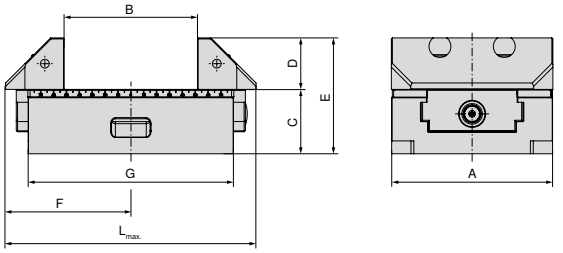
With aluminium jaws



A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	Lmax. mm	Article no. System jaws
80	0 - 44	50	28	78	81	130	10	17	157	2 x **80 878 850**
80	0 - 108	50	28	78	104	190	10	17	206	2 x **80 878 850**
125	0 - 58	50	40	90	111,5	160	17	27	208	2 x **80 878 550**
125	0 - 133	50	40	90	143,5	235	17	27	272	2 x **80 878 550**
125	0 - 198	50	40	90	181	300	17	27	348	2 x **80 878 550**
160	0 - 123	70	50	120	170	280	26	25	315	2 x **80 878 305**
160	10 - 336	70	50	120	276	480	26	25	524	2 x **80 878 305**

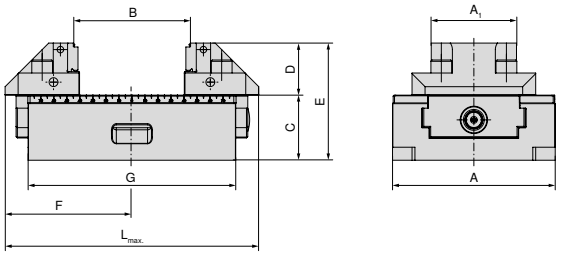
ZSG 4 structural dimension table for the different jaws

With 5-axis jaws



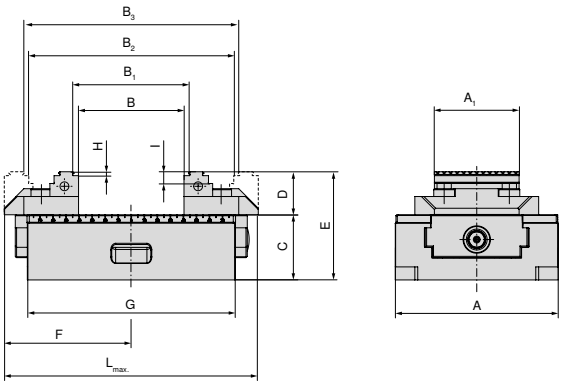
A mm	B mm	C mm	D mm	E mm	F mm	G mm	$L_{max.}$ mm	Article no. System jaws
125	22 - 102	50	40	90	115,5	160	208	2 x **80 878 625**
125	22 - 165	50	40	90	143,5	235	272	2 x **80 878 625**
125	22 - 242	50	40	90	181	300	348	2 x **80 878 625**
160	15 - 140	70	50	120	170	280	315	2 x **80 878 660**
160	28 - 354	70	50	120	276	480	524	2 x **80 878 660**

With 5 axis jaws, grip 3 mm, width 65 mm



A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	$L_{max.}$ mm	Article no. System jaws
125	65	8 - 87	50	40	90	115,5	160	208	2 x **80 878 665**
125	65	8 - 162	50	40	90	143,5	235	272	2 x **80 878 665**
125	65	8 - 227	50	40	90	181	300	348	2 x **80 878 665**

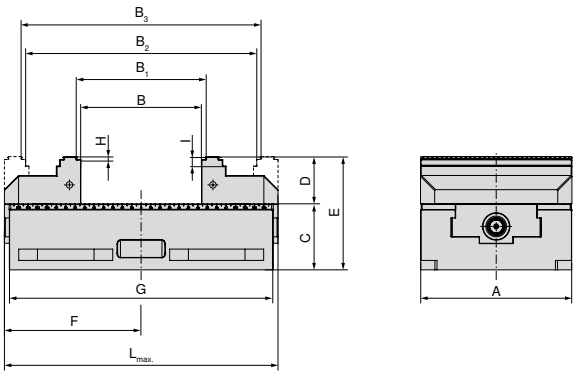
With indexable jaws, grip 3 mm, height 65 mm



A mm	A_1 mm	B mm	B_1 mm	B_2 mm	B_3 mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
125	65	0 - 80	8 - 87	77 - 156	84 - 163	50	33	83	111,5	160	3	9	208	2 x **80 878 51900**
125	65	0 - 142	8 - 149	77 - 218	84 - 225	50	33	83	143,5	235	3	9	272	2 x **80 878 51900**
125	65	0 - 220	8 - 227	77 - 296	84 - 303	50	33	83	181	300	3	9	348	2 x **80 878 51900**

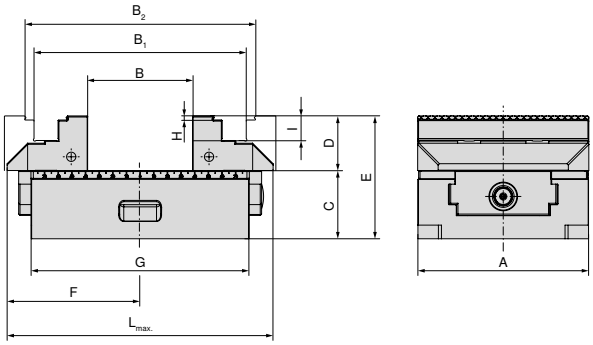
ZSG 4 structural dimension table for the different jaws

With indexable jaws, grip 3 mm



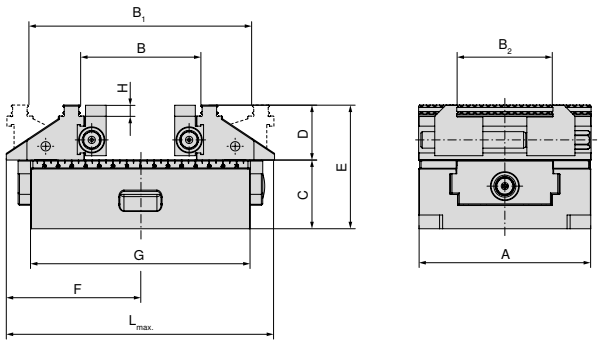
A mm	B mm	B_1 mm	B_2 mm	B_3 mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
160	0 - 127	8 - 134	118 - 244	125 - 251	70	50	120	170	280	3	10	315	2 x **80 878 610**
160	15 - 341	22 - 348	132 - 458	139 - 465	70	50	120	276	480	3	10	524	2 x **80 878 610**

With indexable jaws, grip, height 40 mm



A mm	B mm	B_1 mm	B_2 mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
125	0 - 75	75 - 154	88 - 166	50	40	90	111,5	160	3	9	208	2 x **80 878 520**
125	0 - 138	75 - 217	88 - 229	50	40	90	143,5	235	3	9	272	2 x **80 878 520**
125	0 - 215	75 - 294	88 - 306	50	40	90	181	300	3	9	348	2 x **80 878 520**

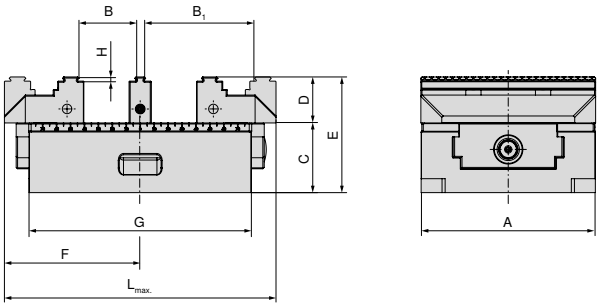
With 6 face jaw system for 125 mm jaw width



A mm	B mm	B_1 mm	B_2 mm	C mm	D mm	E mm	F mm	G mm	H mm	$L_{max.}$ mm	Article no. System jaws
125	39 - 86	83 - 161	37 - 101	50	40	90	111,5	160	8	209	**80 878 525**
125	39 - 149	83 - 224	37 - 101	50	40	90	143,5	235	8	272	**80 878 525**
125	39 - 226	83 - 301	37 - 101	50	40	90	181	300	8	349	**80 878 525**

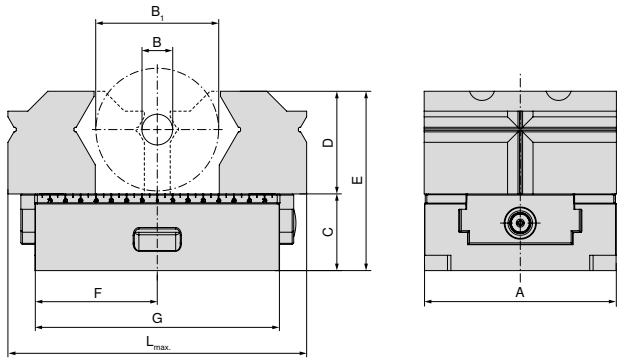
ZSG 4 structural dimension table for the different jaws

With middle jaw, grip 3 mm (height 28 mm / 33 mm) for jaw width 125 mm



A mm	B mm	B1 mm	C mm	D mm	E mm	F mm	G mm	H mm	Lmax. mm	Article no. System jaws
80	8 - 28	37 - 57	50	28	78	81	130	3	157	2 x **80 878 810** + **80 878 31200**
80	14 - 22	31 - 51	50	28	78	81	130	3	157	2 x **80 878 810** + **80 878 33400**
80	8 - 58	37 - 87	50	28	78	104	190	3	206	2 x **80 878 810** + **80 878 31200**
80	14 - 52	31 - 81	50	28	78	104	190	3	206	2 x **80 878 810** + **80 878 33400**
125	9 - 40	47 - 78	50	33	83	111,5	160	3	208	2 x **80 878 510** + **80 878 31300**
125	15 - 34	41 - 72	50	33	83	111,5	160	3	208	2 x **80 878 510** + **80 878 33500**
125	9 - 72	47 - 110	50	33	83	143,5	235	3	272	2 x **80 878 510** + **80 878 31300**
125	15 - 66	41 - 104	50	33	83	143,5	235	3	272	2 x **80 878 510** + **80 878 33500**
125	9 - 110	47 - 148	50	33	83	181	300	3	348	2 x **80 878 510** + **80 878 31300**
125	15 - 104	41 - 142	50	33	83	181	300	3	348	2 x **80 878 510** + **80 878 33500**

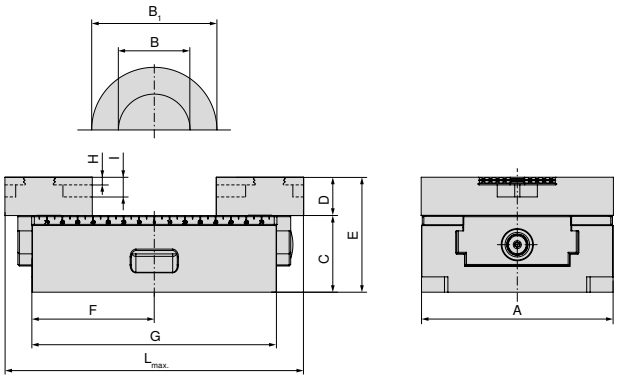
With prism jaw, movable – horizontal and vertical prism



A mm	B mm	B1 mm	C mm	D mm	E mm	F mm	G mm	Lmax. mm	Article no. System jaws
80	10 - 28	20 - 60	50	52	102	81	130	157	2 x **80 878 31800**
80	10 - 28	20 - 60	50	52	102	104	190	206	2 x **80 878 31800**
125	10 - 28	26 - 80	50	67	117	111,5	160	200	2 x **80 878 31900**
125	10 - 28	26 - 80	50	67	117	143,5	235	272	2 x **80 878 31900**
125	10 - 28	26 - 80	50	67	117	181	300	348	2 x **80 878 31900**

ZSG 4 structural dimension table for the different jaws

With prism jaw, movable – horizontal prism

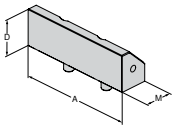


A mm	B mm	B1 mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	Lmax. mm	Article no. System jaws
80	8 - 55	15 - 76	50	25	75	81	130	5	13	157	2 x **80 878 34000**
80	8 - 55	15 - 76	50	25	75	104	190	5	13	206	2 x **80 878 34000**
125	14 - 102	25 - 112	50	25	75	111,5	160	5	13	200	2 x **80 878 34100**
125	14 - 124	25 - 165	50	25	75	143,5	235	5	13	272	2 x **80 878 34100**
125	14 - 124	25 - 165	50	25	75	181	300	5	13	348	2 x **80 878 34100**
160	22 - 158	32 - 170	70	30	100	145	280	5	13	290	2 x **80 878 34200**
160	22 - 158	32 - 170	70	30	100	273	480	5	13	521	2 x **80 878 34200**

System jaws overview

5-axis jaw, movable

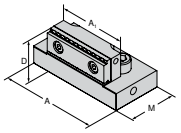
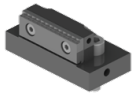
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40				45,5			216.09	**80 878 625**							●				
160	160		50				73			266.45	**80 878 660**							●				

5-axis jaw, grip 3 mm, width 65 mm, movable

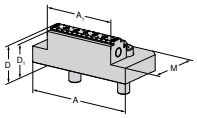
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	95	65,5	40				57			249.66	**80 878 665**							●				

5-axis indexable jaw, grip 3 mm, width 65 mm, movable

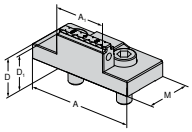
▲ double sided grip step
▲ price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	95	65	33	30			57			188.82	**80 878 51900**							●				

Indexable grip jaw 3 mm, width 40 mm, movable

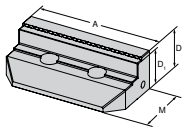
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80	40	28	25			40			172.04	**80 878 81900**				●			●				

Indexable jaw, grip 3 mm, height 40 mm, movable

▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40	37			59			270.64	**80 878 520**							●				

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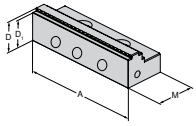
System jaws overview

Indexable jaw, grip 3 mm, movable

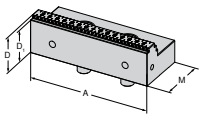
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			130.08	**80 878 810**				●	●		●		●		
125	125		33	30			57			144.76	**80 878 510**					●		●				
160	160		50	47			81			389.18	**80 878 610**				●	●		●				

Indexable jaw, grip 5 mm, movable

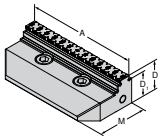
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	23			41			153.15	**80 878 81400**				●			●		●		
125	125		33	28			57			169.94	**80 878 51400**							●				
160	160		50	45			81			389.18	**80 878 34300**				●			●				

Indexable grip jaw, for aluminium and plastic

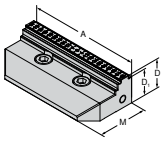
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	23			40			183.58	**80 878 81500**							●				
125	125		33	28			57			201.41	**80 878 51500**							●				

Indexable jaw with embossed profile, movable

▲ Price per piece
▲ suitable for LANG embossed profile

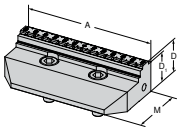



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			163.64	**80 878 81800**							●				
125	125		33	30			57			224.49	**80 878 51800**							●				

System jaws overview

Indexable jaw, carbide, grip 3 mm, movable

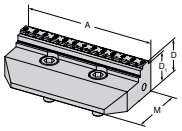
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			231.83	**80 878 81600**							●				
125	125		33	30			57			329.39	**80 878 51600**							●				
160	160		50	47			81			516.11	**80 878 31700**							●				

Indexable jaw, carbide, grip 5 mm, movable

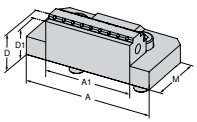
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	23			40			231.83	**80 878 81700**							●				
125	125		33	28			57			329.39	**80 878 51700**							●				

Indexable jaw, carbide grip 3 mm, width 40 mm, movable

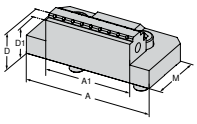
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80	40	28	25			40			225.54	**80 878 33200**							●				

Indexable jaw, carbide grip 3 mm, width 65 mm, movable

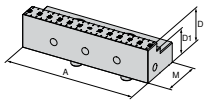
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125	65	33	30			57			311.55	**80 878 33300**							●				

Indexable jaw, smooth, movable

▲ Price per piece

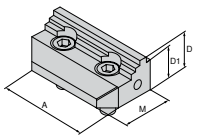



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	20			40			187.77	**80 878 34700**					●		●				
125	125		33	25			57			364.00	**80 878 34600**					●		●				

System jaws overview

Stepped jaw, smooth, movable

▲ Price per piece

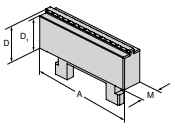




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	24			40			237.07	**80 878 34400**							●				
125	125		33	27			57			333.58	**80 878 34500**							●				

Centre jaw, grip 3 mm, narrow

▲ Price per piece

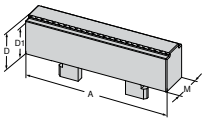




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			16			105.95	**80 878 31200**							●				
125	125		33	30			16			148.96	**80 878 31300**							●				

Centre jaw, grip 3 mm, wide

▲ Price per piece

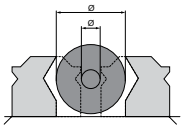


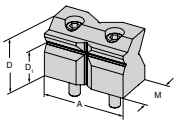


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			24			105.95	**80 878 33400**							●				
125	125		33	30			26			148.96	**80 878 33500**							●				

Prism jaw, movable

▲ With horizontal and vertical prism
▲ Price per piece





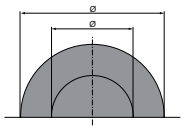
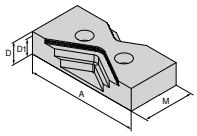


Ø For clamping diameter	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
10 - 60	80		52	32			38,5			307.36	**80 878 31800**							●				
10 - 80	125		67	42			57			467.85	**80 878 31900**							●				

System jaws overview

Prism jaw, movable

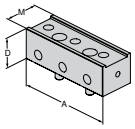
▲ With horizontal prism
▲ Price per piece


Ø For clamping diameter	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
15 - 75	80		25	20			40			164.69	**80 878 34000**							●				
25 - 110	125		25	20			57			210.85	**80 878 34100**							●				
30 - 170	160		30	25			81			273.79	**80 878 34200**							●				

Combi jaw, movable

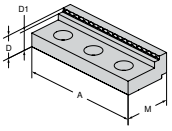
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40				45,5			166.79	**80 878 530**							●				

Jaw, grip, VS

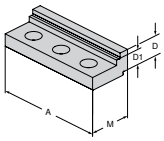
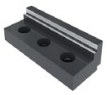
▲ Price per piece
▲ VS = Larger clamping range




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		22	17			45			95.46	**80 892 245**							●				

Jaw, smooth VS, carbide coated

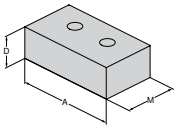
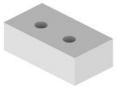
▲ Increased clamping range for finish machining and 2nd operation
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		19	14			45			229.73	**80 892 240**							●				

Alu jaw, movable

▲ for producing shaped jaws
▲ Price per piece

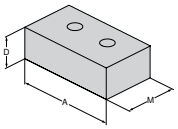



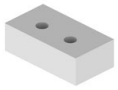
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			82.87	**80 878 850**				●	●		●		●		
125	125		40				68			94.41	**80 878 550**				●					●		
160	160		50				85			118.54	**80 878 305**				●	●		●				

System jaws overview

Soft jaw, steel, movable

▲ Material: 16MnCr5
▲ for producing shaped jaws
▲ Price per piece

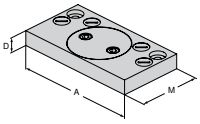




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			99.24	**80 878 32000**				●	●		●				
125	125		40				68			124.62	**80 878 32100**				●	●		●				

Pendulum jaw, movable

▲ to accommodate 6-way reversible jaws
▲ Price per piece

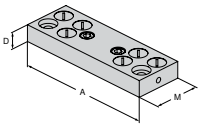




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	125		19				76			393.38	**80 878 870**				●			●		●		
125	180		22				95			409.11	**80 878 570**				●			●		●		
160	256		22				170			698.63	**80 878 670**				●			●				

Adapter Jaw

▲ to accommodate 6-way reversible jaws
▲ Price per piece

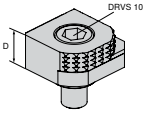


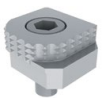


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	125		19				39			279.03	**80 878 890**							●				
125	180		22				62			332.53	**80 878 590**							●				
160	256		22				125			465.76	**80 878 690**							●				

6 function indexable jaw

▲ 1 = Smooth, carbide coated
▲ 2 = Grip with 3 mm step
▲ 3 = Grip with 8 mm step
▲ 4 = Grip with 18 mm step
▲ 5 = Rough grip with 8 mm step
▲ 6 = Round grip
▲ M_{max} = 60 Nm
▲ Including fixation screws



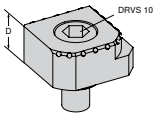


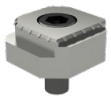
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							77.63	**80 892 246**	●	●	●	●			●		●	●	

System jaws overview

6x indexable jaw, carbide grip

- ▲ 1 = Smooth
- ▲ 2 = Carbide grip
- ▲ 3 = Carbide grip with 3 mm step
- ▲ 4 = Carbide grip with 8 mm step
- ▲ 5 = Round carbide grip with 8 mm step
- ▲ 6 = Round carbide grip
- ▲ Incl. fixing screws





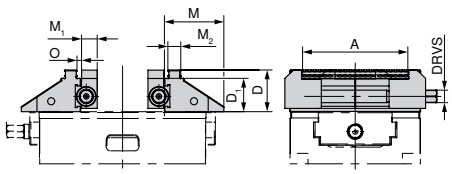
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							112.24	**80 890 35300**	●	●	●	●			●		●	●	

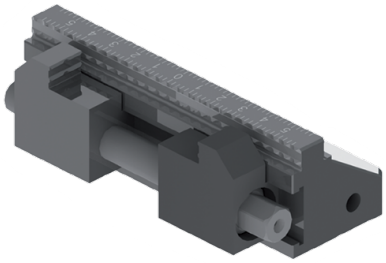
6 face jaw system for 125 mm jaw width

Scope of supply:

2 System jaws with 2 pairs of transverse jaws in T-slot guidance incl. fixing screws

ZSG 4





for width	A	D	D_1	M	M_1	M_2	O	DRVS	WT	**80 878 ...** £ Y4	
mm	mm	mm	mm	mm	mm	mm	mm	mm	kg		
125	37 - 101	40	32	57	15	12,4	3,3	12	3.8	1,655.32	**525**



Centric vice for small parts

ZSG mini in mechanical version with high clamping force and quick change jaws.
Ideal for blank and finished part machining, multi-clamping and automation.

Your benefits:

- ▲ Fast jaw changeover without tools
- ▲ Compact and precise
- ▲ Optimum accessibility from all sides
- ▲ Exchangeable jaw widths (45 mm and 70 mm)
- ▲ High clamping force and large clamping range
- ▲ Clamping system for automation
- ▲ Stainless, hardened base body

Clamping/aligning:



Clamping with two M6 screws
from above through the base body.



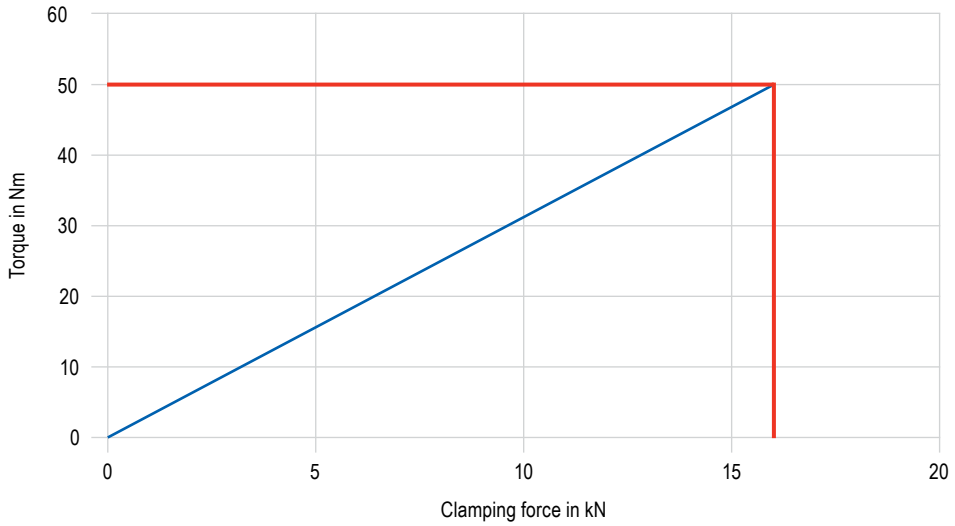
Clamping with two M6 screws from above through the base body. Alignment can be performed using Ø 12^{H7} precision holes.



Both versions come with mounting holes for the LANG zero point clamping system, Quick Point 52 x 52.

Clamping force:

ZSG mini tightening torque/clamping force



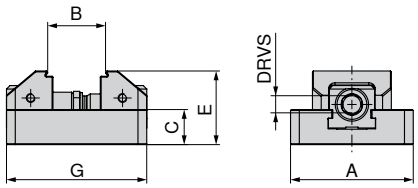
CentriClamp – ZSG mini

- ▲ Centric vice for small parts
- ▲ Without system jaws
- ▲ Fast jaw changeover without tools
- ▲ Compact and precise
- ▲ Optimum accessibility from all sides
- ▲ Exchangeable jaw widths (45 mm and 70 mm)
- ▲ Stainless, hardened base body

Scope of supply:

ZSG mini base body with spindle

ZSG mini | **MNG mini**





NEW

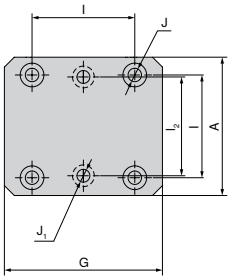
A mm	B mm	C mm	E mm	G mm	MXC kN	DRVS mm	WT kg	80 912 ... £ Y4	
70	7 - 57	20	42	80	16	11	0.9	403.87	**07000**
70	7 - 77	20	42	100	16	11	1.1	457.36	**07100**

Vice guide

Underside Dimensions	94	Structural dimension tables for the different jaws	95–97
System accessories	98–100	MNG-/PNG zero point clamping system	134–163
General accessories	164–183		

ZSG mini underside dimensions

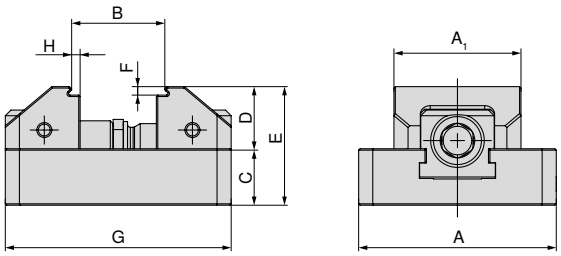
Base width 70 mm



A mm	J_1 mm	J_{H7} mm	$I_{2\ \pm0,01}$ mm	$I_{\pm0,01}$ mm	G mm
70	6,5	12	50	52	80
70	6,5	12	50	52	100

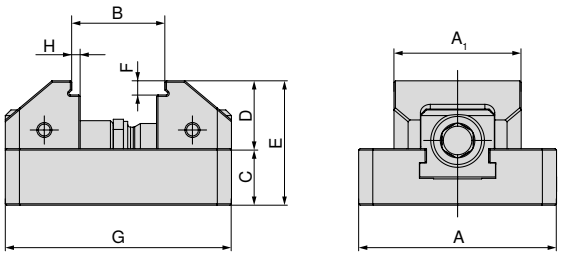
ZSG Mini – structural dimension table for the different jaws

With quick change jaw, grip 3 mm



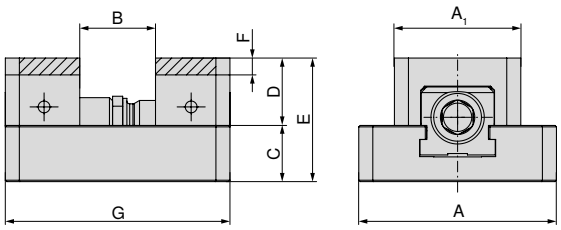
A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Article no. System jaws
70	45	7 - 33	20	22	42	3	80	3	2 x **80 912 30100**
70	70	7 - 33	20	22	42	3	80	3	2 x **80 912 30200**
70	45	7 - 53	20	22	42	3	100	3	2 x **80 912 30100**
70	70	7 - 53	20	22	42	3	100	3	2 x **80 912 30200**

With quick change jaw, smooth step 5 mm



A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Article no. System jaws
70	45	7 - 33	20	24	44	5	80	3	2 x **80 912 30300**
70	70	7 - 33	20	24	44	5	80	3	2 x **80 912 30400**
70	45	7 - 53	20	24	44	5	100	3	2 x **80 912 30300**
70	70	7 - 53	20	24	44	5	100	3	2 x **80 912 30400**

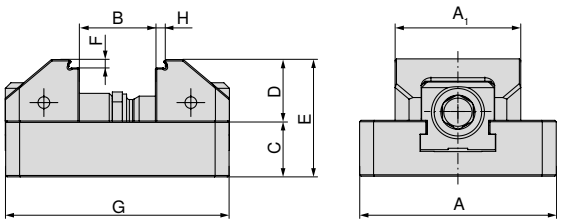
With quick change jaw, soft, steel



A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	Article no. System jaws
70	45	0 - 26	20	24	44	6	80	2 x **80 912 31000**
70	70	0 - 26	20	24	44	6	80	2 x **80 912 31100**
70	45	0 - 46	20	24	44	6	80	2 x **80 912 31000**
70	70	0 - 46	20	24	44	6	80	2 x **80 912 31100**

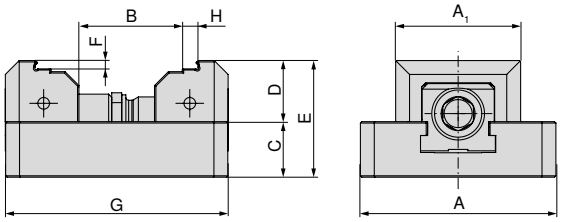
ZSG Mini – structural dimension table for the different jaws

With quick change jaw embossed profile



A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Article no. System jaws
70	45	7 - 32	20	22	44	3	80	3	2 x **80 912 31200**
70	70	7 - 32	20	22	44	3	80	3	2 x **80 912 31300**
70	45	7 - 52	20	22	44	3	100	3	2 x **80 912 31200**
70	70	7 - 52	20	22	44	3	100	3	2 x **80 912 31300**

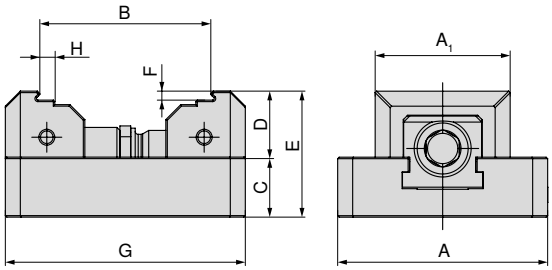
With quick change jaw embossed profile, VS



A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Article no. System jaws
70	45	31 - 56	20	22	44	3	80	5	2 x **80 912 31400**
70	70	31 - 56	20	22	44	3	80	5	2 x **80 912 31500**
70	45	31 - 76	20	22	44	3	100	5	2 x **80 912 31400**
70	70	31 - 76	20	22	44	3	100	5	2 x **80 912 31500**

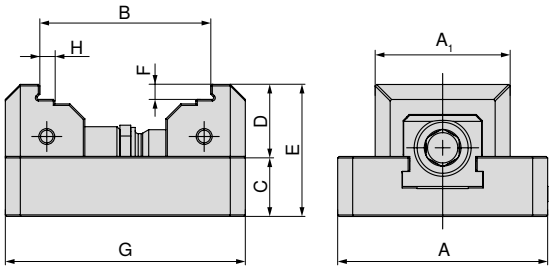
ZSG Mini – structural dimension table for the different jaws

With quick change jaw, VS, grip 3 mm



A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Article no. System jaws
70	45	31 - 57	20	22	42	3	80	5	2 x **80 912 30500**
70	70	31 - 57	20	22	42	3	80	5	2 x **80 912 30600**
70	45	31 - 77	20	22	42	3	100	5	2 x **80 912 30500**
70	70	31 - 77	20	22	42	3	100	5	2 x **80 912 30600**

With quick change jaw, VS, smooth 5 mm

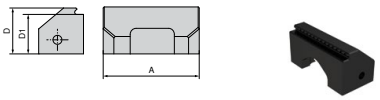


A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	Article no. System jaws
70	45	31 - 56	20	24	44	5	80	5	2 x **80 912 30700**
70	70	31 - 56	20	24	44	5	80	5	2 x **80 912 30800**
70	45	31 - 76	20	24	44	5	100	5	2 x **80 912 30700**
70	70	31 - 76	20	24	44	5	100	5	2 x **80 912 30800**

System jaws overview

Quick change jaw, grip 3 mm

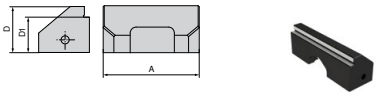
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		22	19						49.30	**80 912 30100**								●			
70	70		22	19						63.99	**80 912 30200**								●			

Quick change jaw, smooth step 5 mm

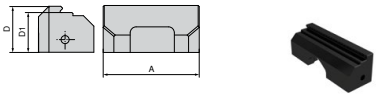
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		24	19						58.74	**80 912 30300**								●			
70	70		24	19						74.48	**80 912 30400**								●			

Quick change jaw, VS, grip 3 mm

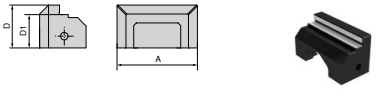
▲ Price per piece
▲ VS = Larger clamping range



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		22	19						49.30	**80 912 30500**								●			
70	70		22	19						63.99	**80 912 30600**								●			

Quick change jaw, VS, smooth 5 mm

▲ Price per piece
▲ VS = Larger clamping range

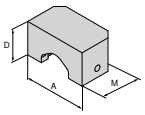


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		24	19						58.74	**80 912 30700**								●			
70	70		24	19						74.48	**80 912 30800**								●			

System jaws overview

Quick change jaw, soft, steel

▲ Material: 15NiCr13
▲ Price per piece

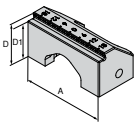




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		24				26,5			39.86	**80 912 31000**								●			
70	70		24				26,5			39.86	**80 912 31100**								●			

Quick change jaw embossed profile

▲ Price per piece
▲ suitable for LANG embossed profile

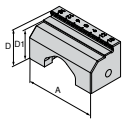




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		22	19						74.48	**80 912 31200**								●			
70	70		22	19						74.48	**80 912 31300**								●			

Quick change jaw embossed profile, VS

▲ Price per piece
▲ Suitable for LANG embossed profile
▲ VS = Larger clamping range





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
70	45		22	19						91.26	**80 912 31400**								●			
70	70		22	19						91.26	**80 912 31500**								●			

System accessories overview

Socket

▲ Suitable for 3/8" square drive

ESG 4 | ZSG 4 | ZSG mini | DSG 4 | MSG 2



Square	DRVS mm	80 875 ... £ Y4	
3/8"	11	17.83	11100

→ Page 176+180
Here you will find the suitable „magnetic workpiece stop“ and „torque key“ (article numbers **80 892 23800** and **80 884 402**).

Allen cap screw

▲ Price per piece

ZSG mini

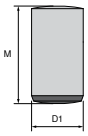


G	80 912 ... £ Y4	
M6x25	1.05	50100

Cylindrical pin

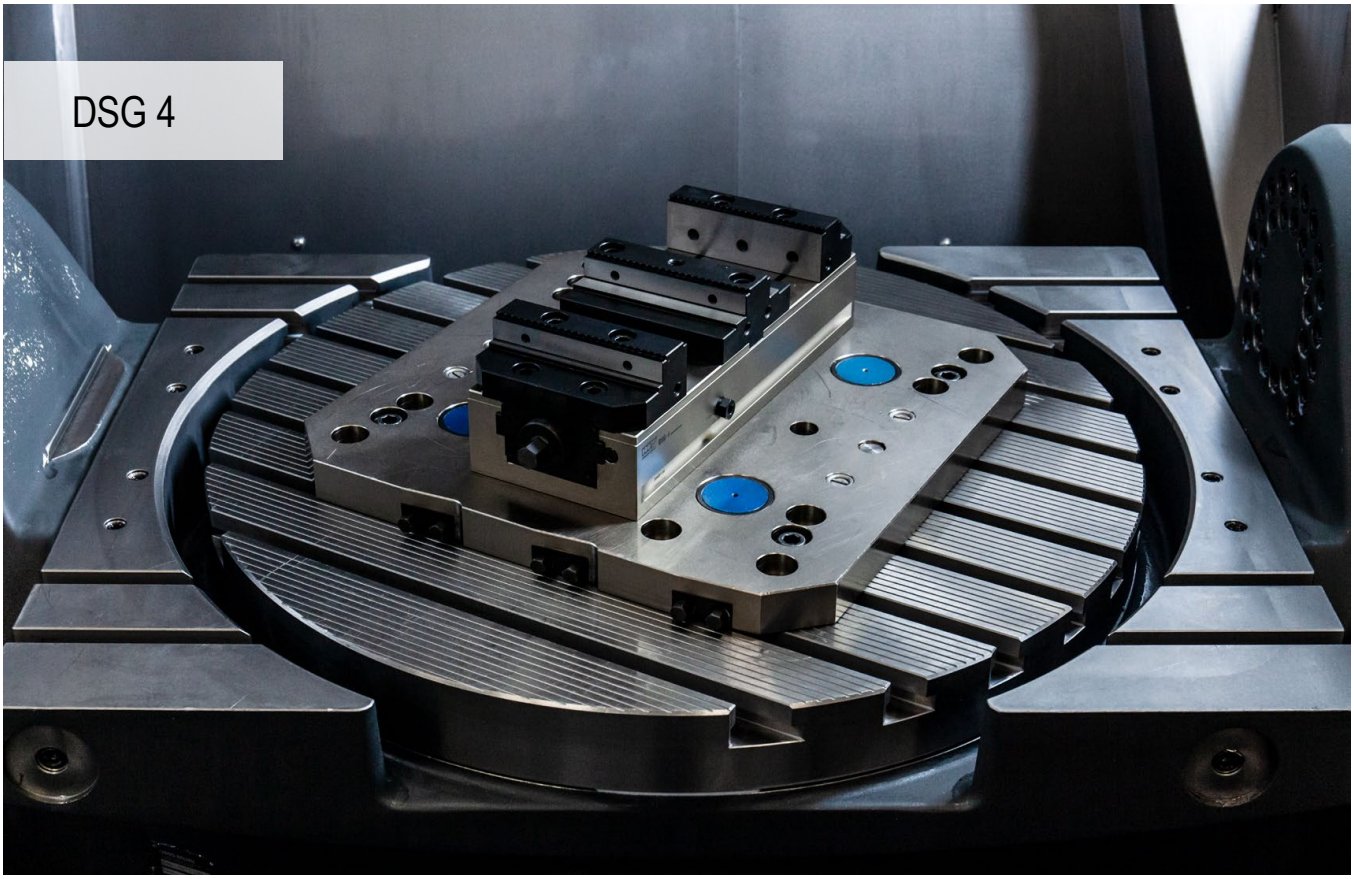
▲ Price per piece

ZSG mini





$D_{1\ m6}$ mm	M mm	80 912 ... £ Y4	
12	18	2.10	50200



High accuracy and efficiency

The user-friendly DSG 4 clamping system guarantees consistently high precision and a wide application range.

Your benefits:

- ▲ Straightforward, stable third-hand function
- ▲ Quick and easy positioning on the MNG zero point clamping system
- ▲ High clamping force between 5 – 40 kN with low tightening torque
- ▲ Quick and easy jaw change with 2 screws
- ▲ Extensive modular jaw range

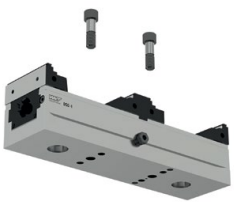
Clamping/aligning:



Mounting with MNG zero point clamping system (2-3 mounting bolts)



Mounting through the base body with four M8 screws



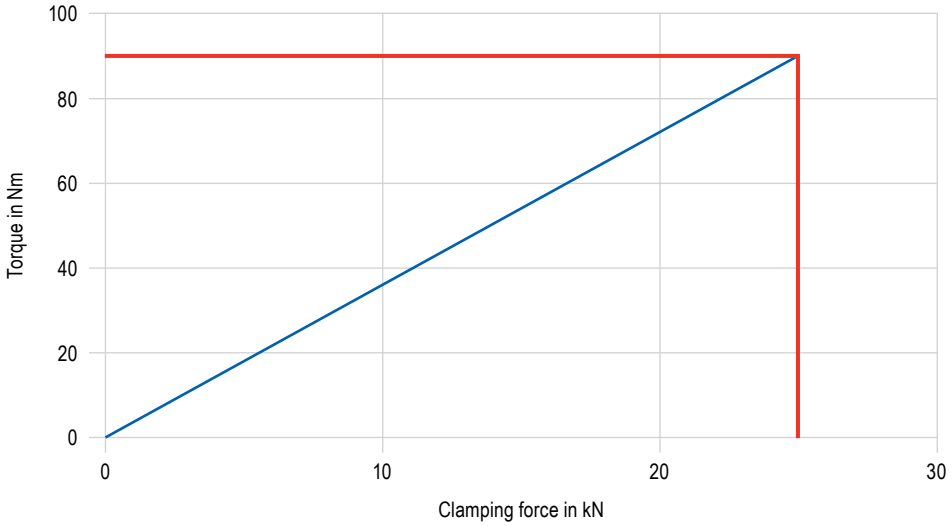
Mounting through the base body with two dowel screws **Article no. 80 895 019**



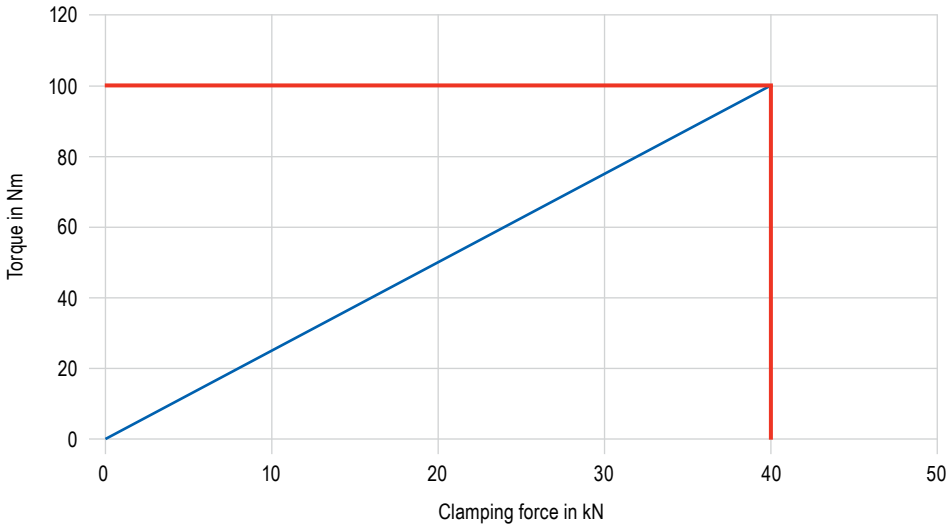
Mounting with 4-6 clamping claws **Article no. 80 890 315**

Clamping force:

DSG 4 – 80 mm tightening torque / clamping force



DSG 4 – 125 mm tightening torque / clamping force



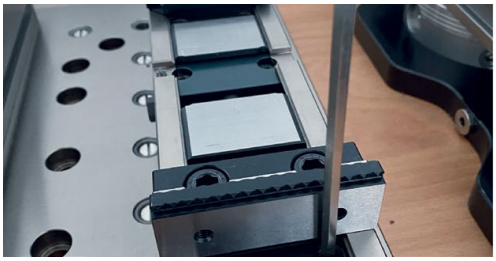
'Third hand' operation

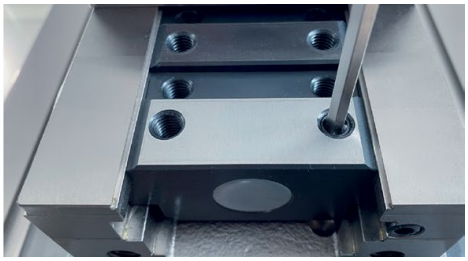
The third-hand operation function on the DSG 4 is ensured by pre-loading the rear slide with compression springs.



The lateral clamping screw A is not tightened, instead it is open approx. 1/2 turn. When the vice is fully open, the movable jaws B and C are to be placed in the appropriate slots of slides D and E and secured according to the workpiece size. Two workpieces of different sizes can also be clamped.

Conversion to single vice



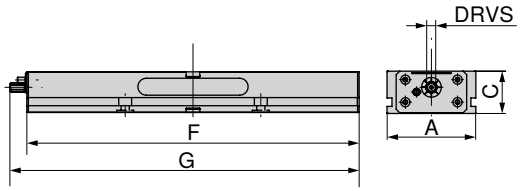


The rear slide is blocked via the hexagon socket grub screw and the DSG 4 can also be used as a single vice. **Important note:** Not suitable for using several vices as single vice next to one another. In this case, we advise modification with additional transverse slot in the base body and suitable fixed jaw.

PolyClamp – DSG 4

▲ double vice without jaws
▲ 100 % encapsulated
▲ fast assembly and disassembly
▲ flexible clamping system

DSG 4 | **MNG**





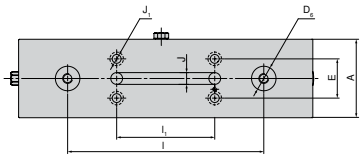
A mm	C mm	F mm	G mm	TQX Nm	DRVS mm	MXC kN	WT kg	80 906 ... £ Y4	
80	55	300	308	90	12	0 - 25	8	1,494.83	**080**
125	60	320	347	100	14	0 - 40	14	1,773.86	**125**
125	60	390	417	100	14	0 - 40	17	1,963.73	**12700**
125	60	460	487	100	14	0 - 40	20	2,212.34	**12800**
125	60	530	557	100	14	0 - 40	24	2,411.65	**12900**
125	60	600	627	100	14	0 - 40	27	2,610.96	**13000**
125	60	670	697	100	14	0 - 40	30	2,730.55	**13100**
125	60	740	767	100	14	0 - 40	34	2,840.69	**126**

Vice guide

Structural dimension tables for the different jaws	105–107	System accessories	108+110
'Third hand' operation	102	Conversion to single vice	103
MNG-/PNG zero point clamping system	134–163	General accessories	164–183

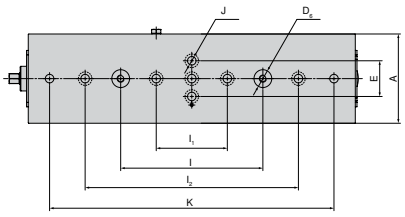
DSG 4 underside dimensions

Base width 80 mm and length 300 mm



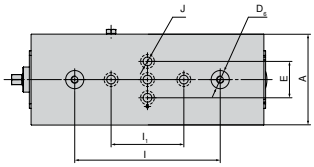
A mm	D_6 H6 mm	E ±0,015 mm	I ±0,01 mm	I_1 ±0,01 mm	J H7 mm	J_1 mm
80	25	40	200	100	12	9

Base width 125 mm and length 460 mm, 530 mm



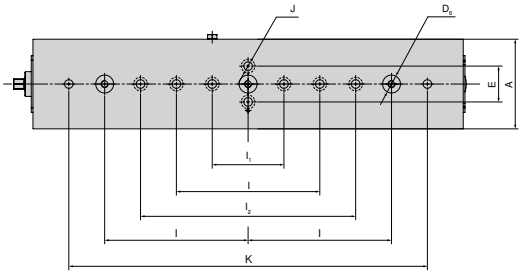
A mm	D_6 H6 mm	E ±0,015 mm	I ±0,01 mm	I_1 ±0,01 mm	I_2 ±0,002 mm	J H7 mm	K ±0,002 mm
125	25	50	200	100	300	12	400
125	25	50	200	100	300	12	500

Base width 125 mm and length 320 mm



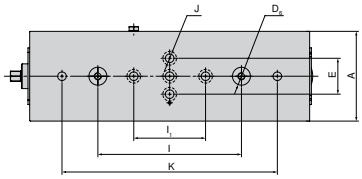
A mm	D_6 H6 mm	E ±0,015 mm	I ±0,01 mm	I_1 ±0,01 mm	J H7 mm
125	25	50	200	100	12

Base width 125 mm and length 600 mm



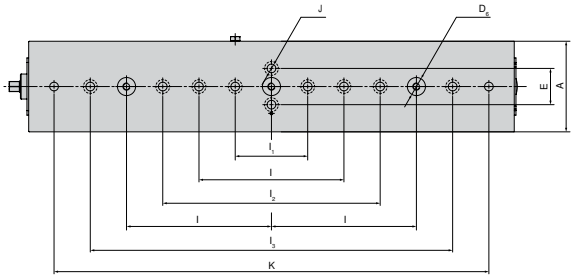
A mm	D_6 H6 mm	E ±0,015 mm	I ±0,01 mm	I_1 ±0,01 mm	I_2 ±0,002 mm	J H7 mm	K ±0,002 mm
125	25	50	200	100	300	12	500

Base width 125 mm and length 390 mm



A mm	D_6 H6 mm	E ±0,015 mm	I ±0,01 mm	I_1 ±0,01 mm	J H7 mm	K ±0,002 mm
125	25	50	200	100	12	300

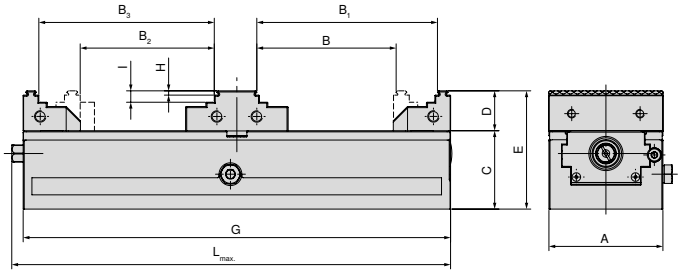
Base width 125 mm and length 670 mm, 740 mm



A mm	D_6 H6 mm	E ±0,015 mm	I ±0,01 mm	I_1 ±0,01 mm	I_2 ±0,002 mm	I_3 ±0,025 mm	J H7 mm	K ±0,002 mm
125	25	50	200	100	300	500	12	600
125	25	50	200	100	300	500	12	700

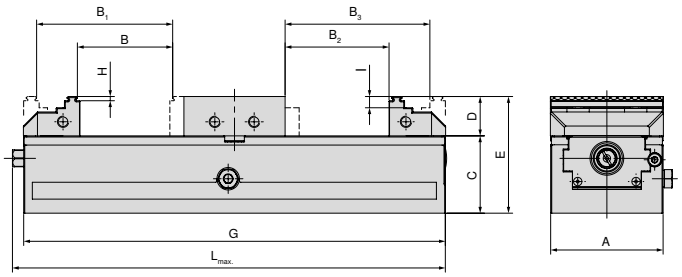
DSG 4 structural dimension table for the different jaws

With indexable jaws, grip and centre jaw, grip



A mm	B mm	B_1 mm	B_2 mm	B_3	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
80	25 - 97	54 - 126	31 - 93	51 - 122	55	28	83	300	3	8	308	2 x **80 878 810** + **80 906 300**
125	40 - 86	75 - 121	42 - 79	68 - 114	60	40	100	320	3	18	347	2 x **80 901 303** + **80 906 304**
125	40 - 121	75 - 156	42 - 114	68 - 149	60	40	100	390	3	18	417	2 x **80 901 303** + **80 906 304**
125	40 - 156	75 - 191	42 - 149	68 - 184	60	40	100	460	3	18	487	2 x **80 901 303** + **80 906 304**
125	40 - 191	75 - 226	42 - 184	68 - 219	60	40	100	530	3	18	557	2 x **80 901 303** + **80 906 304**
125	40 - 226	75 - 261	42 - 219	68 - 254	60	40	100	600	3	18	627	2 x **80 901 303** + **80 906 304**
125	40 - 261	75 - 296	42 - 254	68 - 289	60	40	100	670	3	18	697	2 x **80 901 303** + **80 906 304**
125	40 - 296	75 - 331	42 - 289	68 - 324	60	40	100	740	3	18	767	2 x **80 901 303** + **80 906 304**

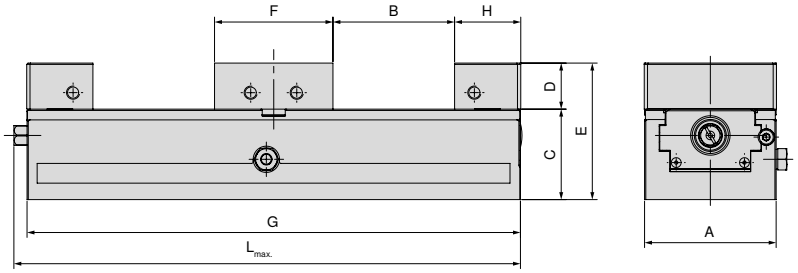
With indexable jaws, grip and centre jaw, smooth



A mm	B mm	B_1 mm	B_2 mm	B_3	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
80	5 - 67	34 - 96	0 - 73	40 - 102	55	28	83	300	3	8	308	2 x **80 878 810** + **80 906 301**
125	7 - 44	42 - 77	0 - 47	46 - 82	60	40	100	320	3	18	347	2 x **80 901 303** + **80 906 305**
125	7 - 79	42 - 112	0 - 82	46 - 117	60	40	100	390	3	18	417	2 x **80 901 303** + **80 906 305**
125	7 - 114	42 - 149	0 - 117	46 - 152	60	40	100	460	3	18	487	2 x **80 901 303** + **80 906 305**
125	7 - 147	42 - 182	0 - 152	46 - 187	60	40	100	530	3	18	557	2 x **80 901 303** + **80 906 305**
125	7 - 184	42 - 217	0 - 187	46 - 222	60	40	100	600	3	18	627	2 x **80 901 303** + **80 906 305**
125	7 - 219	42 - 252	0 - 222	46 - 257	60	40	100	670	3	18	697	2 x **80 901 303** + **80 906 305**
125	7 - 254	42 - 287	0 - 257	46 - 292	60	40	100	740	3	18	767	2 x **80 901 303** + **80 906 305**

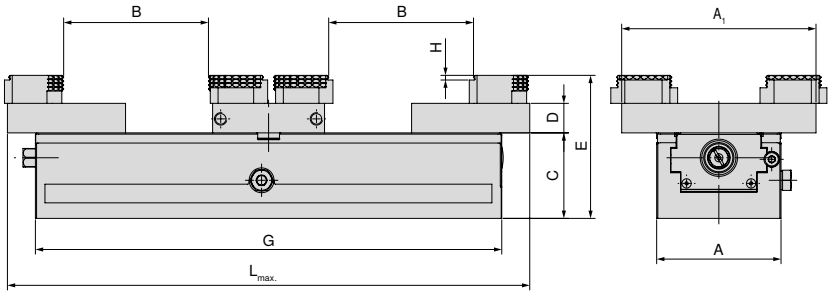
DSG 4 structural dimension table for the different jaws

With block jaws and centre jaw smooth



A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	$L_{max.}$ mm	Article no. System jaws
80	0 - 73	55	28	83	72	300	40	308	2 x **80 901 31300** + **80 906 301**
125	0 - 46	60	40	100	98	320	66	347	2 x **80 901 31500** + **80 906 305**
125	0 - 81	60	40	100	98	390	66	417	2 x **80 901 31500** + **80 906 305**
125	0 - 116	60	40	100	98	460	66	487	2 x **80 901 31500** + **80 906 305**
125	0 - 151	60	40	100	98	530	66	557	2 x **80 901 31500** + **80 906 305**
125	0 - 186	60	40	100	98	600	66	627	2 x **80 901 31500** + **80 906 305**
125	0 - 221	60	40	100	98	670	66	697	2 x **80 901 31500** + **80 906 305**
125	0 - 256	60	40	100	98	740	66	767	2 x **80 901 31500** + **80 906 305**

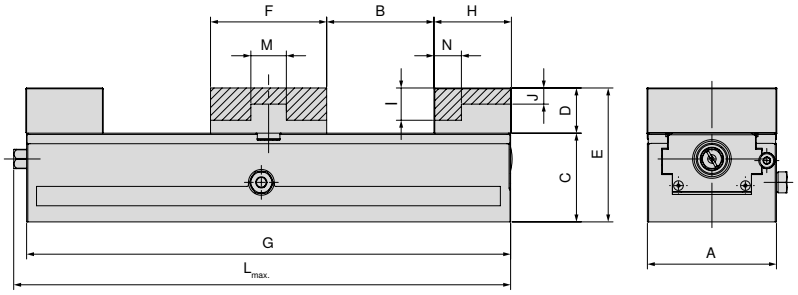
With pendulum and adapter plate



A mm	A_1 mm	B mm	C mm	D mm	E mm	G mm	H mm	$L_{max.}$ mm	Article no. System jaws
80	125	0 - 92	55	19	92	300	3	308	2 x **80 878 870** + **80 906 303**
125	180	7 - 92	60	22	100	320	3	365	2 x **80 878 570** + **80 906 307**
125	180	7 - 133	60	22	100	390	3	435	2 x **80 878 570** + **80 906 307**
125	180	7 - 168	60	22	100	460	3	505	2 x **80 878 570** + **80 906 307**
125	180	7 - 203	60	22	100	530	3	575	2 x **80 878 570** + **80 906 307**
125	180	7 - 238	60	22	100	600	3	645	2 x **80 878 570** + **80 906 307**
125	180	7 - 273	60	22	100	670	3	715	2 x **80 878 570** + **80 906 307**
125	180	7 - 308	60	22	100	740	3	785	2 x **80 878 570** + **80 906 307**

DSG 4 structural dimension table for the different jaws

With aluminium jaws and aluminium centre jaw

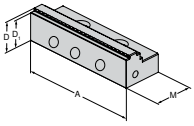


A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	$L_{max.}$ mm	M mm	N mm	Article no. System jaws
80	0 - 66	55	28	83	72	300	40	20	10	308	22	17	2 x **80 878 850** + **80 906 302**
125	0 - 42	60	40	100	98	320	68		17	347	38	28	2 x **80 878 550** + **80 906 306**
125	0 - 77	60	40	100	98	390	68		17	417	38	28	2 x **80 878 550** + **80 906 306**
125	0 - 112	60	40	100	98	460	68		17	487	38	28	2 x **80 878 550** + **80 906 306**
125	0 - 147	60	40	100	98	530	68		17	557	38	28	2 x **80 878 550** + **80 906 306**
125	0 - 182	60	40	100	98	600	68		17	627	38	28	2 x **80 878 550** + **80 906 306**
125	0 - 217	60	40	100	98	670	68		17	697	38	28	2 x **80 878 550** + **80 906 306**
125	0 - 252	60	40	100	98	740	68		17	767	38	28	2 x **80 878 550** + **80 906 306**

System jaws overview

Indexable jaw, grip 3 mm, movable

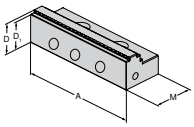
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	125		40	37			66			215.05	**80 901 303**				●	●				●		

Indexable jaw, grip 3 mm, movable

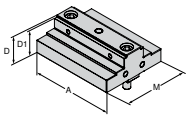
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			40			130.08	**80 878 810**				●	●		●		●		

Centre jaw, grip

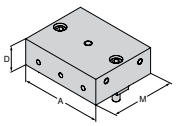
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28	25			72			267.50	**80 906 300**									●		
125	125		40	37			98			349.32	**80 906 304**									●		

Centre jaw, smooth

▲ Price per piece

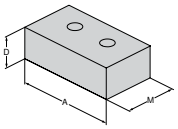
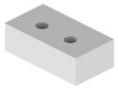



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				72			205.60	**80 906 301**									●		
125	125		40				98			305.26	**80 906 305**									●		

System jaws overview

Alu jaw, movable

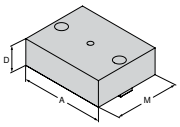
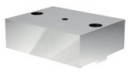
▲ for producing shaped jaws
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				48			82.87	**80 878 850**				●	●		●		●		
125	125		40				68			94.41	**80 878 550**				●					●		

Centre jaw, Alu

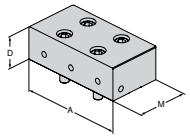
▲ for producing shaped jaws
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				72			74.48	**80 906 302**									●		
125	125		40				98			100.70	**80 906 306**									●		

Block jaw, movable

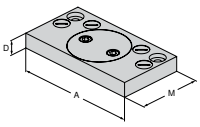
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	80		28				40			233.93	**80 901 31300**				●	●		●		●		
125	125		40				66			329.39	**80 901 31500**				●					●		

Pendulum jaw, movable

▲ to accommodate 6-way reversible jaws
▲ Price per piece

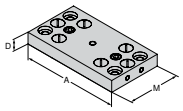



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	125		19				76			393.38	**80 878 870**				●			●		●		
125	180		22				95			409.11	**80 878 570**				●			●		●		

System jaws overview

Centre jaw adapter plate, fixed

- ▲ to accommodate 6-way reversible jaws
- ▲ Price per piece

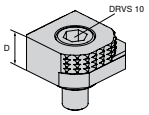


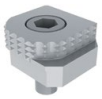


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	125		19				72			280.08	**80 906 303**									●		
125	180		22				98			332.53	**80 906 307**									●		

6 function indexable jaw

- ▲ 1 = Smooth, carbide coated
- ▲ 2 = Grip with 3 mm step
- ▲ 3 = Grip with 8 mm step
- ▲ 4 = Grip with 18 mm step
- ▲ 5 = Rough grip with 8 mm step
- ▲ 6 = Round grip
- ▲ M_{max} = 60 Nm
- ▲ Including fixation screws

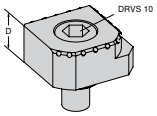


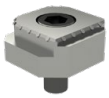


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							77.63	**80 892 246**	●	●	●	●			●		●	●	

6x indexable jaw, carbide grip

- ▲ 1 = Smooth
- ▲ 2 = Carbide grip
- ▲ 3 = Carbide grip with 3 mm step
- ▲ 4 = Carbide grip with 8 mm step
- ▲ 5 = Round carbide grip with 8 mm step
- ▲ 6 = Round carbide grip
- ▲ Incl. fixing screws





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							112.24	**80 890 35300**	●	●	●	●			●		●	●	

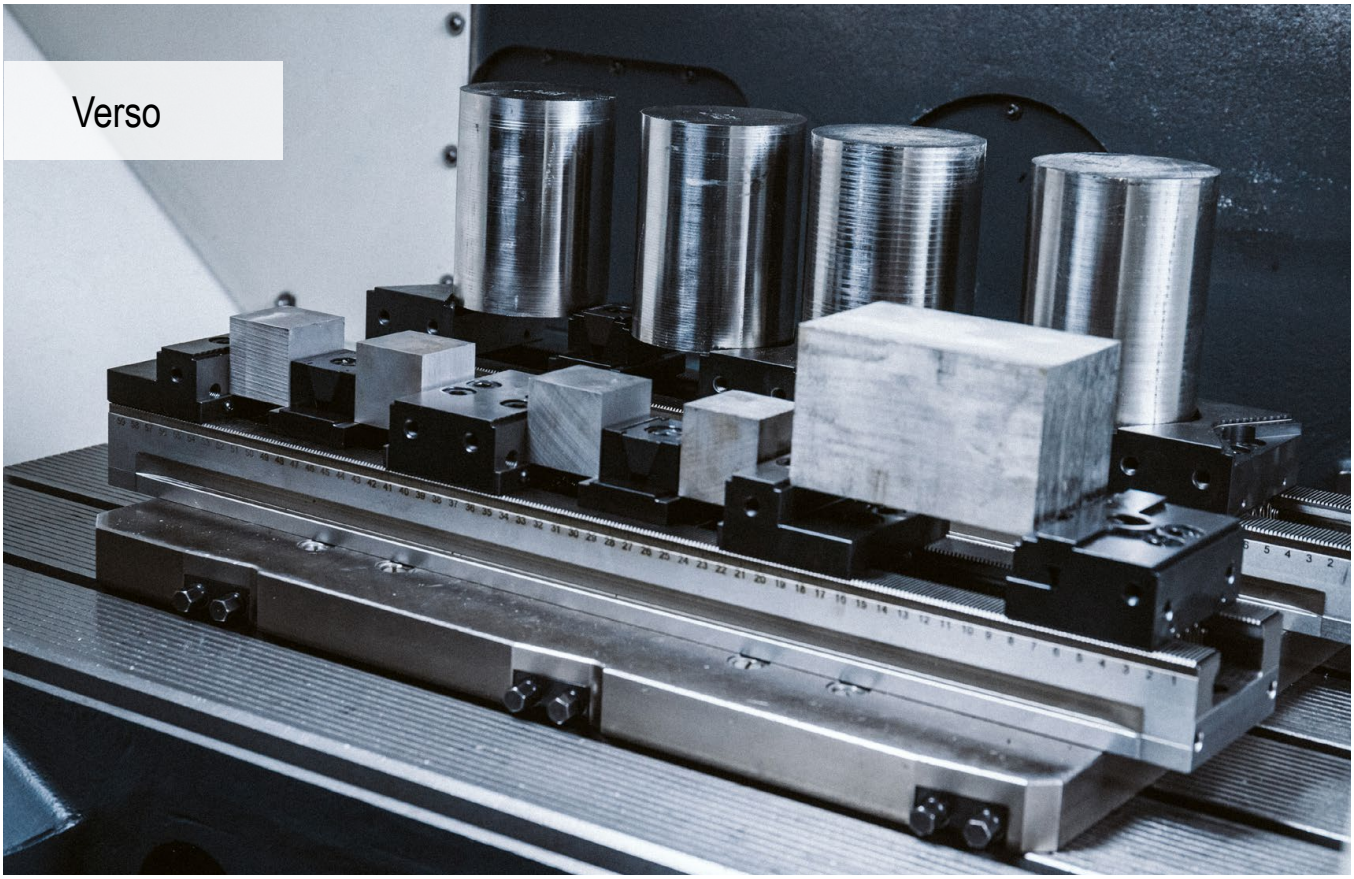
System accessories overview

Plastic protection plugs

DSG 4



G	**80 906 ...** £ Y4	
M10x12	1.05	**500**



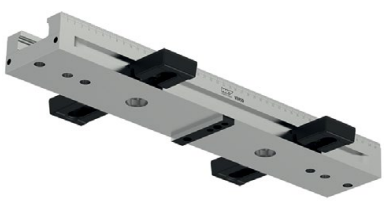
The all-rounder for workpiece clamping

The new multiple vice enables you to easily clamp many small and large workpieces on a 3-, 4-, or 5-axis machine. Even slimmer jaws have further increased the part thickness.

Your benefits:

- ▲ Hardened and ground teeth ensure the highest level of precision and dimensional stability
- ▲ Fast jaw changeover system for fixed and adjustable jaws
- ▲ Full modular range for all types of machining centres
- ▲ Multi-clamping with wedge grip elements
- ▲ Extensive modular system jaw range
- ▲ Simple clamping bar extension with connecting element

Clamping/aligning:



Using T-slots or screws
Alignment in the T-slot (14, 16, 18 mm) with the matching alignment set for T-slots.
For 12 mm T-slot: use two Ø 12 cylinder pins.



Using clamping claws
Alignment set and clamping using clamping claws attached at the side.



Using grid holes
Position and fasten the workpieces using two Ø12f7 / M12 dowel screws in the first and last holes of the clamping bar.
Additional fastening using M12 cylindrical screws in the remaining holes.

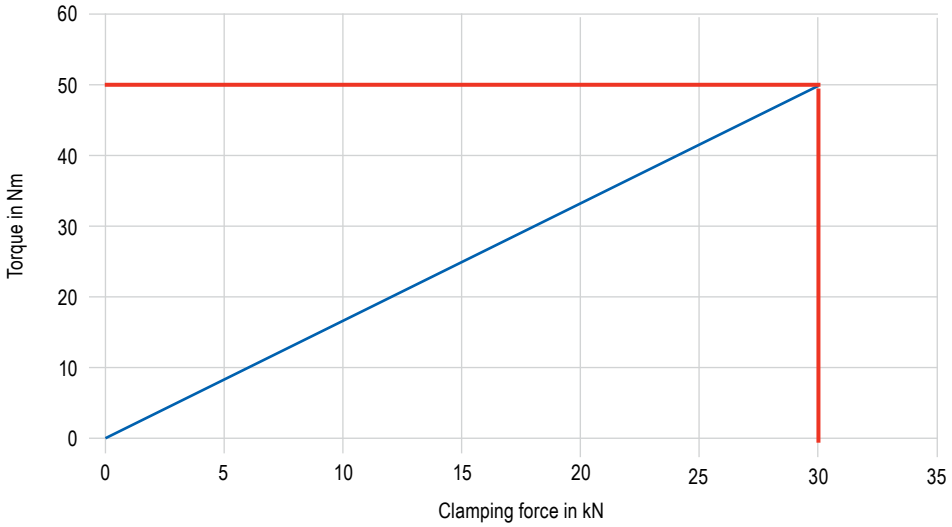
Clamping/aligning:



With a zero point clamping system
The clamping bar is equipped with MNG interfaces that enable MNG clamping bolts to be attached
(up to a base body length of 500 mm = 2 clamping bolts / from 600 mm upwards = 3 clamping bolts).

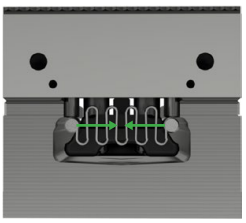
Clamping force:

Verso tightening torque/clamping force



Quick jaw change for fixed and adjustable jaws

The Verso multiple vice is equipped with a quick jaw change system as standard. Simply use the two screws to release, remove or reposition the fixed and adjustable jaw. The jaws are removed in an upwards direction, allowing each jaw to be removed individually, without taking out any others. This reduces the set-up time significantly.



Release position



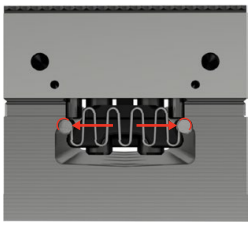
Undo screws



Take off and insert



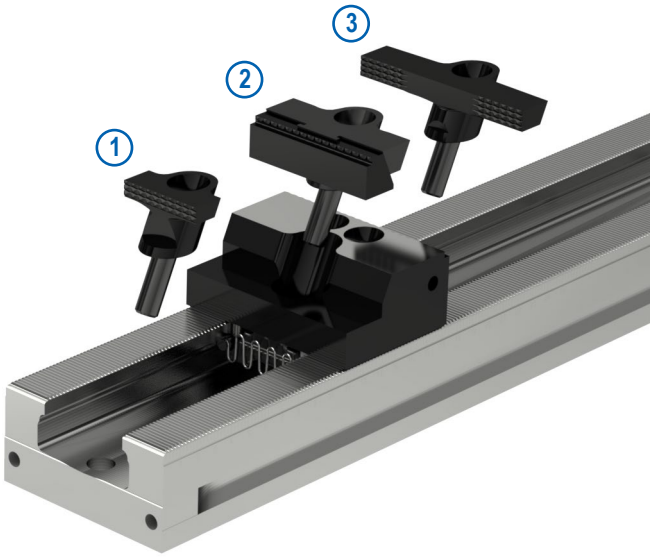
Tighten screws



Clamping position

Quick jaw change

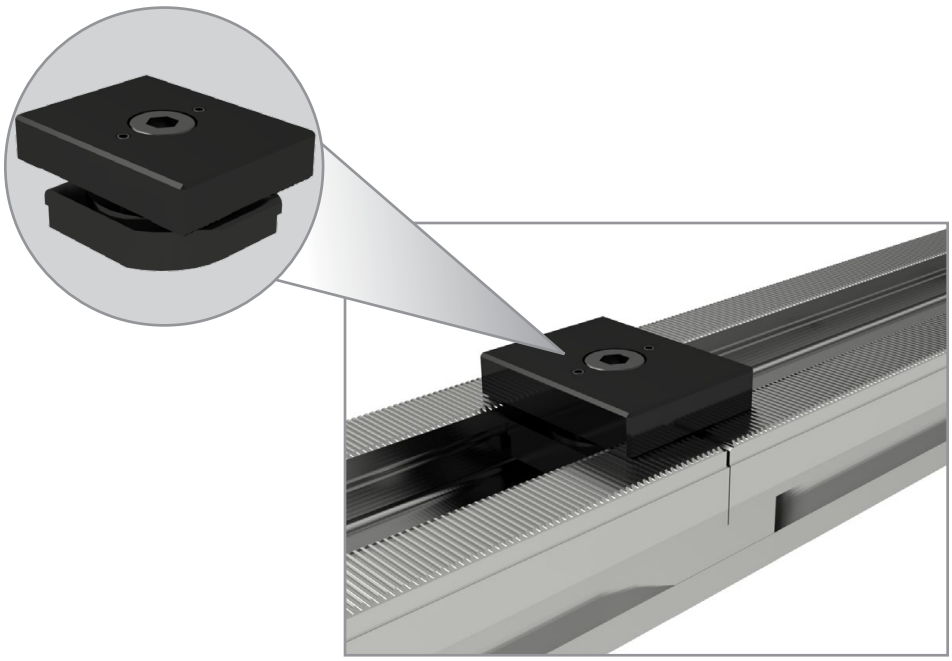
The fixed and adjustable jaws of the Verso multiple vice system are equipped with a quick jaw change system as standard. Two screws can be used to release and change the jaw, making jaw changes extremely quick.



1. Pull-down jaw, grip
2. Parallel clamping jaw
3. Pendulum jaw grip with pull-down action

Connecting the clamping bars

A connecting element allows two or more Verso clamping bars to be combined with one another or extended.

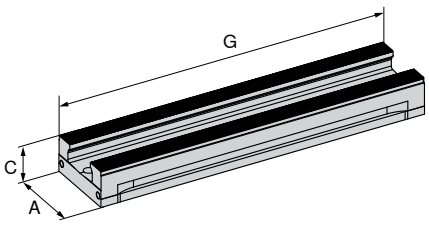


PolyClamp – Verso

- ▲ For single and multi-clamping
- ▲ Multi-clamping with wedge grip elements
- ▲ Workpieces can be clamped on 3-, 4- or 5-axis machine
- ▲ Adapter plates for MNG available

Scope of supply:
Body without jaws

Verso | **MMG**



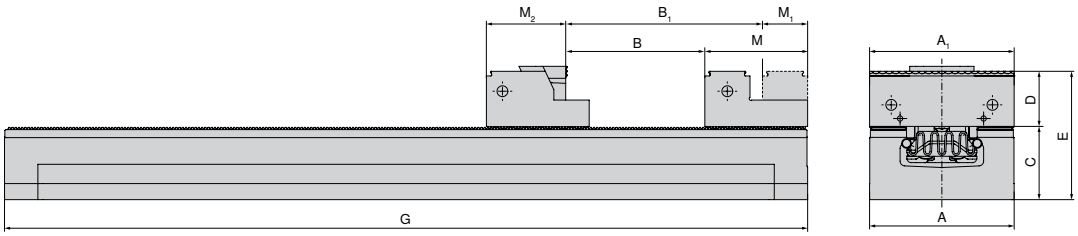


NEW

A mm	C mm	G mm	MXC kN	WT kg	80 914 ... £ Y4	
90	45	260	0 - 50	5.0	773.11	**09000**
90	45	400	0 - 50	7.7	1,016.48	**09100**
90	45	500	0 - 50	9.6	1,226.28	**09200**
90	45	600	0 - 50	11.5	1,474.89	**09300**
90	45	650	0 - 50	12.5	1,574.55	**09400**

Verso – Structural dimension table

Clamping rail



A mm	A_1 mm	B mm	B_1 mm	C mm	D mm	E mm	G mm	M mm	M_1 mm	M_2
90	40 / 65 / 90	145	181	45	35	80	260	64	28	53,5
90	40 / 65 / 90	285	321	45	35	80	400	64	28	53,5
90	40 / 65 / 90	385	421	45	35	80	500	64	28	53,5
90	40 / 65 / 90	485	521	45	35	80	600	64	28	53,5
90	40 / 65 / 90	535	571	45	35	80	650	64	28	53,5

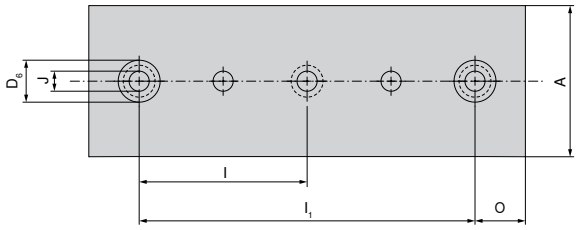
When using the 90 mm pendulum jaw grip and parallel clamping jaws, dimensions B, B_1 and M_2 will differ.

Vice guide

Underside Dimensions	115	Overview of clamping ranges	116
System accessories	117–124	General accessories	164–183

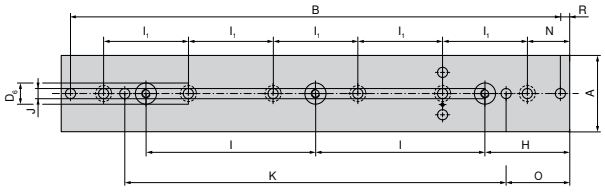
Verso underside dimensions

Base width 90 mm and length 260 mm



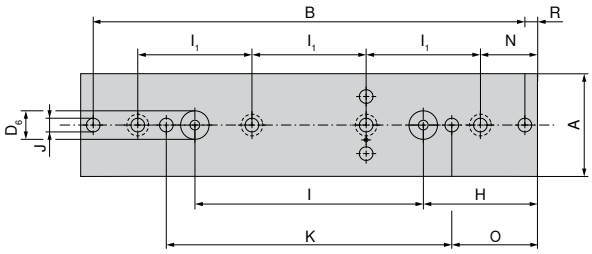
A mm	D6 H7 mm	I ±0,015 mm	I1 ±0,015 mm	J F7 mm	O ±0,015 mm
90	25	100	200	12	30

Base width 90 mm and length 600 mm



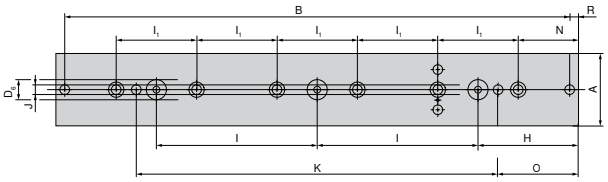
A mm	B mm	D6 H7 mm	H ±0,015 mm	I ±0,015 mm	I1 ±0,015 mm	J F7 mm	K ±0,015 mm	N mm	O ±0,015 mm	R mm
90	578	25	100	200	100	12	450	50	75	11

Base width 90 mm and length 400 mm



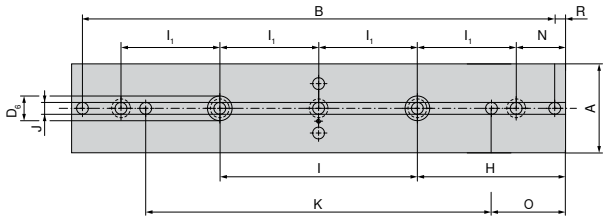
A mm	B mm	D6 H7 mm	H ±0,015 mm	I ±0,015 mm	I1 ±0,015 mm	J F7 mm	K ±0,015 mm	N mm	O ±0,015 mm	R mm
90	378	25	100	200	100	12	250	50	75	11

Base width 90 mm and length 650 mm



A mm	B mm	D6 H7 mm	H ±0,015 mm	I ±0,015 mm	I1 ±0,015 mm	J F7 mm	K ±0,015 mm	N mm	O ±0,015 mm	R mm
90	628	25	125	200	100	12	450	75	100	11

Base width 90 mm and length 500 mm

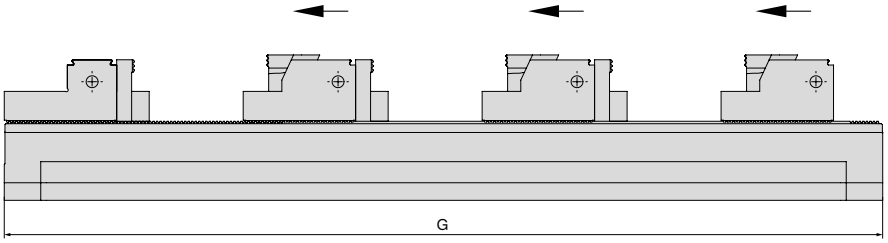


A mm	B mm	D6 H7 mm	H ±0,015 mm	I ±0,015 mm	I1 ±0,015 mm	J F7 mm	K ±0,015 mm	N mm	O ±0,015 mm	R mm
90	478	25	150	200	100	12	350	50	75	11

Verso – Overview of clamping ranges

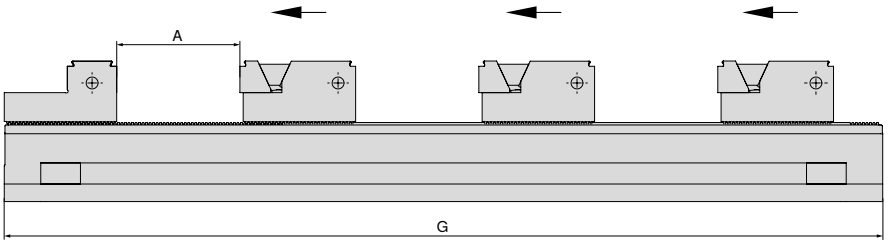
The clamping range shows the max. workpiece size depending on the number of clamping points for the individual clamping bar lengths.

Adjustable jaws with 40 mm pull-down jaw grip



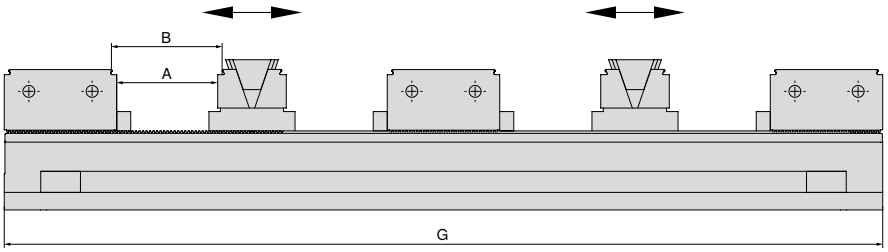
G mm	Number of workpieces 1	2	3	4	5	6	7	Article no. Vices
260	134	36	–	–	–	–	–	**80 914 09000**
400	274	106	50	22	–	–	–	**80 914 09100**
500	374	156	82	45	24	–	–	**80 914 09200**
600	474	206	116	72	44	26	–	**80 914 09300**
650	524	230	135	84	54	34	20	**80 914 09400**

Adjustable jaws with parallel clamping jaws



G mm	Number of workpieces 1 A	2 A	3 A	4 A	5 A	6 A	7 A	8 A	9 A	Article no. Vices
260	175	59	–	–	–	–	–	–	–	**80 914 09000**
400	315	129	67	27	10	–	–	–	–	**80 914 09100**
500	415	179	100	61	30	15	–	–	–	**80 914 09200**
600	515	229	133	86	57	32	19	10	–	**80 914 09300**
650	565	254	150	98	67	46	26	16	8	**80 914 09400**

With wedge grip elements

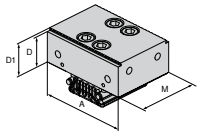


G mm	Number of workpieces 2 A	2 B	4 A	4 B	6 A	6 B	8 A	8 B	Article no. Vices
260	45	50	–	–	–	–	–	–	**80 914 09000**
400	115	120	31	36	–	–	–	–	**80 914 09100**
500	165	170	56	61	19	24	–	–	**80 914 09200**
600	215	220	81	86	36	41	14	19	**80 914 09300**
650	240	245	93	98	44	49	20	25	**80 914 09400**

System jaws overview

Stop jaw, fixed, grip 2,9 mm

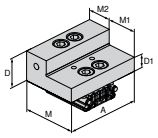
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		32	34,9			64			329.39	**80 914 31800**										●	

Indexable jaw, fixed, smooth

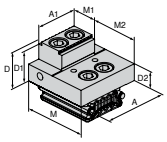
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		34,9	17			64	35,9	28,1	349.32	**80 914 32000**										●	

Stop jaw, fixed, grip 2,9 mm

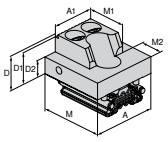
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	65		34,9	32	17		64	28,1	35,9	338.83	**80 914 31100**										●	
90	65	40	34,9	32	17		64	28,1	35,9	327.29	**80 914 31000**										●	
90	90		34,9	32	17		64	28,1	35,9	349.32	**80 914 31200**										●	

Reversible adjustable jaw profiled, grip 2,9 mm

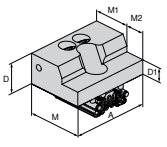
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	65		34,9	32	17		64	42	22	338.83	**80 914 31400**										●	
90	65	40	34,9	32	17		64	42	22	327.29	**80 914 31300**										●	
90	90		34,9	32	17		64	42	22	349.32	**80 914 31500**										●	

Reversible adjustable jaw, smooth

▲ Price per piece

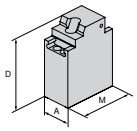



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		34,9	17			64	42	22	349.32	**80 914 31600**										●	

System jaws overview

Reversible adjustable jaw, high

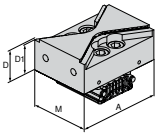
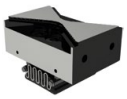
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	65		165				124			1,166.49	**80 914 31700**											●	

Prismatic jaw, smooth, grip 2,9 mm

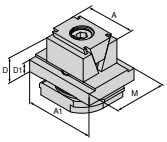
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		34,9	32			64			349.32	**80 914 31900**											●	

Wedge jaw

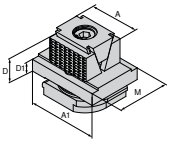
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40	65	35	11			49			333.58	**80 914 32100**											●	
90	40	65	39	11			49			227.63	**80 914 32400**											●	

Wedge grip jaw

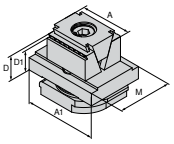
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40	65	35	11			49			356.66	**80 914 32200**											●	
90	40	65	39	11			49			227.63	**80 914 32500**											●	

Wedge grip jaw, 3 mm

▲ Price per piece

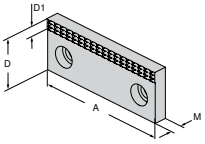



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40	65	35	32			49			356.66	**80 914 32300**											●	

System jaws overview

Jaw, grip

▲ Price per piece

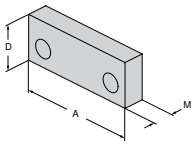




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
65	65		35	7			10			39.86	**80 889 656**										●	
65	40		35	7			10			35.67	**80 889 406**										●	
90	90		35	7			10			45.11	**80 889 906**										●	

Jaw, soft

▲ Material: 16MnCr5
▲ Price per piece

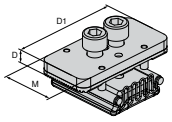




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
65	65		35				16			39.86	**80 889 657**										●	
65	40		35				16			36.72	**80 889 407**										●	
90	90		35				16			48.25	**80 889 907**										●	

Base jaw

▲ Price per piece
▲ For Alu jaw Article no. **80 914 34200**

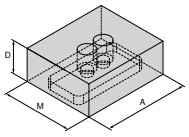




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90			9,1	80			40			203.51	**80 914 34100**										●	

Soft Alu-jaw

▲ Price per piece
▲ For Base jaw Article no. **80 914 34100**

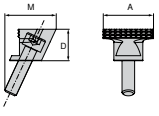




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		34,9				75			77.63	**80 914 34200**										●	

Pull-down jaw, grip

▲ Price per piece



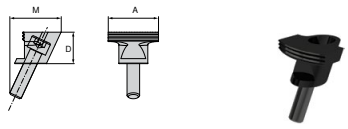


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		25				41			100.70	**80 914 32600**										●	

System jaws overview

Pull-down jaw, grip – round

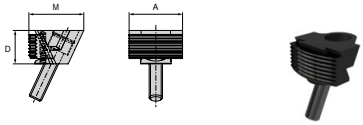
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		25				41			113.29	**80 914 32700**										●	

Parallel clamping jaw, grip – round

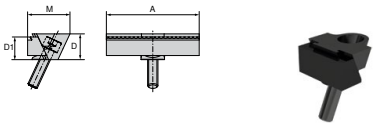
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		25				41			209.80	**80 914 32800**										●	

Parallel clamping jaw

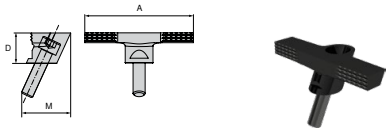
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		25	22			41			168.89	**80 914 32900**										●	
90	65		25	22			41			207.70	**80 914 33000**										●	
90	90		25	22			41			249.66	**80 914 33100**										●	

Pendulum jaw, grip

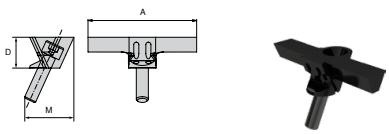
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		25				41			174.13	**80 914 33200**										●	

Clamping Wedge

▲ Price per piece

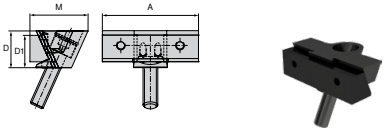


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		25				41			191.97	**80 914 33300**										●	

System jaws overview

Parallel clamping jaw, smooth

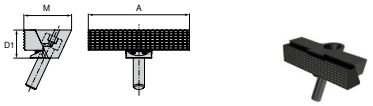
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
											NEW											
90	40		25	22			41			160.50	80 914 33400										●	
90	65		25	22			41			260.15	80 914 33500										●	
90	90		25	22			41			274.84	80 914 33600										●	

Parallel clamping jaw, grip

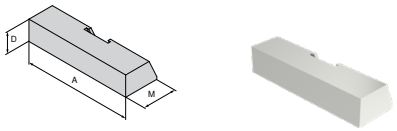
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
											NEW											
90	90			25			42,5			249.66	80 914 33700										●	

Jaw, steel

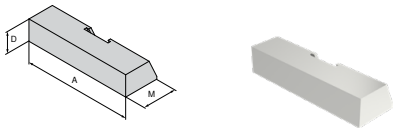
▲ Material: 16MnCr5
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
											NEW											
90	90		18				30			79.72	80 914 33800										●	

Jaw, alu

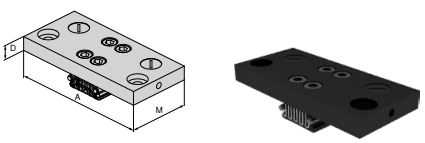
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
											NEW											
90	90		18				30			79.72	80 914 33900										●	

Fixed adaptor jaw

▲ to accommodate 6-way reversible jaws
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
											NEW											
90	160		17				74			435.34	80 914 34000										●	

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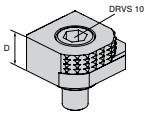
System jaws overview

6 function indexable jaw

- ▲ 1 = Smooth, carbide coated
- ▲ 2 = Grip with 3 mm step
- ▲ 3 = Grip with 8 mm step
- ▲ 4 = Grip with 18 mm step
- ▲ 5 = Rough grip with 8 mm step
- ▲ 6 = Round grip
- ▲ M_{max} = 60 Nm
- ▲ Including fixation screws

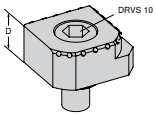


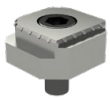


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							77.63	**80 892 246**	●	●	●	●			●		●	●	

6x indexable jaw, carbide grip

- ▲ 1 = Smooth
- ▲ 2 = Carbide grip
- ▲ 3 = Carbide grip with 3 mm step
- ▲ 4 = Carbide grip with 8 mm step
- ▲ 5 = Round carbide grip with 8 mm step
- ▲ 6 = Round carbide grip
- ▲ Incl. fixing screws



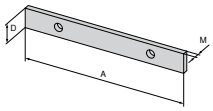


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							112.24	**80 890 35300**	●	●	●	●			●		●	●	

Workpiece supports overview

Workpiece support

▲ Price for 2 pieces

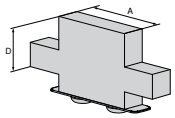


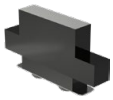


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
											NEW											
90	90		11				3			51.40	**80 914 73100**										●	

Workpiece supports, offset

▲ Price for 2 pieces

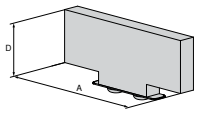




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
											NEW											
90	40		30							83.92	**80 914 70200**										●	
90	40		25							83.92	**80 914 70100**										●	

Workpiece supports, offset

▲ Price for 2 pieces

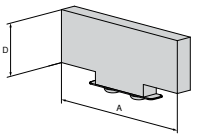


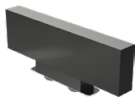


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
											NEW											
90	65		11							83.92	**80 914 71100**										●	
90	65		17							83.92	**80 914 71200**										●	
90	65		25							83.92	**80 914 71300**										●	
90	65		30							83.92	**80 914 71400**										●	

Workpiece supports, offset

▲ Price for 2 pieces





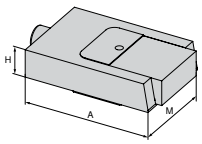
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
											NEW											
90	90		11							83.92	**80 914 72100**										●	
90	90		17							83.92	**80 914 72200**										●	
90	90		25							83.92	**80 914 72300**										●	
90	90		30							83.92	**80 914 72400**										●	

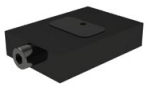
System accessories overview

Adjustable stop with basic body

▲ for vibration damping
▲ height adjustable 16 – 17 mm

Verso





NEW

H mm	A mm	M mm	£ Y4	80 914 ...
16	72	50	232.88	50100

Clamping Screw Set for T-slot for MNG

Scope of supply:
Clamping screw and T-Nuts

Verso



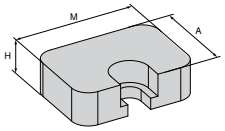
NEW

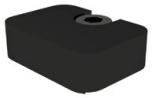
for slot width mm	G	£ Y4	80 914 ...
20	M12	41.96	50500
22	M12	48.25	50600
24	M12	57.70	50700

Support

▲ for vibration damping: Article no. **80 914 50100**

Verso





NEW

H mm	A mm	M mm	£ Y4	80 914 ...
8	20	28	59.79	50200
13	20	28	59.79	50300

Alignment Pin

Verso



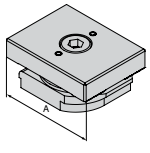
NEW

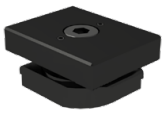
D_1 mm	D_2 mm	£ Y4	80 914 ...
12	14	102.80	81400
12	16	102.80	81600
12	18	102.80	81800

Joint

▲ to connect 2 basic bodies

Verso



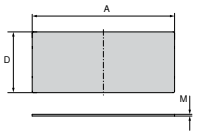


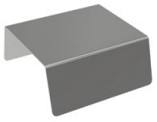
NEW

A mm	£ Y4	80 914 ...
90	176.23	50400

Cover

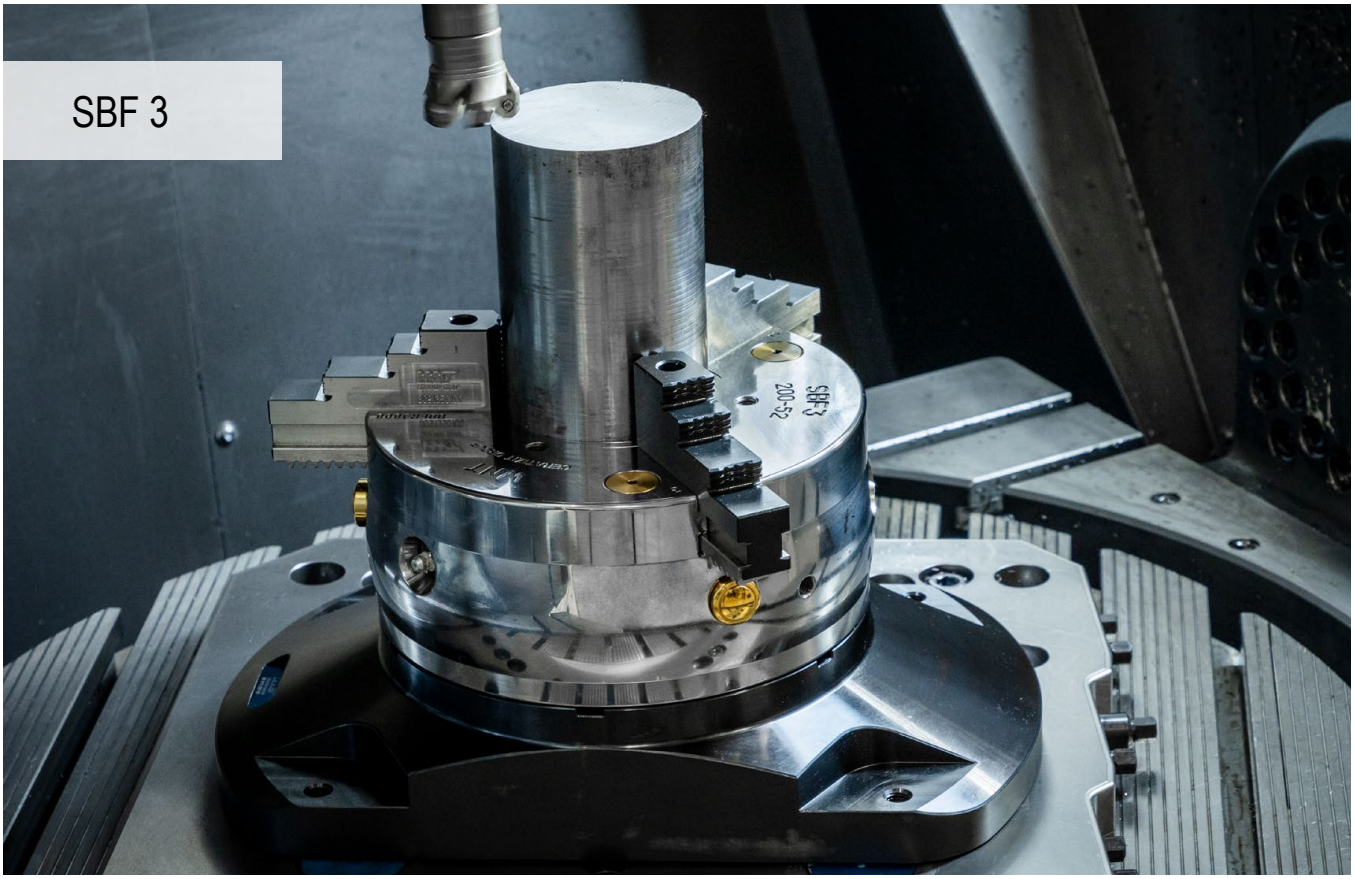
Verso





NEW

A mm	D mm	M mm	£ Y4	80 914 ...
50	84	0,5	14.69	51000
50	86	0,5	6.29	50800
200	86	0,5	9.44	50900



Hotly anticipated – now also for round components

Machining round components has become daily routine for many companies. We now have a solution in the portfolio in the form of the SBF 3 stationary three-jaw chuck – fully compatible with the in-house MNG and PNG zero point clamping systems for rapid, uncomplicated handling.

Your benefits:

- ▲ Suitable for 3/5-axis machining of round components
- ▲ Compatible with PNG and MNG zero point clamping systems
- ▲ Quick change jaw system with single release of jaws
- ▲ Spindle with hex connection



SBF 3 Ø 200 mm



SBF 3 Ø 315 mm

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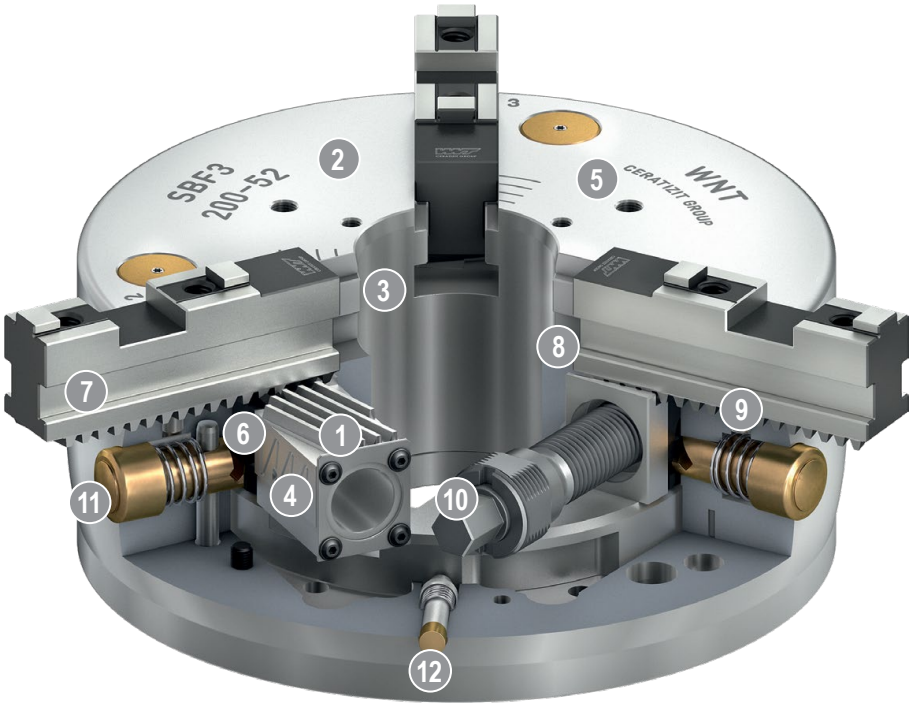
Technical information – cross-section diagram



1	**Wedge bar drive** Allows for excellent machining results	7	**Base jaws with angled teeth (SFG)**
2	**Hardened and extremely stiff base body** Longer service life with maximum precision as a result – even at the highest clamping force	8	**Locking mechanism** Guarantees secure engagement of the base jaw teeth with the wedge bar teeth
3	**Large through hole** For machining all common bar material diameters (optional: enlargement of through hole)	9	**Engagement pin** For pre-positioning the base jaw
4	**Optimised lubrication system** For high degree of efficiency	10	**Actuation via hex connection** Easier operation as a result
5	**Mounting threads** For workpiece stops or cover plates	11	**Pushbutton for jaw change** For extremely short setup times
6	**Quick jaw change system** Single release of jaws, meaning extremely short setup times	12	**Indicator pin** For visual stroke monitoring of the manual clamping chuck

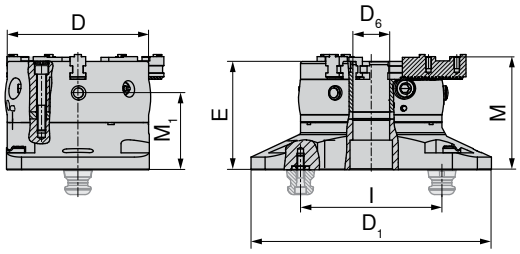
SBF 3 three-jaw chuck (Ø 200 mm) with console

- ▲ Suitable for 3/5-axis machining of round components
- ▲ Compatible with PNG and MNG zero point clamping systems (zero point clamping bolts must be ordered separately)
- ▲ Quick change jaw system with single release of jaws
- ▲ Spindle with hex connection

Scope of supply:

SBF 3 three-jaw chuck (Ø 200 mm) including console (PNG- and MNG-compatible)
1 set GBA base jaws
1 set SB-H stepped jaws
6 fixing screws and clamping key

SBF 3





D	D1	D6	E	l	M	M1	MXC	TQX	DRVS	Stroke / jaw	Tooth pitch	WT	80 913 ... £ Y4	
mm	mm	mm	mm	mm	mm	mm	kN	Nm	mm	mm	mm	kg		
200	340	52	153,3	200	160,1	108,8	100	120	12	7	4.8	49.5	3,753.32	20000

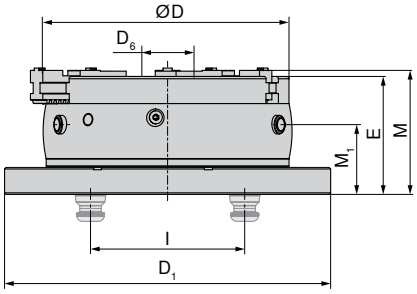
SBF 3 three-jaw chuck (Ø 315 mm) with console

- ▲ Suitable for 3/5-axis machining of round components
- ▲ Compatible with PNG and MNG zero point clamping systems (zero point clamping bolts must be ordered separately)
- ▲ Quick change jaw system with single release of jaws
- ▲ Spindle with hex connection

Scope of supply:

SBF 3 three-jaw chuck (Ø 315 mm) including console (PNG- and MNG-compatible)
1 set GBA base jaws
1 set SB-H stepped jaws
6 fixing screws and clamping key

SBF 3





D	D1	D6	E	l	M	M1	MXC	TQX	DRVS	Stroke / jaw	Tooth pitch	WT	80 913 ... £ Y4	
mm	mm	mm	mm	mm	mm	mm	kN	Nm	mm	mm	mm	kg		
315	423	92	153	200	160,86	90,5	180	220	16	9.9	7	95	6,189.10	31500

The chuck is designed exclusively for stationary use – do not use while rotating!

System jaws overview

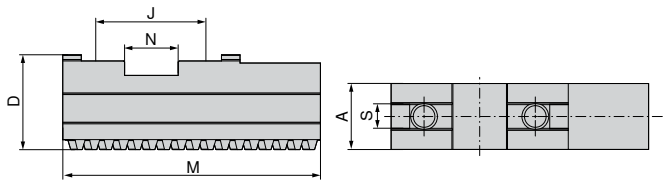
Base jaws (GBA) – set

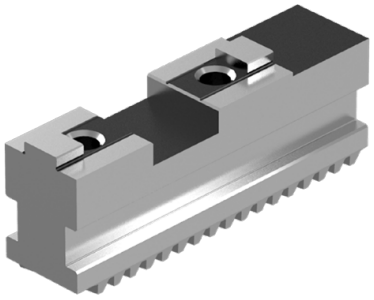
▲ Base jaws with angled teeth
▲ Price per set of 3 pieces

Scope of supply:

3 base jaws with angled teeth
Including cylindrical screws

SBF 3





for	A mm	D mm	J mm	M mm	N mm	S mm	G	WT kg	80 913 ... £ Y4	
SBF-3.200	22	32	40	90	20	10	M8x1	1.2	233.93	50300
SBF-3.315	32	43	54	125	26	12	M12x1,5	3.1	384.98	60300

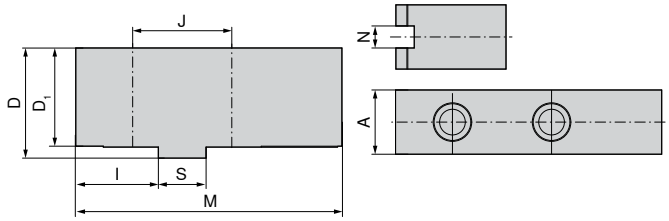
Soft top jaws (AB-W) – set

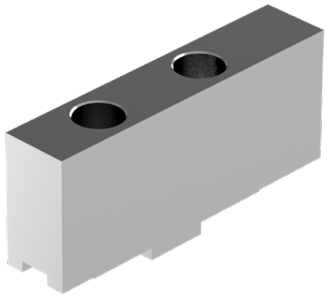
▲ Price per set of 3 pieces
▲ Material: 16MnCr5

Scope of supply:

3 soft top jaws

SBF 3





for	A mm	D mm	D_1 mm	I mm	J mm	M mm	N mm	S mm	Hole for	WT kg	80 913 ... £ Y4	
SBF-3.200	22	47	43	35	40	105	10	20	M8	2.0	45.11	50400
SBF-3.315	35	60	54	45	54	145	12	26	M12	5.6	94.41	60400

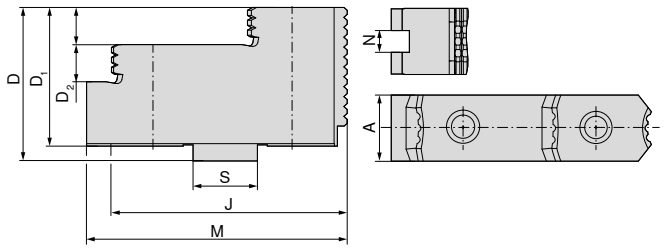
System jaws overview

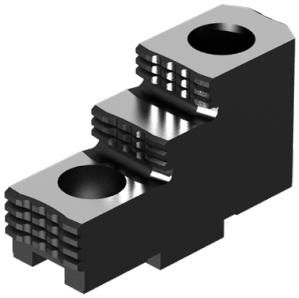
Hard stepped top jaws (AB-H) – set

▲ Price per set of 3 pieces

Scope of supply:
3 hard stepped top jaws

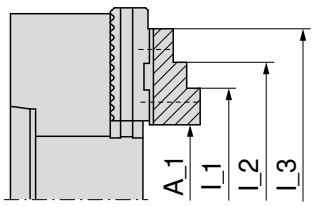
SBF 3



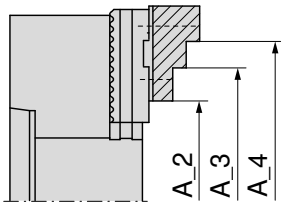


for	A mm	D mm	D_1 mm	D_2 mm	J mm	M mm	N mm	S mm	Hole for	WT kg	80 913 ... £ Y4	
SBF-3.200	22	42	38	10	40	71,7	10	20	M8	2.4	199.31	**50200**
SBF-3.315	36	62	56	15	54	105	12	26	M12	3.3	290.57	**60200**

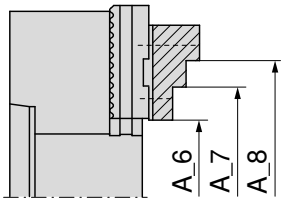
Dimension table – Hard stepped top jaws (AB-H)



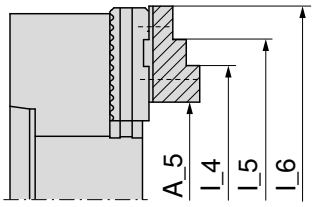
Basic jaw position 2



Basic jaw position 1



Basic jaw position 2



Basic jaw position 1

			Externall clamping range							
3-jaw chuck		System jaw	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8
SBF-3.200	**80 913 50200**	SBF-3.AB-H.200.71,7.22.10	7–76	57–125	108–177	135–204	55–125	14–77	66–129	93–156
SBF-3.315	**80 913 60200**	SBF-3.AB-H.315.105.36.15	14–125	93–224	202–333	–	87–219	44–130	153–239	–

			Internal clamping range					
3-jaw chuck		System jaw	I_1	I_2	I_3	I_4	I_5	I_6
SBF-3.200	**80 913 50200**	SBF-3.AB-H.200.71,7.22.10	72–141	99–168	151–220	120–189	147–216	199–268
SBF-3.315	**80 913 60200**	SBF-3.AB-H.315.105.36.15	93–204	202–313	–	167–298	276–407	–

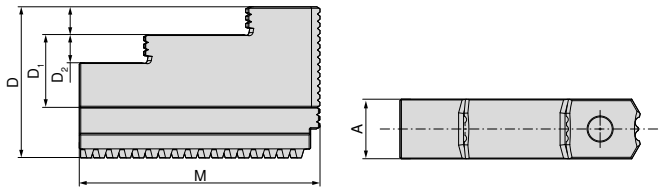
System jaws overview

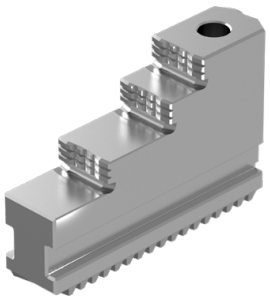
Hard stepped top jaws (SB-H) – set

▲ Stepped block jaws with angled teeth
▲ Price per set of 3 pieces

Scope of supply:
3 hard stepped block jaws

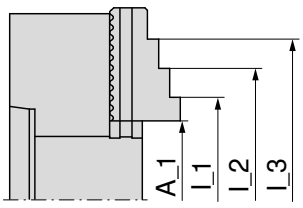
SBF 3



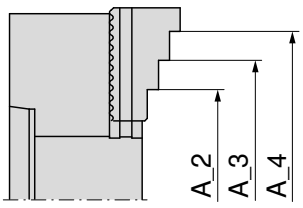


for	A mm	D mm	D_1 mm	D_2 mm	M mm	WT kg	80 913 ... £ Y4	
SBF-3.200	22	60	35	10	94	1.9	403.87	**50100**
SBF-3.315	32	81	46	15	129	5.5	635.69	**60100**

Dimension table – Hard stepped top jaws (SB-H)



Hard stepped top jaws
steel 16MnCr5, case-hardened



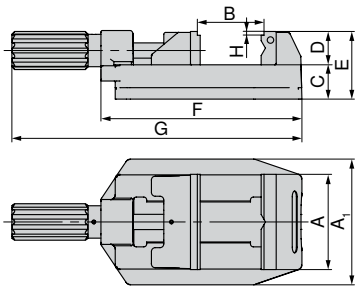
Hard stepped top jaws
steel 16MnCr5, case-hardened

			Externall clamping range				Internal clamping range		
3-jaw chuck	System jaw		A_1	A_2	A_3	A_4	l_1	l_2	l_3
SBF-3.200	**80 913 50100**	SBF-3.SB-H.200.94.22.10	6–74	59–128	111–180	138–207	70–138	97–165	149–217
SBF-3.315	**80 913 60100**	SBF-3.SB-H.315.129.32.15	12–124	89–210	189–420	–	91–203	199–311	–

Manual machine vice

- ▲ handy, universal vice with large clamping range
- ▲ Stepped jaws with horizontal and vertical 120° prism
- ▲ Optional material stop can be used on both sides

HSG



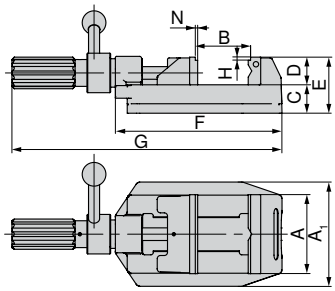


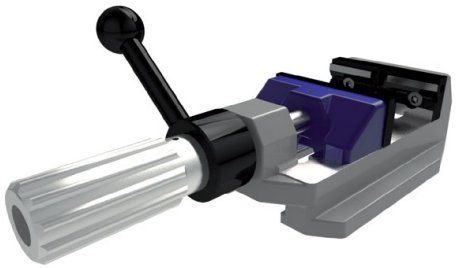
A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	WT kg	80 893 ... £ Y4	
80	112	0 - 81	36	35	71	194	286,5	4	4.5	249.66	**080**
100	132	0 - 100	36	35	71	211	304,5	4	5.6	264.35	**100**
125	156	0 - 131	40	40	84	274	386	4	11.2	441.63	**125**

Manual machine vice with clamping aid

- ▲ Quick and accurate workpiece clamping using the clamping aid
- ▲ handy, universal vice with large clamping range
- ▲ Stepped jaws with horizontal and vertical 120° prism
- ▲ Optional material stop can be used on both sides
- ▲ N = Stroke with handle clamping

HSG





A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	N mm	WT kg	80 893 ... £ Y4	
100	132	0 - 100	36	35	71	211	342	4	1,5	6.1	429.04	**101**
125	156	0 - 133	44	40	84	274	405	4	1,5	11.7	613.67	**126**

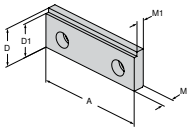
Vice guide

System accessories 132+133
General accessories 164–183

Top jaws overview

Stepped jaw, smooth

▲ Price per piece

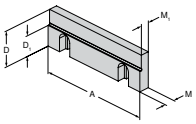




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	80		35	31			10,2	7,2		43.01	**80 893 082**											●
	100		35	31			10,2	7,2		39.86	**80 893 102**											●
	125		40	36			11,8	8,8		51.40	**80 893 127**											●

Stepped jaw, 17 mm

▲ Price per piece

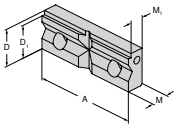




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		40	23			11,5	9,5		117.49	**80 892 244**											●

Prismatic jaw

▲ Prism jaw with horizontal and vertical prism
▲ price per piece





For clamping diameter	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
9 - 31	80		35	31			15,8	12,8		51.40	**80 893 083**											●
9 - 31	100		35	31			15,8	12,8		63.99	**80 893 103**											●
11 - 41	125		40	36			17,8	14,8		112.24	**80 893 128**											●

→ **Page 164–173**
Here you will find other matching top jaws.

System accessories overview

Workpiece stop

▲ Fixed to the top section, either on the left, the right, or at both ends. The length adjustment can be performed quickly and accurately using a clamping screw.

HSG

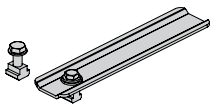


for width mm	80 893 ... £ Y4	
80/100/125	40.91	265

Guide rail

▲ Helps prevent accidents
▲ Prevents unwanted movement, lifting and dragging

HSG





for width mm	80 893 ... £ Y4	
80/100/125	44.06	260

Clamping set

▲ A movable support with an eccentric swivel plate allows any clamping position to be adopted on machine tables with different T-slot arrangements. The inside slot of the vice body provides an additional fixing option, just as with the 80 893 260 guide rail.
▲ Price per Set

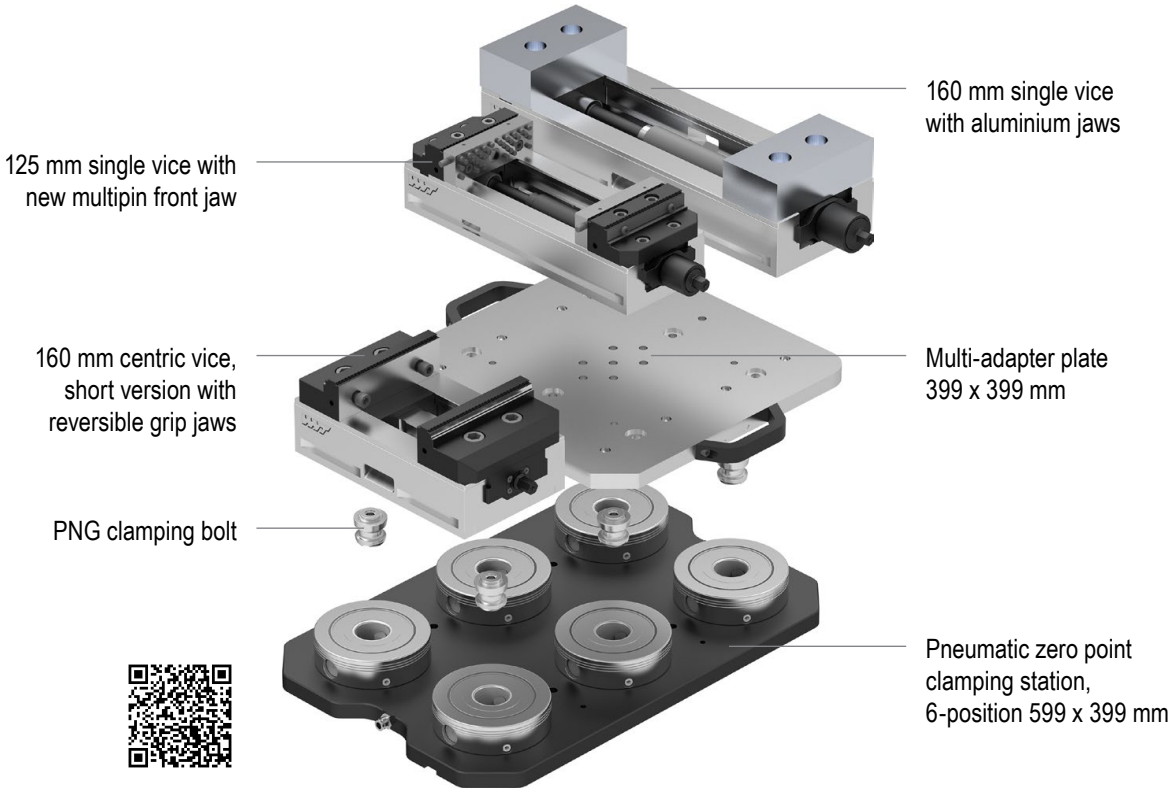
Scope of supply:
2 positioning clamps incl. clamping accessories.

HSG



for width mm	for slot width mm	80 893 ... £ Y4	
80/100/125	12/14	114.34	250

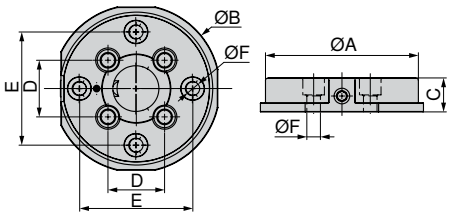
Overview of MNG and PNG zero point clamping system



MNG – Base plate, round

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ hardened and ground
- ▲ Repeatability ≤ 0.01 mm
- ▲ Insertion force 20 kN
- ▲ Torque 30 Nm

MNG





A mm	B mm	C ±0,005 mm	D mm	E mm	F H7 mm	WT kg	80 899 ... £ Y4	
135	148	30	50	100	12	3.5	548.63	**125**

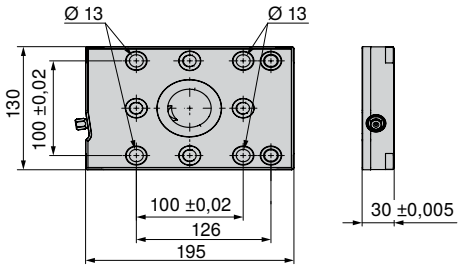
Vice guide

System accessories 144+145 General accessories 164–183

MNG – Base plate, rectangular

- MNG – Mechanical Zero-point Clamping System
- Insertion force 20 kN on the clamping bolt
- Stainless and vacuum-hardened
- Repeatability ≤ 0.01 mm
- Tightening torque 30 Nm

MNG



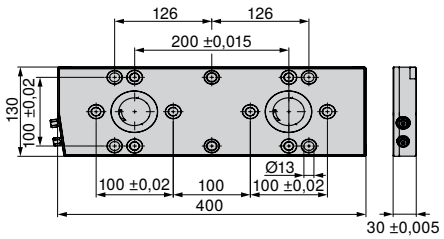


Size	WT kg	80 899 ... £ Y4	
195x130 mm	5.2	675.56	**65000**

MNG – Base plate, rectangular 2-location

- MNG – Mechanical Zero-point Clamping System
- Insertion force 20 kN on the clamping bolt
- Stainless and vacuum-hardened
- Repeatability ≤ 0.01 mm
- Tightening torque 30 Nm

MNG





Size	WT kg	80 899 ... £ Y4	
400x130 mm	11	1,395.17	**65100**

Vice guide

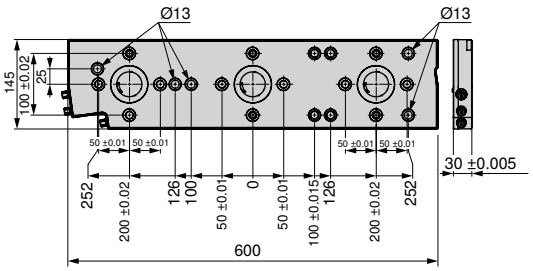
System accessories	144+145	General accessories	164–183
MNG clamping options	146–148		

17

MNG – Base plate, rectangular 3-location

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Insertion force 20 kN on the clamping bolt
- ▲ Stainless and vacuum-hardened
- ▲ Repeatability ≤ 0.01 mm
- ▲ Tightening torque 30 Nm

MNG



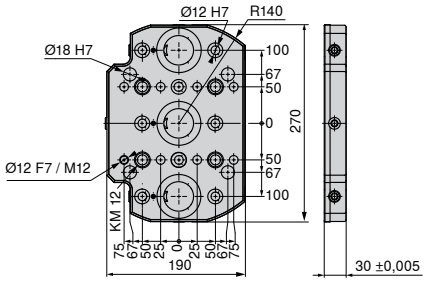


Size	WT kg	80 899 ... £ Y4	
600x145 mm	18	2,252.20	**65200**

MNG – 3 location base plate, 270 x 190 mm

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Clamping force 20 kN on each location bolt
- ▲ 4 x M12 mounting holes for T-slot nuts 50 mm spread
- ▲ 8 x dowel bushes Ø12 F7 / M12
- ▲ 4 x dowel holes Ø18 H7 for positioning

MNG





Size	WT kg	80 899 ... £ Y4	
270x190 mm	9	2,023.52	**230**

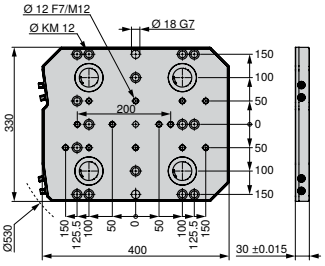
Vice guide

System accessories	144+145	General accessories	164–183
MNG clamping options	146–148		

MNG – 4 location base plate, 330 x 400 mm

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force 20 kN on the clamping bolt
- ▲ 15 x mounting holes for M12, for T-slot spacing 50, 63, 100, 125 mm
- ▲ 13 x mating holes Ø12 F7/M12
- ▲ 2 x mating holes Ø18 G7 for positioning
- ▲ 1 x mating holes Ø12 F7 for positioning

MNG





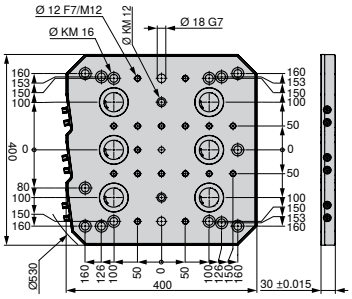
Size	WT kg	80 899 ... £ Y4	
330x400 mm	28	3,159.59	**63000**[1)]

1) Not ex-stock

MNG – 6 location base plate, 400 x 400 mm

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force 20 kN on the clamping bolt
- ▲ 14 x mounting holes for M16, for T-slot spacing 63, 80, 100, 125 mm
- ▲ 2 x mounting holes for M12
- ▲ 17 x mating holes Ø12 F7/M12
- ▲ 2 x mating holes Ø18 G7 for positioning
- ▲ 1 x mating holes Ø12 F7 for positioning

MNG





Size	WT kg	80 899 ... £ Y4	
400x400 mm	33	3,946.34	**63100**[1)]

1) Not ex-stock

Vice guide

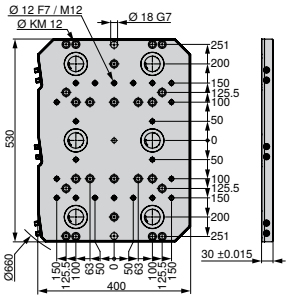
System accessories	144+145	General accessories	164–183

17

MNG – 6 location base plate, 400 x 530 mm

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force 20 kN on the clamping bolt
- ▲ 24 x mounting holes for M12, for T-slot spacing 63, 100, 125 mm
- ▲ 21 x mating holes Ø12 F7/M12
- ▲ 2 x mating holes Ø18 G7 for positioning
- ▲ 1 x mating holes Ø12 F7 for positioning

MNG





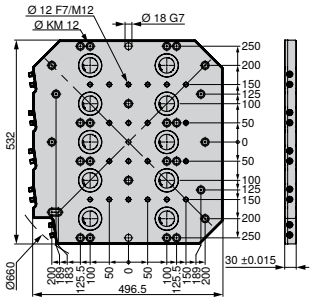
Size	WT kg	80 899 ... £ Y4	
400x530 mm	45	4,694.28	**63200**[1)]

1) Not ex-stock

MNG – 10 location base plate, 496.5 x 532 mm

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force 20 kN on the clamping bolt
- ▲ 27 x mounting holes M12 for T-slot spacing 50, 63, 100, 125 mm and star slots 45°
- ▲ 20 x mating holes Ø12 F7/M12
- ▲ 2 x mating holes Ø18 G7 for positioning
- ▲ 1 x mating holes Ø12 F7 for positioning

MNG





Size	WT kg	80 899 ... £ Y4	
497x532 mm	54	6,667.44	**63300**[1)]

1) Not ex-stock

Vice guide

System accessories 144+145 General accessories 164–183

MNG – Centering Pin

▲ MNG – Mechanical Zero-point Clamping System

MNG



$D_{1\ n6}$ mm	$D_{2\ h6}$ mm	80 899 ... £ Y4	
12	30	53.50	**61700**
12	32	39.86	**61800**
12	50	37.76	**61900**

MNG – Alignment Pin

▲ MNG – Mechanical Zero-point Clamping System

MNG



$D_{1\ n6}$ mm	$D_{2\ h6}$ mm	80 899 ... £ Y4	
18	14	45.11	**607**
18	18	45.11	**608**
18	20	58.74	**609**
18	22	58.74	**610**

MNG – Clamping Screw Set for T-slot

▲ MNG – Mechanical Zero-point Clamping System

Scope of supply:
Clamping screw and T-Nuts

MNG



for slot width mm	G	80 899 ... £ Y4	
12	M8	18.88	**63800**
12	M10	11.54	**63400**
14	M8	18.88	**63900**
14	M12	13.64	**63500**[1)]
16	M8	18.88	**64000**
16	M12	13.64	**63600**[1)]
18	M8	18.88	**64100**
18	M12	13.64	**63700**[1)]

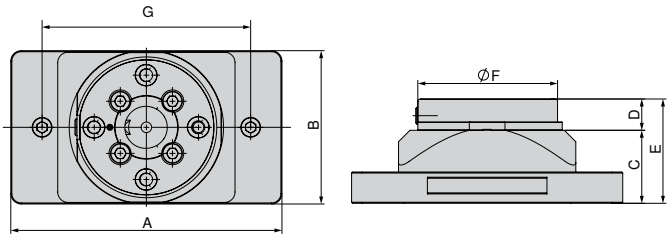
1) With low head screws

MNG – Console with zero point clamping module

▲ MNG – Mechanical Zero-point Clamping System
▲ universal application on all machine tables
▲ Clamping force 20 kN

Scope of supply:
Plate incl. MNG round clamping module

MNG

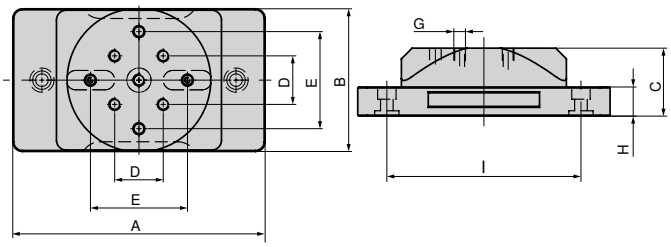




A	B	C	D	E	F	G	WT	80 899 ... £ Y4	
mm	mm	mm	mm	mm	mm	mm	kg		
260	147	70	30	100	135	200	8,9	1,036.41	**425**

MNG – Console

▲ MNG – Mechanical Zero-point Clamping System
▲ universal application on all machine tables
▲ Material: Aluminum, hard anodized





A	B	C	D	E ±0,02	G	H	I	WT	80 899 ... £ Y4	
mm	mm	mm	mm	mm		mm	mm	kg		
260	147	70	50	100	M12	30	200	5,5	453.17	**420**

Vice guide

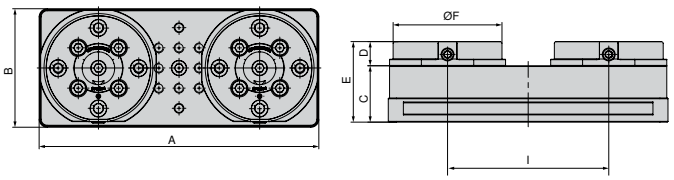
System accessories 144+145
General accessories 164–183

MNG – Double console with zero point clamping module

▲ MNG – Mechanical Zero-point Clamping System
▲ universally applicable on all machine tables
▲ Material: Aluminium Hard Anodised

Scope of supply:
Console including MNG round clamping module

MNG

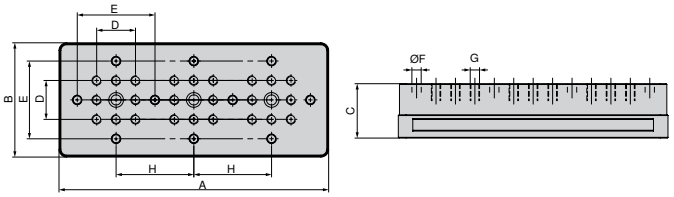




A mm	B mm	C mm	D mm	E mm	F mm	I mm	WT kg	80 899 ... £ Y4	
347	147	70	30	100	135	200	16,5	1,873.51	**435**

MNG – Double console

▲ MNG – Mechanical Zero-point Clamping System
▲ universally applicable on all machine tables
▲ Material: Aluminium Hard Anodised





A mm	B mm	C mm	D mm	E ±0,02 mm	F F7 mm	G	H mm	WT kg	80 899 ... £ Y4	
347	147	70	50	100	12	M12	100	9,3	682.90	**430**

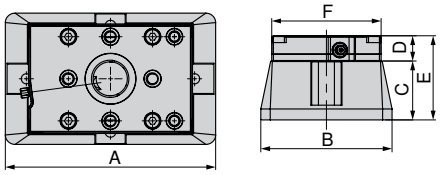
Vice guide

System accessories 144+145
General accessories 164–183

MNG – Console with zero point clamping module

▲ MNG – Mechanical Zero-point Clamping System

MNG



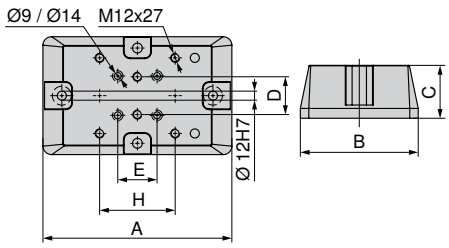


A	B	C	D	E	F	80 878 ... £ Y4	
mm	mm	mm	mm	mm	mm		
250	156	70	30	100	130	1,246.21	**54000**

Console

▲ MNG – Mechanical Zero-point Clamping System

ZSG 4





A	B	C	D	E	H	for	80 878 ... £ Y4	
mm	mm	mm	mm	mm	mm			
250	156	70	50	52	100	ZSG 4 - 80 L = 130 mm + 190 mm / ZSG 4 - 125 L = 160 mm	550.73	**54100**
320	197	100	50	50	100	ZSG 4 - 160 L = 280 mm	868.57	**54400**
340	162	100	50	50	100	ZSG 4 - 125 L = 235 mm / 300 mm	841.30	**54300**

MNG – Assembly set for console

▲ MNG – Mechanical Zero-point Clamping System



for	80 878 ... £ Y4	
ZSG-4.125/160.L235-L280	10.49	**54500**
ZSG-4.80.L130-L190	10.49	**54200**

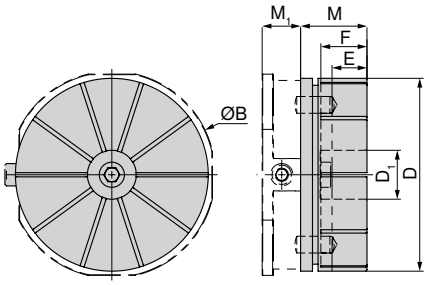
Vice guide

System accessories 144+145 General accessories 164–183

MNG – Aluminum form chuck

▲ MNG – Mechanical Zero-point Clamping System
▲ for incorporation of forms for 2nd op machining

Scope of supply:
Collet with positioning pins, without locating bolts





B	D	D_1	E	F	M	M_1	80 899 ... £ Y4	
mm	mm	mm	mm	mm	mm	mm		
148	138	35	22	33	47,5	27,5	229.73	**500**



Machineable Alu chuck to suit round MNG

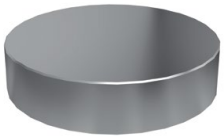


Machineable Alu chuck to suit round MNG with clamped workpiece

Available on request



Grid plate



Blank plate

The maximum cutting depth E is 22 mm

Adjustable ring for MNG form collet

MNG



80 899 ... £ Y4	
55.60	**510**

Vice guide

System accessories	144+145	General accessories	164–183

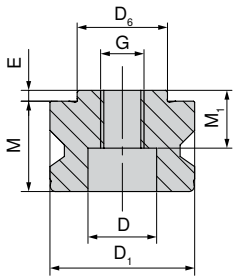
17

MNG – Pull studs

▲ MNG – Mechanical Zero-point Clamping System

Scope of supply:
with clamping screws

MNG



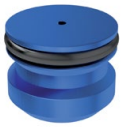


$D_{6\ h6}$ mm	$D_{1\ h6}$ mm	M mm	M_1 mm	E mm	D mm	G	80 899 ... £ Y4	
25	40	27	17	3	19	M12	47.21	**025**

MNG – Bungs

▲ MNG – Mechanical Zero-point Clamping System

MNG

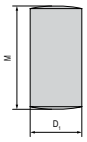


D_1 mm	80 899 ... £ Y4	
40	13.64	**040**

MNG – Dowel Set

▲ MNG – Mechanical Zero-point Clamping System
▲ for ESG mini 4V tower and direct workpiece clamping
▲ Price per 2 Pieces

MNG





$D_{1\ m6}$ mm	M mm	80 899 ... £ Y4	
12	24	2.10	**120**

MNG – Sealing plug with O-ring

▲ MNG – Mechanical Zero-point Clamping System

MNG

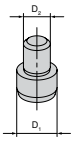


G	80 899 ... £ Y4	
M12	2.10	**126**

MNG – positioning pin set

▲ MNG – Mechanical Zero-point Clamping System
▲ for ESG mini and direct workpiece clamping
▲ Price per 2 Pieces

MNG



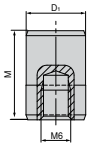


for width mm	D_1 mm	D_2 mm	80 899 ... £ Y4	
65	12	8	33.57	**128**

MNG – indexing bolt

▲ MNG – Mechanical Zero-point Clamping System

MNG





D_1 mm	M mm	80 899 ... £ Y4	
12	18	16.78	51500

MNG – Clamping Screw Set for T-slot

▲ MNG – Mechanical Zero-point Clamping System

Scope of supply:
Clamping screw and T-Nuts

MNG



for slot width mm	G	80 899 ... £ Y4	
12	M8	18.88	63800
12	M10	11.54	63400
14	M8	18.88	63900
14	M12	13.64	63500 1)
16	M8	18.88	64000
16	M12	13.64	63600 1)
18	M8	18.88	64100
18	M12	13.64	63700 1)

1) With low head screws

MNG – Clamping set for 14 mm T-slot

▲ MNG – Mechanical Zero-point Clamping System
▲ T-nuts are modified for 63 mm slot pitch
▲ Price per 2 Pieces

MNG



for slot width mm	A mm	80 899 ... £ Y4	
14	63	92.31	614

MNG – Alignment/centering set for T-slots

▲ MNG – Mechanical Zero-point Clamping System
▲ A = groove spacing

Scope of supply:
1 Terminal block, 2 T-nuts, 2 screws, 2 washers for width 12 mm, without clamping strip!

MNG



A mm	for slot width mm	80 899 ... £ Y4	
50	12	68.19	012 1)
50	14	68.19	014
50	16	68.19	016
50	18	68.19	018
100	12	90.21	81200
100	14	90.21	81400
100	16	90.21	81600
100	18	90.21	81800

1) For 12 mm width excluding clamping strip

MNG – Round claw

▲ MNG – Mechanical Zero-point Clamping System
▲ Two pieces contained in set
▲ Price per 2 pieces

MNG



80 899 ... £ Y4	
77.63	300

MNG – Replacement clamping unit

▲ MNG – Mechanical Zero-point Clamping System
▲ Three-part set
▲ for MNG round

MNG



	80 899 ... £ Y4	
MNG	120.64	026

17

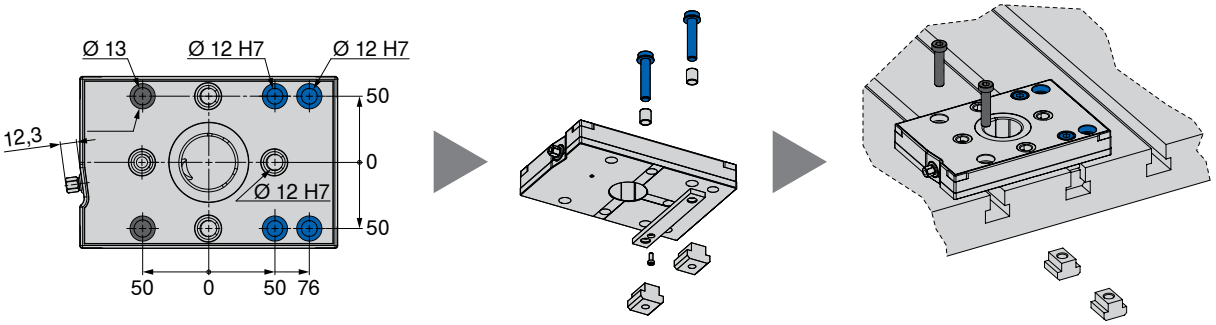
MNG clamping options

MNG – Base plate, rectangular

Mounting:

- 2 x M12 low head screws
- 1 x Alignment and centring set

→ **Page 148**
Here you will find the suitable screws.

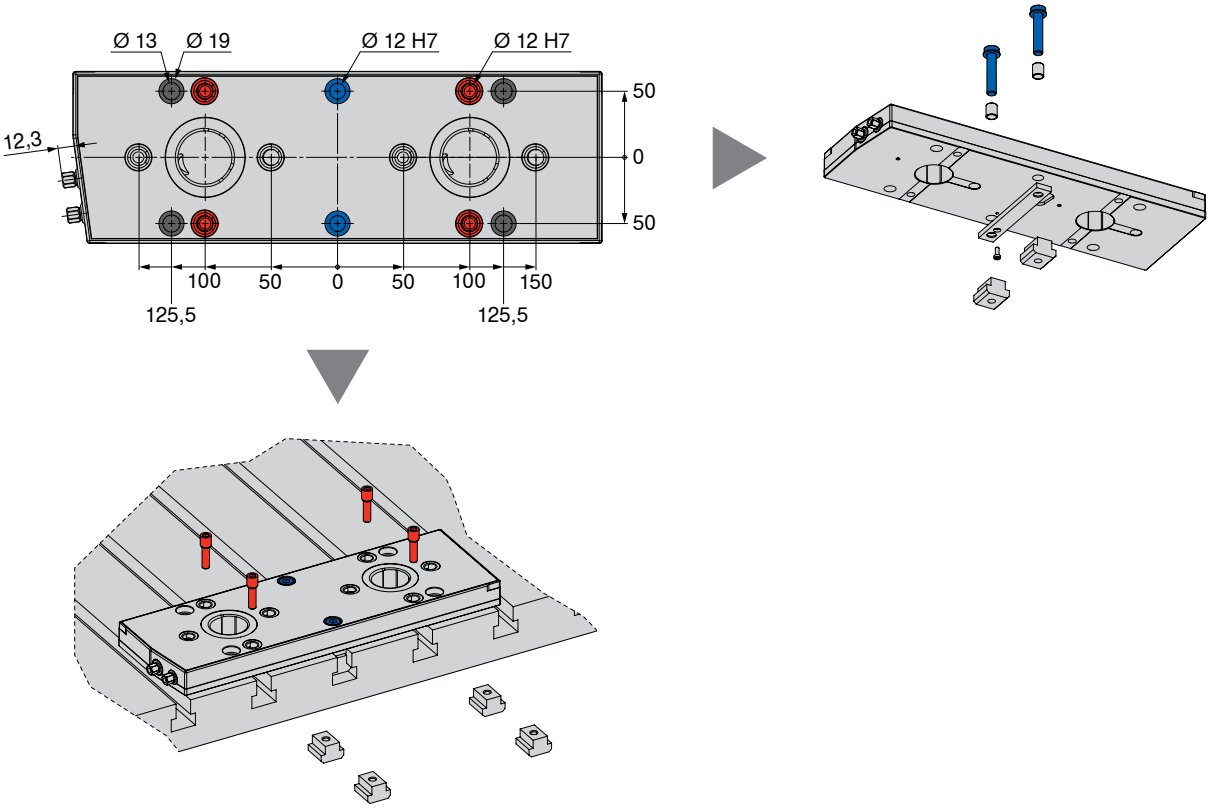


MNG – Base plate, rectangular 2-location

Mounting:

- 4 x M12 low head screws
- 1 x Alignment and centring set
- 4 x M8 MNG special screws

→ **Page 148**
Here you will find the suitable screws.



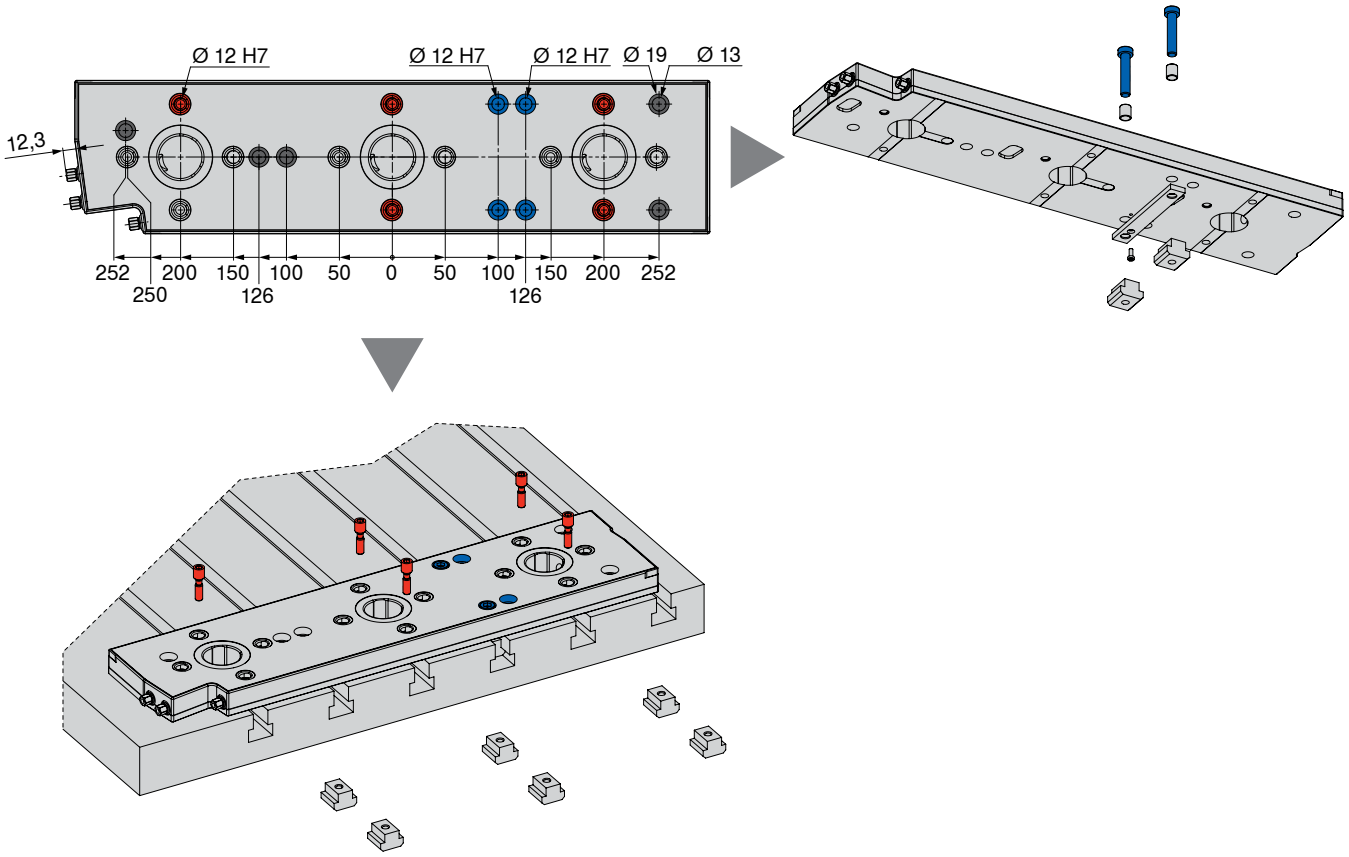
MNG clamping options

MNG – Base plate, rectangular 3-location

Mounting:

- 5 x M12 low head screws
- 1 x Alignment and centring set
- 5 x M8 MNG special screws

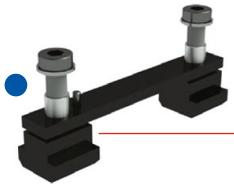
→ **Page 148**
Here you will find the suitable screws.



MNG clamping options

	T-slot table – spacing of 126 mm / 63 mm											
	12 mm			14 mm			16 mm			18 mm		
	● Alignment and centring set spacing 100 mm 80 899 81200	● Clamping set with M10 low head screws 80 899 63400	● Clamping set with M8 MNG special screws 80 899 63800	● Alignment and centring set spacing 100 mm 80 899 81400	● Clamping set with M12 low head screws 80 899 63500	● Clamping set with M8 MNG special screws 80 899 63900	● Alignment and centring set spacing 100 mm 80 899 81600	● Clamping set with M12 low head screws 80 899 63600	● Clamping set with M8 MNG special screws 80 899 64000	● Alignment and centring set spacing 100 mm 80 899 81800	● Clamping set with M12 low head screws 80 899 63700	● Clamping set with M8 MNG special screws 80 899 64100
MNG – Base plate, rectangular	1 x	2 x	––	1 x	2 x	––	1 x	2 x	––	1 x	2 x	––
MNG – Base plate, rectangular 2-location	1 x	4 x	––	1 x	4 x	––	1 x	4 x	––	1 x	4 x	––
MNG – Base plate, rectangular 3-location	1 x	4 x	2 x	1 x	4 x	2 x	1 x	4 x	2 x	1 x	4 x	2 x

	T-slot table – spacing of 100 mm / 50 mm											
	12 mm			14 mm			16 mm			18 mm		
	● Alignment and centring set spacing 100 mm 80 899 81200	● Clamping set with M10 low head screws 80 899 63400	● Clamping set with M8 MNG special screws 80 899 63800	● Alignment and centring set spacing 100 mm 80 899 81400	● Clamping set with M12 low head screws 80 899 63500	● Clamping set with M8 MNG special screws 80 899 63900	● Alignment and centring set spacing 100 mm 80 899 81600	● Clamping set with M12 low head screws 80 899 63600	● Clamping set with M8 MNG special screws 80 899 64000	● Alignment and centring set spacing 100 mm 80 899 81800	● Clamping set with M12 low head screws 80 899 63700	● Clamping set with M8 MNG special screws 80 899 64100
MNG – Base plate, rectangular	1 x	2 x	––	1 x	2 x	––	1 x	2 x	––	1 x	2 x	––
MNG – Base plate, rectangular 2-location	1 x	––	4 x	1 x	––	4 x	1 x	––	4 x	1 x	––	4 x
MNG – Base plate, rectangular 3-location	1 x	1 x	5 x	1 x	1 x	5 x	1 x	1 x	5 x	1 x	1 x	5 x



Alignment and centring set spacing 100 mm



Clamping set with M8 MNG special screws



Clamping set with M10 or M12 low head screws



M16 cylinder low head screw only base plate 6-face, 400 x 400 mm



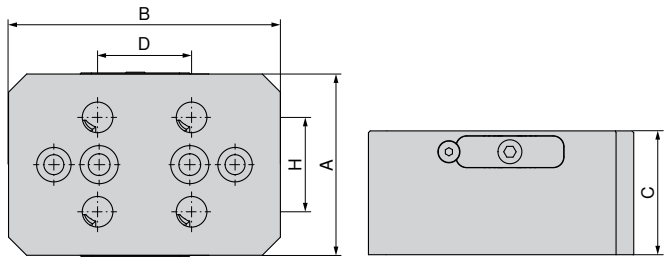
Cylinder head screw for M12 grid holes

→ **Page 145**
→ **Page 182+183**
Here you will find the articles shown above.

MNG mini – Console

- With integrated MNG mini zero point clamping system
- Order mounting bolts separately
- Material: hard-anodised aluminium

MNG mini





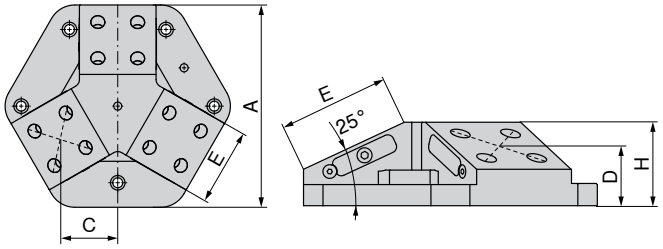
NEW

A mm	B mm	C mm	D mm	H mm	80 915 ... £ Y4	
100	150	70	52	52	1,153.90	**57000**

MNG mini – Three-sided pyramid

- Incl. 3 x MNG mini zero point clamping systems
- Order mounting bolts separately
- Material: hard-anodised aluminium

MNG mini





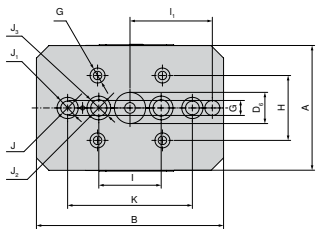
NEW

A mm	C mm	D mm	E mm	H mm	80 915 ... £ Y4	
264	86,68	53,87	100	75	2,832.30	**58000**

Suitable for: ESG 5 – 80 L-130 / ZSG 4 – 80 L-130 / ZSG mini – 70 L-80 / ZSG mini – 70 L-100

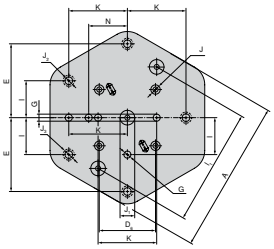
MNG mini underside dimensions

Console



A mm	B mm	$D_{6\ H7}$ mm	G_{H7} mm	H mm	I mm	$I_{1\ \pm0.015}$ mm	J mm	J_1 mm	J_2 mm	J_3 mm	$K_{\pm0.015}$ mm
100	150	25	12	52	50	66	11	17	13	19	100

Three-sided pyramid



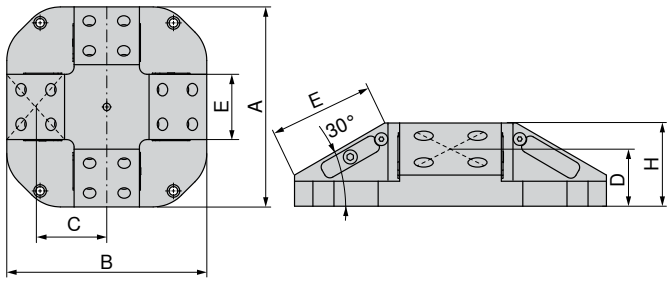
A mm	$D_{6\ \pm0.015}$ mm	E mm	G_{H7} mm	I mm	$I_{1\ \pm0.015}$ mm	J_{H7} mm	$J_{1\ H7}$ mm	J_2 mm	J_3 mm	K mm	$N_{\pm0.015}$ mm
264	96	126	12	63	200	16	25	13	19	100	66

17

MNG mini – Four-sided pyramid

- Incl. 4 x MNG mini zero point clamping systems
- Order mounting bolts separately
- Material: hard-anodised aluminium

MNG mini





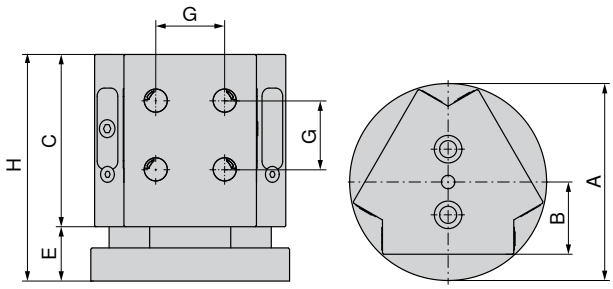
NEW

A mm	B mm	C mm	D mm	E mm	H mm	80 915 ... £ Y4	
300	300	106,7	55	100	80	3,251.90	**57500**

MNG mini – Triangular tombstone

- Incl. 3 x MNG mini zero point clamping systems
- Order mounting bolts separately
- Material: hard-anodised aluminium

MNG mini



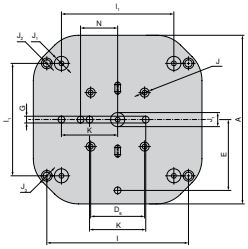


NEW

A mm	B mm	C mm	E mm	G mm	H mm	80 915 ... £ Y4	
148	55	130	41	52	171	2,202.90	**51700**

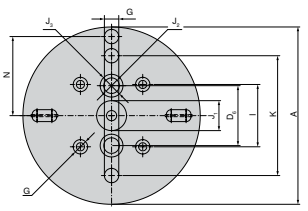
Suitable for: ESG 5 – 80 L-130 / ZSG 4 – 80 L-130 / ZSG mini – 70 L-80 / ZSG mini – 70 L-100

MNG mini underside dimensions



Four-sided pyramid

A mm	D_6 ±0.015 mm	E mm	G_{H7} mm	I mm	I_1 ±0.015 mm	J_{H7} mm	$J_{1\,H7}$ mm	J_2 mm	J_3 mm	$K_{\pm 0.015}$ mm	$N_{\pm 0.015}$ mm
300	96	126	12	252	200	16	25	13	19	100	66



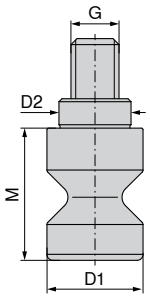
Triangular tombstone

A mm	D_6 mm	G_{H7} mm	$I_{\pm 0.015}$ mm	$J_{1\,H7}$ mm	J_2 mm	J_3 mm	$K_{\pm 0.015}$ mm	$N_{\pm 0.015}$ mm
148	50	12	52	25	13	19	100	66

MNG mini mounting bolt set

Scope of supply:
Set contains four mounting bolts

MNG mini





NEW

$D_{1\ h6}$ mm	$D_{2\ h6}$ mm	M mm	G mm	TQX Nm	Clamping force kN	80 915 ... £ Y4	
16	12	22	M8	18	15	77.31	**51600**

Clamping Screw Set for T-slot for MNG mini

Scope of supply:
Clamping screw and T-Nuts

MNG mini



NEW

for slot width mm	G	80 915 ... £ Y4	
12	M10	19.27	**61200**
14	M12	19.27	**61400**
16	M12	20.65	**61600**
18	M12	21.92	**61800**

Alignment/centering set for T-slots

▲ MNG – Mechanical Zero-point Clamping System
▲ A = groove spacing

Scope of supply:
1 Terminal block, 2 T-nuts, 2 screws, 2 washers for width 12 mm, without clamping strip!

MNG mini



NEW

A mm	for slot width mm	80 915 ... £ Y4	
100	12	104.66	**81200**
100	14	104.66	**81400**
100	16	104.66	**81600**
100	18	104.66	**81800**

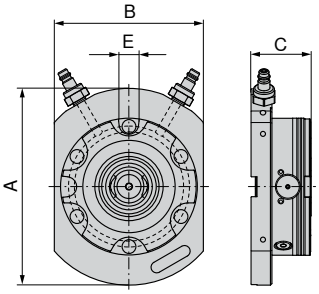
PNG – 1-position clamping station

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 8 kN
- ▲ Insertion force with turbo 28 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8

Scope of supply:

Clamping station, fixing clamps, sealing nipple, pneumatic plug connections, dust covers, operating instructions; without clamping bolt, without indexing bolt

PNG





A	B	C	E_{H7}	WT	80 809 ...
mm	mm	mm	mm	kg	£ Y4
198	150	60	20	7	1,465.45 **01100**

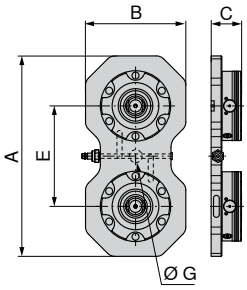
PNG – 2-position clamping station, 399 x 199 mm

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 16 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8

Scope of supply:

Clamping station, fixing clamps, sealing nipple, pneumatic plug connections, dust covers, operating instructions; without clamping bolt, without indexing bolt

PNG





A	B	C	E	G_{H7}	WT	80 809 ...
mm	mm	mm	mm	mm	kg	£ Y4
399	199	60	200	25	16.9	2,342.42 **02100**

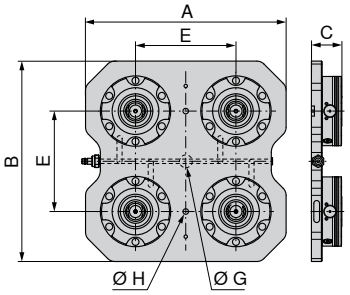
PNG – 4-position clamping station, 399 x 399 mm

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 32 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8

Scope of supply:

Clamping station, fixing clamps, sealing nipple, pneumatic plug connections, dust covers, operating instructions; without clamping bolt, without indexing bolt

PNG





A	B	C	E	G_{H7}	H	WT	80 809 ... £ Y4	
mm	mm	mm	mm	mm	mm	kg		
399	399	60	200	25	11	35.7	4,524.34	**04100**

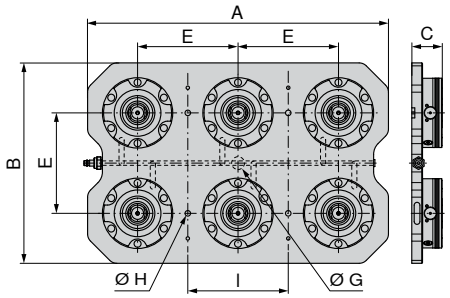
PNG – 6-position clamping station, 599 x 399 mm

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 48 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8

Scope of supply:

Clamping station, fixing clamps, sealing nipple, pneumatic plug connections, dust covers, operating instructions; without clamping bolt, without indexing bolt

PNG





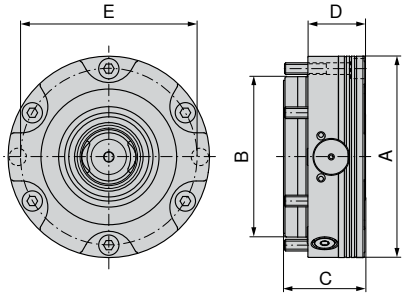
A	B	C	E	G_{H7}	H	I	WT	80 809 ... £ Y4	
mm	mm	mm	mm	mm	mm	mm	kg		
599	399	60	200	25	11	200	54.4	6,278.27	**06100**

PNG – Zero point clamping module PNG.SM.138

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 8 kN
- ▲ Insertion force with turbo 28 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8
- ▲ Repeatability 0.005

Scope of supply:
Clamping module, fixing screws, O-rings, cover caps, operating instructions; without clamping bolts

PNG





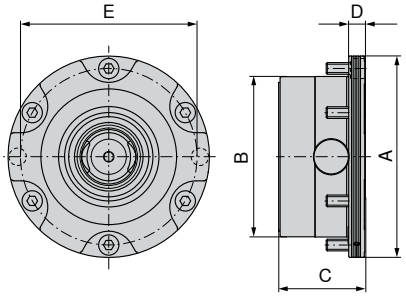
A mm	B mm	C mm	D mm	E mm	G	WT kg	80 809 ... £ Y4	
138	110	55,7	39	121	G1/8"	4.4	931.51	**10100**

PNG – Zero point clamping system PNG.SM.T.138

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 7 kN
- ▲ Insertion force with turbo 24 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8
- ▲ Repeatability 0.005

Scope of supply:
Clamping module, fixing screws, O-rings, cover caps, operating instructions; without clamping bolts

PNG





A mm	B mm	C mm	D mm	E mm	G	WT kg	80 809 ... £ Y4	
138	110	59	11	121	G1/8"	3.5	1,007.04	**12100**

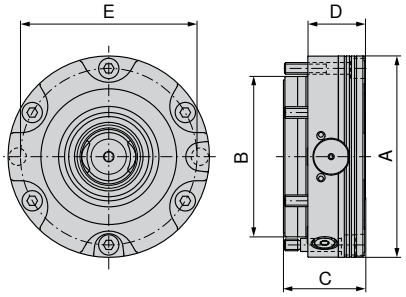
PNG – Zero point clamping module PNG.SM.V.138

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Insertion force 8 kN
- ▲ Insertion force with turbo 28 kN
- ▲ Unlocking pressure 6 bar
- ▲ Air connection G 1/8
- ▲ Repeatability 0.005

Scope of supply:

Clamping module, fixing screws, dowel screw, O-rings, cover caps, operating instructions; without clamping bolts, without indexing bolt

PNG





A mm	B mm	C mm	D mm	E mm	G	WT kg	80 809 ... £ Y4	
138	110	55,7	39	121	G1/8"	4.4	996.55	**11100**

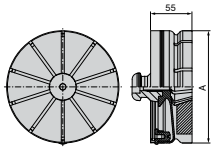
PNG – Aluminium form collet

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Max. clamping force 50 kN
- ▲ Repeatability 0.005
- ▲ Clamping stroke 0.5 mm
- ▲ Aluminium

Scope of supply:

Aluminium form collet, adjustment ring, clamping bolt, indexing bolt, operating instructions

PNG



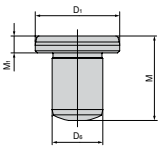


A mm	WT kg	80 809 ... £ Y4	
149	1.5	301.06	**07600**

PNG – indexing bolt

- ▲ PNG – Pneumatic zero point clamping system

PNG





$D_{1\ h5}$ mm	M mm	M_1 mm	$D_{6\ m6}$ mm	80 809 ... £ Y4	
20	20	4	12	51.40	**073**

Assembly – Clamping bolts

The workpieces or devices being assembled are positioned and fixed with three different clamping bolts:





Centring bolt
Precision-ground, used to precisely position the clamping device.



Positioning bolt
This bolt, which is also known as a diamond bolt, is only ground in an axial direction so that the system is not overloaded.



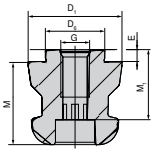
Locking bolt
Ensures that the pallets lie flat on the clamping system. Ground smaller to short taper.

PNG – clamping bolt

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Three bolt types – ZB (centring bolt), PB (positioning bolt), HB (clamping bolt)
- ▲ Precision location bolts ensuring accuracy and repeatability
- ▲ Clamping force 50 kN

Scope of supply:
Incl. M10 fixing screw

PNG



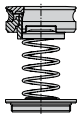


Type	$D_{6\ H6}$ mm	$D_{1\ h6}$ mm	M mm	M_1 mm	E mm	G	80 809 ... £ Y4	
ZB	25	40	35	27	5	M12	55.60	**070**
PB	25	40	35	27	5	M12	67.14	**071**
HB	25	40	35	27	5	M12	50.35	**072**

PNG – Cone seal

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Protective cover for the interchangeable interface

PNG



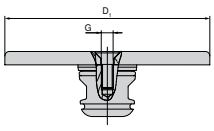


WT kg	80 809 ... £ Y4	
0.11	117.49	**07500**

PNG – protective cover

- ▲ PNG – Pneumatic zero point clamping system
- ▲ Protective cover for the interchangeable interface

PNG



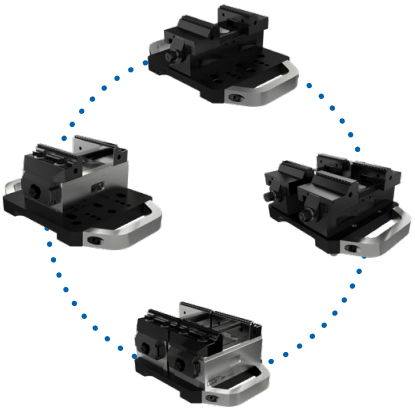


D_1 mm	G	80 809 ... £ Y4	
138	M8	92.31	**074**

Overview of multi-adapter pallets



Multi-adapter pallet 159 x 159 mm

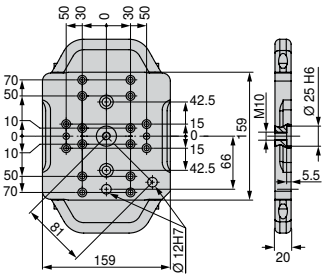


Application examples

Multi-adapter pallet 159 x 159 mm

▲ Multi-adapter pallet for mounting PNG and MNG

Scope of supply:
Incl. clamping bolts and screws
without pull studs





Size	WT kg	80 809 ... £ Y4	
159x159 mm	4	483.59	**500**

Mounting set – multi-adapter pallet, 159 x 159 mm

▲ price per set

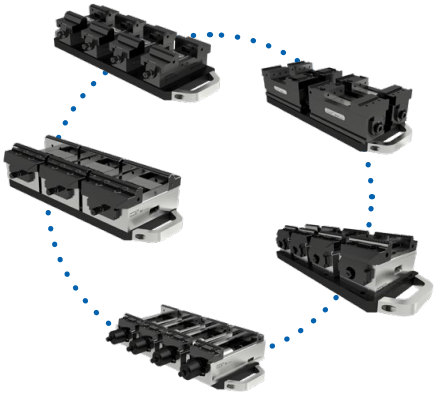


for	80 878 ... £ Y4	
ZSG-4.80	16.78	**503**

Overview of multi-adapter pallets



Multi-adapter pallet 399 x 159 mm



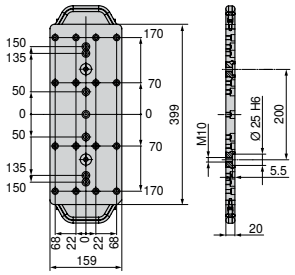
Application examples

Multi-adapter pallet 399 x 159 mm

▲ Multi-adapter pallet for mounting PNG and MNG

Scope of supply:

Incl. clamping bolts and screws
without pull studs





Size	WT kg	80 809 ... £ Y4	
399x159 mm	10	709.12	**501**

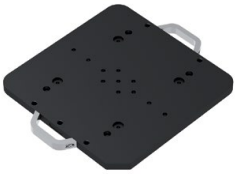
Mounting set – multi-adapter pallet 399 x 159 mm

▲ price per set

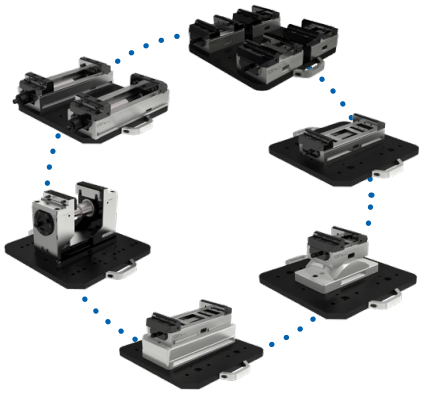


for	80 884 ... £ Y4	
ZSG-3.65/ZSG-4.80/125L160/ESG-4.80	37.76	**503**

Overview of multi-adapter pallets



Multi-adapter pallet 399 x 399 mm

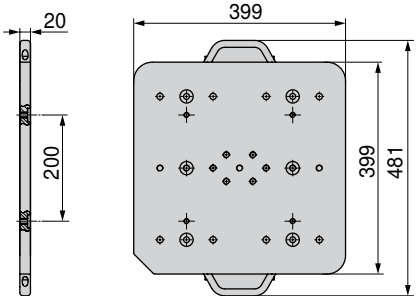


Application examples

Multi-adapter pallet 399 x 399 mm

▲ Multi-adapter pallet for mounting PNG and MNG

Scope of supply:
Incl. clamping bolts and screws
without pull studs





Size	WT kg	80 809 ... £ Y4	
399x399 mm	25	1,325.94	502

Mounting set – multi-adapter pallet 399 x 399 mm

▲ price per set



for	80 901 ... £ Y4		80 898 ... £ Y4		80 878 ... £ Y4	
ESG4.125	53.50	500				
H5G.125			53.50	500		
ZSG-4.125.L160					16.78	500
ZSG-4.125.L160.K					53.50	502
ZSG-4.125.L300					53.50	501
ZSG-4.125.L300-DK					53.50	504

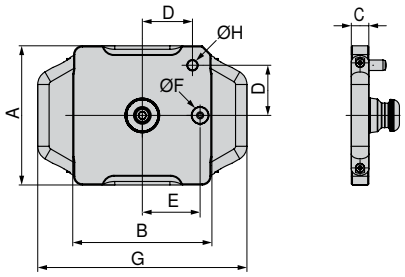
17

Steel clamping pallet, 159 x 159 mm

▲ Clamping pallet for mounting PNG
▲ Without hole pattern

Scope of supply:

Unmachined clamping pallet, PNG clamping bolt and positioning pin





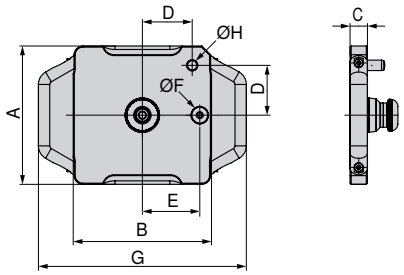
Size	A	B	C	D	E	F $_{H5}$	G	H $_{m6}$	WT	80 809 ...
	mm	mm	mm	mm	mm	mm	mm	mm	kg	£ Y4	
159x159 mm	159	159	20	58	66	20	239	12	4.2	326.24	**080**

Aluminium clamping pallet, 159 x 159 mm

▲ Clamping pallet for mounting PNG
▲ Without hole pattern

Scope of supply:

Unmachined clamping pallet, PNG clamping bolt and positioning pin



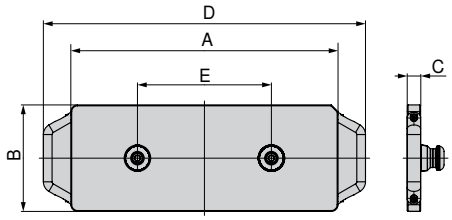


Size	A	B	C	D	E	F $_{h5}$	G	H $_{m6}$	WT	80 809 ...
	mm	mm	mm	mm	mm	mm	mm	mm	kg	£ Y4	
159x159 mm	159	159	25	58	66	20	239	12	2.2	367.15	**081**

Steel clamping pallet, 399 x 159 mm

▲ Clamping pallet for mounting PNG and MNG
▲ Without hole pattern

Scope of supply:
Unmachined clamping pallet, PNG clamping bolt and positioning pin



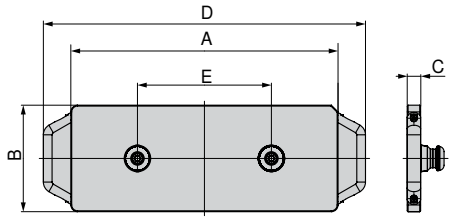


Size	A	B	C	D	E	WT	80 809 ... £ Y4	
	mm	mm	mm	mm	mm	kg		
399x159 mm	399	159	20	481	200	10.6	652.48	**082**

Aluminium clamping pallet, 399 x 159 mm

▲ Clamping pallet for mounting PNG and MNG
▲ Without hole pattern

Scope of supply:
Unmachined clamping pallet, PNG clamping bolt and positioning pin





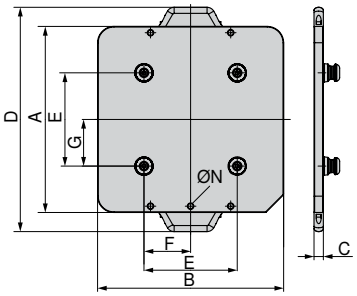
Size	A	B	C	D	E	WT	80 809 ... £ Y4	
	mm	mm	mm	mm	mm	kg		
399x159 mm	399	159	25	481	200	5.1	570.66	**083**

Steel clamping pallet, 399 x 399 mm

▲ Clamping pallet for mounting PNG and MNG
▲ Without hole pattern

Scope of supply:

Unmachined clamping pallet, PNG clamping bolt and positioning pin





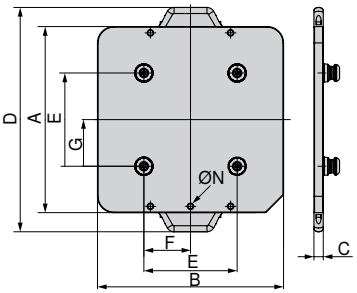
Size	A	B	C	D	E	F	G	N	WT	80 809 ...
	mm	mm	mm	mm	mm	mm	mm		kg	£ Y4	
399x399 mm	399	399	20	481	200	100	100	M10	28	1,425.59	**084**

Aluminium clamping pallet, 399 x 399 mm

▲ Clamping pallet for mounting PNG and MNG
▲ Without hole pattern

Scope of supply:

Unmachined clamping pallet, PNG clamping bolt and positioning pin



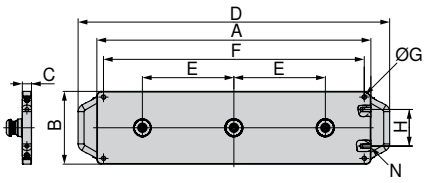


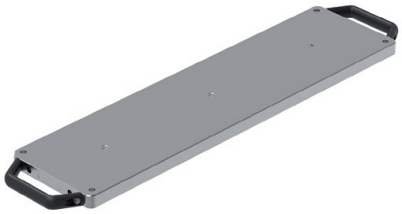
Size	A	B	C	D	E	F	G	N	WT	80 809 ...
	mm	mm	mm	mm	mm	mm	mm		kg	£ Y4	
399x399 mm	399	399	25	481	200	100	100	M10	12	1,036.41	**085**

Steel clamping pallet, 599 x 159 mm

▲ Clamping pallet for mounting PNG and MNG
▲ Without hole pattern

Scope of supply:
Unmachined clamping pallet, PNG clamping bolt and positioning pin



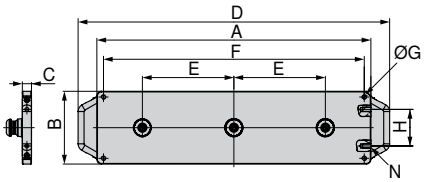


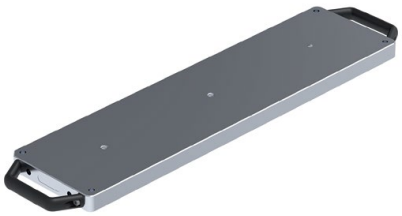
Size	A mm	B mm	C mm	D mm	E mm	F mm	G	H mm	N	WT kg	80 809 ... £ Y4	
599x159 mm	599	159	20	681	200	570	M10	80	M10	15.6	914.73	**086**

Aluminium clamping pallet, 599 x 159 mm

▲ Clamping pallet for mounting PNG and MNG
▲ Without hole pattern

Scope of supply:
Unmachined clamping pallet, PNG clamping bolt and positioning pin



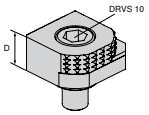


Size	A mm	B mm	C mm	D mm	E mm	F mm	G	H mm	N	WT kg	80 809 ... £ Y4	
599x159 mm	599	159	25	681	200	570	M10	80	M10	7.4	989.21	**087**

General top jaws overview

6 function indexable jaw

- ▲ 1 = Smooth, carbide coated
- ▲ 2 = Grip with 3 mm step
- ▲ 3 = Grip with 8 mm step
- ▲ 4 = Grip with 18 mm step
- ▲ 5 = Rough grip with 8 mm step
- ▲ 6 = Round grip
- ▲ M_{max} = 60 Nm
- ▲ Including fixation screws

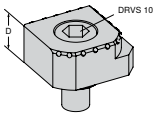


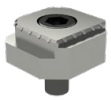


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							77.63	**80 892 246**	●	●	●	●			●		●	●	

6x indexable jaw, carbide grip

- ▲ 1 = Smooth
- ▲ 2 = Carbide grip
- ▲ 3 = Carbide grip with 3 mm step
- ▲ 4 = Carbide grip with 8 mm step
- ▲ 5 = Round carbide grip with 8 mm step
- ▲ 6 = Round carbide grip
- ▲ Incl. fixing screws

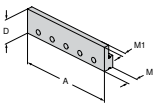




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18							112.24	**80 890 35300**	●	●	●	●			●		●	●	

Positioning bar

- ▲ for stepped jaw with T-slot
- ▲ different clamping depths achievable through milling
- ▲ by milling the bar can be used as stop strip
- ▲ Material 1.7131 can be hardened if required
- ▲ Price per piece



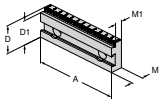


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		32				13,5	7		47.21	**80 892 338**	●					●					●
	125		32				13,5	7		49.30	**80 892 339**	●	●		●		●	●		●		●
	160		32				13,5	7		48.25	**80 892 340**	●			●		●	●				

General top jaws overview

Stepped jaw, grip with T-slot

- ▲ T-slot for accommodating a positioning bar
- ▲ with 6.5 mm wide contact surface suitable for workpieces with rough edges
- ▲ laser etched graduation marks (2 mm) as a positioning aid
- ▲ Price per piece

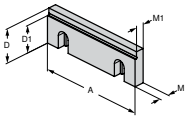




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	32			17,5	11,5		125.88	**80 892 341**	●					●					●
	100		35	30			17,5	11,5		125.88	**80 892 342**	●					●					●
	100		35	27			17,5	11,5		125.88	**80 892 343**	●					●					●
	125		40	37			17,5	11,5		135.32	**80 892 344**	●	●		●		●	●		●		●
	125		40	35			17,5	11,5		135.32	**80 892 345**	●	●		●		●	●		●		●
	125		40	32			17,5	11,5		135.32	**80 892 346**	●	●		●		●	●		●		●
	160		50	45			20	13,5		151.06	**80 892 348**	●			●		●	●				
	160		50	42			20	13,5		151.06	**80 892 349**	●			●		●	●				

Stepped jaw, smooth

- ▲ Price per piece

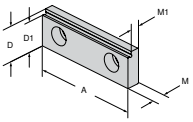




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	30			10	7,5		82.87	**80 892 21400**	●					●					●
	125		40	32			11,5	9,5		98.61	**80 892 21500**	●	●		●		●	●		●		●
	160		50	42			13,5	10,5		178.33	**80 892 21600**	●			●		●	●				

Stepped jaw, smooth

- ▲ Can be used as smooth or stepped jaw
- ▲ Jaw hardened and ground
- ▲ price per piece

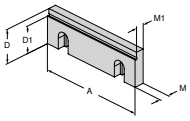




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	65		22	19			8	5,5		69.23	**80 895 332**		●									

Stepped jaw, coated 5 mm

- ▲ Price per piece





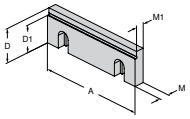
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	80		28	23			10	7,5		150.01	**80 878 31400**				●			●		●		

17

General top jaws overview

Stepped jaw, coated 5 mm

▲ Price per piece

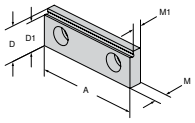




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	30			10	7,5		164.69	**80 892 36300**	●					●					
	125		40	35			11,5	9,5		144.76	**80 892 250**	●	●		●		●	●		●		●
	160		50	45			13,5	10,5		204.56	**80 892 36400**	●			●		●	●				

Stepped jaw, 5 mm

▲ Price per piece

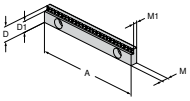




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	80		28	23			10	7,5		122.73	**80 878 830**				●			●		●		

Stepped jaw, Grip

▲ Price per piece

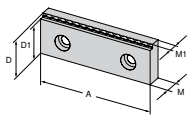




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		18	13			8	5,5		130.08	**80 898 252**		●		●					●		
	125		18	15			8	5,5		130.08	**80 898 250**		●		●					●		

Stepped jaw, grip, 3 mm

▲ Price per piece



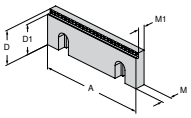


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	80		28	25			10	7		88.12	**80 906 30900**				●			●		●		

General top jaws overview

Stepped jaw, grip 3, 5 and 8 mm

▲ Price per piece

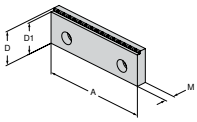




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	27			10	7,5		103.85	**80 892 29200**	●					●					●
	100		35	30			10	7,5		103.85	**80 892 29000**	●					●					●
	100		35	32			10	7,5		103.85	**80 892 29400**	●					●					●
	125		40	32			11,5	9		118.54	**80 892 29300**	●	●		●		●	●		●		●
	125		40	35			11,5	9		118.54	**80 892 29100**	●	●		●		●	●		●		●
	125		40	37			11,5	9		118.54	**80 892 29500**	●	●		●		●	●		●		●
	160		50	42			13,5	11		132.17	**80 892 29900**	●			●		●	●				
	160		50	45			13,5	11		132.17	**80 892 29800**	●			●		●	●				
	160		50	47			13,5	11		132.17	**80 892 29700**	●			●		●	●				

Stepped jaw, carbide grip 3 mm

▲ Price per piece

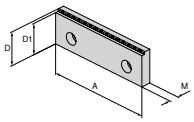




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	32			7,5			150.01	**80 892 37600**	●	●		●		●	●		●		
	125		40	37			11,5			164.69	**80 892 36500**	●	●		●		●	●		●		
	160		50	47			13,5			187.77	**80 892 37400**	●	●		●		●	●		●		

Stepped jaw, carbide grip 5 mm

▲ Price per piece

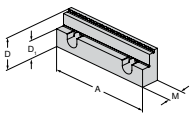




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	30			12			150.01	**80 892 37700**	●	●		●		●	●		●		
	125		40	35			13,5			164.69	**80 892 37500**	●	●		●		●	●		●		
	160		50	45			15,5			187.77	**80 892 37300**	●	●		●		●	●		●		

Stepped jaw, 18 mm with 3 mm Grip Step

▲ Price per piece



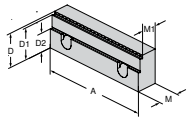


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		40	22			21,5			212.95	**80 892 288**	●	●		●		●	●		●		●

General top jaws overview

Stepped jaw, 18 mm with 3 mm grip step

▲ Price per piece

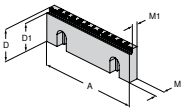




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		40	37	22		24	19		226.58	**80 907 302**	●	●		●		●	●		●		●

Stepped jaw, grip 5 mm for aluminium and plastic

▲ Price per piece

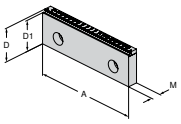


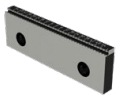


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		40	35			11,5	8		137.42	**80 892 36100**	●	●		●		●	●		●		

Stepped jaw embossed profile

▲ Price per piece
▲ suitable for LANG embossed profile





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		40	37			11,5			132.17	**80 892 36200**	●	●		●		●	●		●		

Jaw, grip

▲ Price per piece

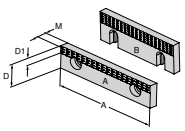


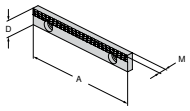


Illustration	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
A	40		22	7			7,8			32.52	**80 892 279**										●	
A	65		22	7			7,8			36.72	**80 892 280**										●	
A	90		22	7			7,8			39.86	**80 892 284**										●	
B	100		35	12			10			50.35	**80 892 21700**	●					●					●
B	125		40	14,5			11,5			57.70	**80 892 21800**	●			●		●			●		●
B	160		50	14,5			13,5			79.72	**80 892 21900**	●			●		●	●				

General top jaws overview

Top jaw, grip

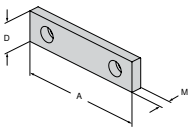
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		18				7,8			63.99	**80 898 253**	●	●		●					●		

Ground top jaw

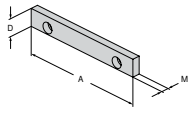
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	40		22				7,7			32.52	**80 889 401**										●	
	40		35				10			36.72	**80 889 405**										●	
	65		22				7,7			36.72	**80 889 651**										●	
	65		35				10			39.86	**80 889 655**										●	
	90		22				7,7			39.86	**80 889 901**										●	
	90		35				10			48.25	**80 889 905**										●	

Ground top jaw

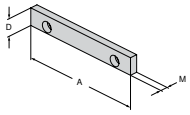
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		18				7,6			49.30	**80 898 251**	●	●		●					●		

Top jaw, carbide coated

▲ with carbide coating
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		18				7,6			97.56	**80 898 254**	●	●		●					●		

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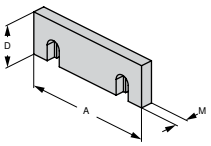
General top jaws overview

Smooth jaw

▲ Price per piece

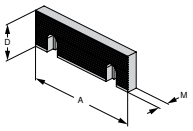




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35				10			38.81	**80 892 20400**	●					●					●
	125		40				11,5			47.21	**80 892 20500**	●			●		●	●		●		●
	160		50				13,5			53.50	**80 892 20600**	●			●		●	●				

Jaw, profiled

▲ Price per piece

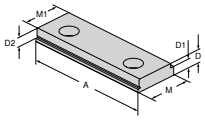




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35				10			44.06	**80 892 20700**	●					●					●
	125		40				11,5			53.50	**80 892 20800**	●			●		●	●		●		●
	160		50				13,5			60.84	**80 892 20900**	●			●		●	●				

Grip jaw, indexable

▲ For vertical and horizontal application
▲ Price per piece

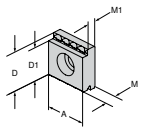




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	65		8	5,5	5		22	19		35.67	**80 895 340**		●					●				
	100		10,5	8	5		35	32		50.35	**80 895 343**	●					●					●

Grip jaw, indexable

▲ For vertical and horizontal application
▲ 3 point clamping
▲ Price per piece



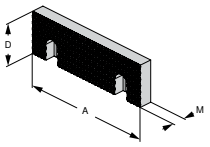


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
65	22		22	19			8	5,5		18.88	**80 895 335**		●					●				
100	35		35	32			10,5	8		30.42	**80 895 345**	●					●					

General top jaws overview

Jaw, cut

▲ Price per piece

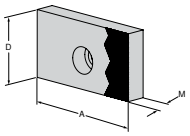




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35				11			51.40	**80 892 20100**	●					●					●
	125		40				12,5			62.94	**80 892 20200**	●			●		●	●		●		●
	160		50				14,5			73.43	**80 892 20300**	●			●		●	●				

Jaw, cut

▲ Price per piece

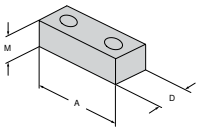




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	40		35				11			36.72	**80 889 408**										●	
	40		22				8			32.52	**80 889 404**										●	
	65		35				11			39.86	**80 889 658**										●	
	65		22				8			36.72	**80 889 654**										●	
	90		35				11			48.25	**80 889 908**										●	
	90		22				8			39.86	**80 889 904**										●	

Soft jaw, steel

▲ Material: 16MnCr5
▲ Only for vertical application
▲ Price per piece

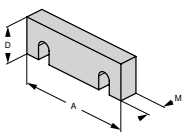




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	40		22				20			32.52	**80 895 244**										●	
	65		22				20			36.72	**80 895 245**		●		●			●			●	
	90		22				20			39.86	**80 895 246**										●	

Soft jaw, steel

▲ Material: 14NiCr14
▲ for the preparation of formed jaws
▲ Price per piece



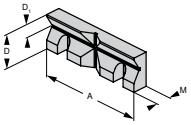


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35				16			41.96	**80 892 24700**	●					●					●
	125		40				20			49.30	**80 892 24800**	●	●		●		●	●		●		●
	160		50				20			55.60	**80 892 24900**	●			●		●	●				

General top jaws overview

Prismatic jaw

▲ with horizontal and vertical prism
▲ prism horizontally and vertically ground for parallelism
▲ Price per piece

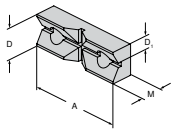




For clamping diameter	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
11 - 41	100		35	13			15,5			123.78	**80 892 26100**	●					●					●
14 - 48	125		40	16			17,5			137.42	**80 892 26200**	●	●		●		●	●		●		●
16 - 60	160		50	20			19,5			205.60	**80 892 26300**	●			●		●	●				

Prismatic jaw

▲ with horizontal and vertical prism
▲ price per piece

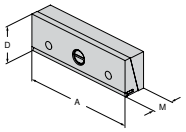




For clamping diameter	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
11 - 22	65		22	11			15			125.88	**80 895 337**		●					●				

Precision pull down jaw

▲ Pull down jaw is only for use on the movable jaw
▲ Price per piece

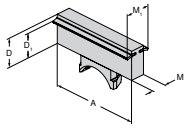




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35				25			249.66	**80 892 370**	●										●
	125		40				25			257.01	**80 892 371**	●	●		●		●	●		●		●
	160		50				27,5			393.38	**80 892 372**	●			●		●	●				

Adapter jaws with pull down

▲ for the types NCG, NCG2, and HDG2
▲ with reciprocal pull down feather/spring jaws
▲ price per piece





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	28			28	45		277.99	**80 892 258**	●										
	125		40	32,5			20	35		271.69	**80 892 259**	●					●					
	160		50	42			20	35		324.14	**80 892 260**	●					●					

General top jaws overview

Multipin front jaw

▲ Price per piece

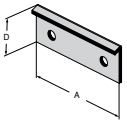
NCG | HDG 2



A mm	D mm	80 890 ... £ Y4	
125	40	303.16	30200

Pull down jaw with spring plate

▲ for finish machining
▲ Price per piece

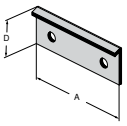




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	80		24							63.99	80 901 309				●			●		●		
	125		35							83.92	80 901 310				●			●		●		
	160		45							95.46	80 901 311				●			●				

Pull down jaw with spring plate

▲ for finish machining
▲ Price per piece

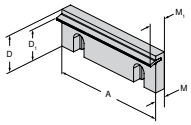




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	65		23							55.60	80 898 923											
	100		36							70.28	80 898 924	●					●					●
	125		41							83.92	80 898 925	●					●					●
	160		51							95.46	80 898 926	●					●					

Spring leaf pull down jaw

▲ Price per piece





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		35	28			10	18,5		57.70	80 892 22800	●					●					●
	125		40	32,5			11,5	19		66.09	80 892 22900	●			●		●	●		●		●
	160		50	42			13,5	21		86.02	80 892 23000	●			●		●	●				

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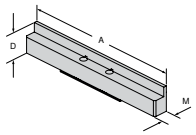
Workpiece supports overview

Workpiece supports, offset

▲ hardened and ground
▲ held by means of spring wedge in the baseplate
▲ Price for 2 pieces





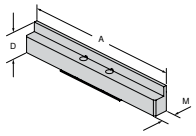
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		16				10,5			130.08	**80 890 401**	●										
	100		11				10,5			130.08	**80 890 400**	●										
	100		23				10,5			130.08	**80 890 409**	●										
	100		25,5				10,5			130.08	**80 890 411**	●										
	100		29,5				10,5			130.08	**80 890 421**	●										
	125		32,5				10,5			150.01	**80 890 395**	●										
	125		11				10,5			150.01	**80 890 390**	●										
	125		16				10,5			150.01	**80 890 391**	●										
	125		21				10,5			150.01	**80 890 392**	●										
	125		26				10,5			150.01	**80 890 393**	●										
	125		29				10,5			150.01	**80 890 394**	●										
	125		36				10,5			150.01	**80 890 396**	●										
	125		25				10,5			150.01	**80 890 422**	●										
	160		39				10,5			191.97	**80 890 454**	●										
	160		26				10,5			182.53	**80 890 452**	●										
	160		42,5				10,5			205.60	**80 890 456**	●										

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125						10,5			986.06	**80 890 399**	●										

80 890 399: Set of 7 workpiece supports of 2 pieces in a wooden box (exclusive **80 890 422**)

Workpiece supports, offset

▲ Hardened and ground
▲ Held by means of clamping springs in the base plate
▲ 2 pieces contained in set
▲ Price per set

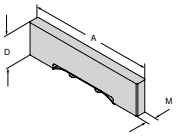




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		11				10,5			146.86	**80 901 703**				●							
	125		21				10,5			150.01	**80 901 704**				●							
	125		25				10,5			146.86	**80 901 705**				●							
	160		26				10,5			178.33	**80 901 700**				●							
	125		32,5				10,5			146.86	**80 901 706**				●							
	160		39				10,5			188.82	**80 901 701**				●							
	160		42,5				10,5			201.41	**80 901 702**				●							

Workpiece supports, offset

▲ Hardened and ground
▲ Held by means of clamping springs in the base plate
▲ Two pieces contained in set
▲ Price per set



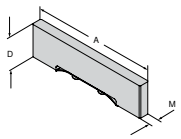


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	80		15				10,5			121.68	**80 901 707**				●							
	80		20				10,5			121.68	**80 901 708**				●							

Workpiece supports overview

Workpiece supports, offset

- ▲ Hardened and ground
- ▲ Held by means of clamping springs in the base plate
- ▲ Two pieces contained in set
- ▲ Price per set

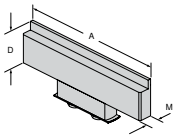




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125		15				10,5			146.86	**80 906 715**									●		
	125		22				10,5			146.86	**80 906 722**									●		
	125		25				10,5			146.86	**80 906 725**									●		
	125		32,5				10,5			146.86	**80 906 732**									●		

Workpiece supports

- ▲ hardened and ground
- ▲ held by spring clips in the baseplate
- ▲ Price for 2 pieces





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	100		16				10,5			125.88	**80 892 401**						●					
	100		25,5				10,5			125.88	**80 892 411**						●					
	100		29,5				10,5			125.88	**80 892 421**						●					
	125		11				10,5			150.01	**80 892 390**						●					
	125		16				10,5			150.01	**80 892 391**						●					
	125		21				10,5			150.01	**80 892 392**						●					
	125		26				10,5			150.01	**80 892 393**						●					
	125		29				10,5			150.01	**80 892 394**						●					
	125		32,5				10,5			150.01	**80 892 395**						●					
	125		36				10,5			150.01	**80 892 396**						●					
	160		26				10,5			182.53	**80 892 403**						●					
	160		39				10,5			191.97	**80 892 413**						●					
	160		42,5				10,5			205.60	**80 892 423**						●					

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
	125						10,5			986.06	**80 892 399**						●					

80 892 399: Set of 7 workpiece supports of 2 pieces in a wooden box

Magnet workpiece supports, set



- With clearance on the underside
- Flexible and rational clamping
- Height accuracy +/- 0.01 mm
- Quick and easy to install thanks to magnetic adhesion

Workpiece supports overview

Magnet workpiece supports, set

- Stainless spring steel
- Pressed magnets
- Delivered in set: 5 pairs of 2 pieces
- Price per set



A	D	M	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	5 / 10 / 15 / 20 / 22	2,5	285.33	**80 878 79800**			●	●			●		●		
125	8 / 12 / 15 / 20 / 22	2,5	320.99	**80 878 79700**	●		●	●		●	●		●		
125	8 / 12 / 20 / 25 / 27	2,5	320.99	**80 878 79900**	●		●	●		●	●		●		

Magnet workpiece supports, set

- Stainless spring steel
- Pressed magnets
- Delivered in set: 5 pairs of 2 pieces
- Price per set



A	D	M	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
100	12 / 20 / 25 / 30 / 32	2,5	312.60	**80 892 79700**	●		●			●	●				
125	12 / 25 / 30 / 35 / 37	2,5	329.39	**80 892 79800**	●		●			●	●		●		
160	15 / 30 / 40 / 45 / 47	2,5	346.17	**80 892 79900**	●		●	●		●	●				

Magnet workpiece supports, set

- Stainless spring steel
- Pressed magnets
- Delivered in set: 5 pairs of 2 pieces
- Price per set

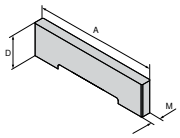


A	D	M	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
125	9 / 22 / 27 / 32 / 34	2,5	320.99	**80 901 79900**	●		●			●	●		●		

Workpiece supports overview

Magnet workpiece supports

▲ Price per pair





A	D	M	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
80	5	2,5	65.04	**80 892 79600**			●	●			●		●		
80	10	2,5	65.04	**80 892 79500**	●		●	●		●	●		●		
80	15	2,5	65.04	**80 892 79400**			●	●			●		●		
80	20	2,5	65.04	**80 892 79300**			●	●		●	●		●		
80	22	2,5	65.04	**80 892 79200**			●	●			●		●		
100	12	2,5	68.19	**80 892 79100**	●		●			●	●				
100	20	2,5	68.19	**80 892 79000**	●		●			●	●				
100	25	2,5	68.19	**80 892 78900**	●		●			●	●				
100	27	2,5	68.19	**80 892 78800**	●		●			●	●				
100	29	2,5	68.19	**80 892 78700**	●		●			●	●				
100	30	2,5	68.19	**80 892 78600**	●		●			●	●				
100	31	2,5	68.19	**80 892 78500**	●		●			●	●				
100	32	2,5	68.19	**80 892 78400**	●		●			●	●				
125	8	2,5	71.33	**80 892 78300**	●		●			●	●		●		
125	9	2,5	71.33	**80 892 78200**	●		●			●	●		●		
125	10	2,5	71.33	**80 892 78100**	●		●			●	●		●		
125	12	2,5	71.33	**80 892 78000**	●		●			●	●		●		
125	15	2,5	71.33	**80 892 77900**	●		●			●	●		●		
125	20	2,5	71.33	**80 892 77800**	●		●			●	●		●		
125	22	2,5	71.33	**80 892 77700**	●		●			●	●		●		
125	23	2,5	71.33	**80 892 77600**	●		●			●	●		●		
125	25	2,5	71.33	**80 892 77500**	●		●			●	●		●		
125	27	2,5	71.33	**80 892 77400**	●		●			●	●		●		
125	30	2,5	71.33	**80 892 77300**	●		●			●	●		●		
125	31	2,5	71.33	**80 892 77200**	●		●			●	●		●		
125	32	2,5	71.33	**80 892 77100**	●		●			●	●		●		
125	33	2,5	71.33	**80 892 77000**	●		●			●	●		●		
125	34	2,5	71.33	**80 892 76900**	●		●			●	●		●		
125	35	2,5	71.33	**80 892 76800**	●		●			●	●		●		
125	36	2,5	71.33	**80 892 76700**	●		●			●	●		●		
125	37	2,5	71.33	**80 892 76600**	●		●			●	●		●		
160	15	2,5	77.63	**80 892 76500**	●		●			●	●				
160	22	2,5	77.63	**80 892 76400**	●		●			●	●				
160	30	2,5	77.63	**80 892 76300**	●		●			●	●				
160	37	2,5	77.63	**80 892 76200**	●		●			●	●				
160	40	2,5	77.63	**80 892 76100**	●		●			●	●				
160	41	2,5	77.63	**80 892 76000**	●		●			●	●				
160	42	2,5	77.63	**80 892 75900**	●		●			●	●				
160	43	2,5	77.63	**80 892 75800**	●		●			●	●				
160	44	2,5	77.63	**80 892 75700**	●		●			●	●				
160	45	2,5	78.68	**80 892 75600**	●		●			●	●				
160	46	2,5	77.63	**80 892 75500**	●		●			●	●				
160	47	2,5	77.63	**80 892 75400**	●		●			●	●				

Workpiece support, magnetic

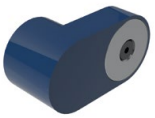
Scope of supply:
Including stop pin 50 mm/100 mm





for width mm	Size	£ Y4	80 892 ...
80/100/125/160	60x15	109.10	**23800**
80/100/125/160	115x15	157.35	**23900**

Extension for workpiece support, magnetic



for width mm	Size	£ Y4	80 892 ...
80/100/125/160	68x30 mm	83.92	**25400**

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Accessories General Overview

Alignment and centering kit for T-slots

▲ Price per piece

H5G -Z | ESG 4 | DSG 4



l mm	for slot width mm	80 897 ... £ Y4	
100	14	54.55	114
100	16	54.55	116
100	18	54.55	118

Alignment and centring set

▲ Price per piece

ESG 4 | DSG 4



l mm	for slot width mm	80 906 ... £ Y4	
80	12	57.70	812
80	14	57.70	814
80	16	57.70	816
80	18	57.70	818

Clamping Screw Set for T-slot for MNG

▲ Price for 2 pieces

ESG 4 | ZSG 4 | DSG 4



for width mm	G	80 899 ... £ Y4	
12	M10	14.69	312
14	M12	14.69	314
16	M12	19.93	316
18	M12	25.18	318

Workpiece stop

NCG | H5G | HDG 2 | DSG 4 | ESG 4 | ZSG 4



80 892 ... £ Y4	
62.94	400

Workpiece stop

ESG 4 | ZSG 4 | DSG 4



80 895 ... £ Y4	
43.01	010

Workpiece stop

ESG 4 | ZSG 4

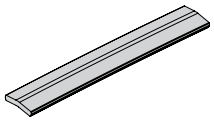


80 884 ... £ Y4	
41.96	400

Accessories General Overview

Replacement spring plates

▲ price per piece
▲ for pull down and intermediate jaws

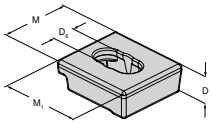




for width mm	80 892 ... £ Y4	
100	23.08	430
125	24.13	431
160	26.23	432

Clamping claws

▲ Price for 2 pieces





D mm	D_6 mm	M mm	M_1 mm	80 890 ... £ Y4	
20	16	50	57	36.72	315

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Clamping levers overview

Clamping Handle with Joint

▲ without socket



Torque in Nm	Square drive	DRVS	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	1/2"		73.43	**80 891 600**				●			●						

Torque Wrench

▲ without socket



Torque in Nm	Square drive	DRVS	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
10 - 100	1/2"		269.59	**80 884 502**				●		●	●	●	●				
20 - 200	1/2"		269.59	**80 884 504**			●	●		●	●	●					

Torque key

▲ without socket



Torque in Nm	Square drive	DRVS	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
5 - 50	3/8"		269.59	**80 884 402**								●		●		●	

Control set

▲ Torque key incl. socket, screwdriver A/F10 and 1/2" extension



Torque in Nm	Square drive	DRVS	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
8 - 50	3/8"	10	315.75	**80 899 410**												●	

Clamping levers overview

Socket

▲ Suitable for 1/2" or 3/8" square drive



Torque in Nm	Square drive	DRVS	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	3/8"	5	17.83	**80 877 105**													
	3/8"	6	20.19	**80 877 10600**													●
	3/8"	8	17.83	**80 877 108**										●		●	
	1/2"	8	17.83	**80 877 208**													
	1/2"	10	17.83	**80 877 210**													
	1/2"	14	17.83	**80 877 214**			●										

Socket

▲ Suitable for 1/2" or 3/8" square drive



Torque in Nm	Square drive	DRVS	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	3/8"	7	17.83	**80 875 107**													
	3/8"	11	17.83	**80 875 11100**								●					
	3/8"	12	17.83	**80 875 112**				●			●		●				
	1/2"	12	17.83	**80 875 212**				●			●		●				
	1/2"	14	17.83	**80 875 214**				●			●		●				

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Screws Overview

Clamping screw for top jaws

▲ DIN EN ISO 4762 (1998-02)



For vice width	G	J_{17}	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	M8x12		1.05	**80 892 296**	●	●				●	●						
	M6x8		1.05	**80 895 013**								●		●			

Clamping screw with shallow head for top jaws

▲ see DIN7984 (1985-05)



For vice width	G	J_{17}	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	M8x10		1.05	**80 889 950**	●	●				●	●						

Clamping screw for system jaws

▲ Price per piece



For vice width	G	J_{17}	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	M12x20		1.05	**80 890 630**	●	●											
	M12x40		2.10	**80 890 632**	●	●											

Allen cap screw

▲ DIN 912



For vice width	G	J_{17}	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
	M12x45		2.10	**80 899 124**												●	

Dowel screws

▲ Price for 2 pieces



For vice width	G	J_{17}	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
100	M12x38	12	36.72	**80 890 313**	●			●									
125 / 160	M16x55	16	58.74	**80 890 314**	●												

Screws Overview

Dowel screw

▲ Price for 2 pieces



For vice width	G	J_{17}	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
125	M12x45	12	25.18	**80 895 019**		●	●	●			●		●			●	

Clamping screw and T-Nuts

▲ For mounting the clamping claw
▲ Price per 2 pieces



For slot width	G	J_{17}	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
12	M10		16.78	**80 890 308**	●	●		●		●	●		●	●			
14	M12		16.78	**80 890 309**	●	●		●		●	●		●	●			
16	M14		17.83	**80 890 310**	●	●		●		●	●		●	●			
18	M16		18.88	**80 890 311**	●	●		●		●	●		●	●			

Clamping screws for round clamps, T-Nut

▲ incl. nut and washer
▲ Price per 2 Pieces



For slot width	G	J_{17}	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG	MNG	MNG mini
12	M10		14.69	**80 899 112**										●		●	
14	M12		14.69	**80 899 114**										●		●	
16	M12		16.78	**80 899 116**										●		●	
18	M12		17.83	**80 899 118**										●		●	

Tenon incl. screw

▲ Price per 2 pieces



For slot width	G	J_{17}	£	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG2	ZSG 4	ZSG mini	DSG4	Verso	HSG	MNG	MNG mini
12	M6		61.89	**80 898 412**	●	●		●		●			●				
14	M6		61.89	**80 898 414**	●	●		●		●			●				
16	M6		61.89	**80 898 416**	●	●		●		●			●				
18	M6		61.89	**80 898 418**	●	●		●		●			●				

17





Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Extended Material Examples for the Cutting Data Tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB
		P.1.3		Tempered	840 N/mm² / 250 HB
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB
		P.1.5		Tempered	1010 N/mm² / 300 HB
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB
		P.2.2		Tempered	930 N/mm² / 275 HB
		P.2.3		Tempered	1010 N/mm² / 300 HB
		P.2.4		Tempered	1200 N/mm² / 375 HB
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB
		M.2.1	Austenitic	Tempered	300 HB
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB
		K.2.2	Pearlitic		845 N/mm² / 250 HB
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB
		K.3.2	Pearlitic		780 N/mm² / 230 HB
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB
		S.1.2		Age-hardened	950 N/mm² / 280 HB
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB
		S.2.2		Age-hardened	1180 N/mm² / 350 HB
		S.2.3		Cast	1080 N/mm² / 320 HB
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB
		S.3.3	Beta alloys		1400 N/mm² / 410 HB
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC
		H.1.2		Hardened and tempered	56–60 HRC
		H.1.3		Hardened and tempered	61–65 HRC
		H.1.4		Hardened and tempered	66–70 HRC
	Chilled iron	H.2.1		Cast	400 HB
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²
		O.3.1	Graphite		

*** Tensile strength**

On the following 16 pages you will find an extension of the material examples to our usual indexes with additional international standards.

Overview of standards:

DIN

Deutsche **I**ndustrie **N**orm (German Standard)

AFNOR

Association **F**rancaise de **N**ormalisation (French Standard)

UNI

Unificazione **I**taliana (Italian Standard)

ČSN

Czechoslovakian Standard

BS

British **S**tandards

SIS

Standardiseringen **i** **S**verige (Swedish Standard)

UNE

Spanish Standard

JIS

Japanese **I**ndustrial **S**tandard

GOST / ГОСТ

Soviet Standard

UNS

Unified **N**umbering **S**ystem

USA

Under **USA** several American standards are summarized

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
P	P.1.1	1.5423	16 Mo 5		16 Mo 5		1503-245-420					G 45200	4520
		1.0037	St 37-2	E 24-2		11 343				STKM 12 C			
		1.0044	St 44-2	E 28-2	Fe 430 B FN	11 443	4360-43 B	1412		SM 41 B			A 570 Gr. 40
		1.0116	St 37-3	E 24-3; E 24-4	Fe 360 D FF	11 378	4360-40 C	1312; 1313			St 3 kp; ps; sp		A 573 Gr. 58
		1.0144	St 44-3	E 28-3; E 28-4	Fe 430 D FF	11 448	4360-43 C	1412; 1414		SM 41 C	St 4 kp; ps; sp		A 573 Gr. 70
		1.0301	C 10	AF 34 C 10; XC 10	C 10	12 010	045 M 10			S 10 C	10	G 10100	1010
		1.0401	C 15	AF3 7 C 12; XC 18	C 15; C 16	12 020	080 M 15	1350	F-111			G 10170	1015
		1.0402	C 22	AF 42 C 20	C 20; C 21	12 024	050 A 20	1450	F-112		20	G 10200	1020
		1.0406	C 25	AF 50 C 30	C 25	12 030	070 M 26						1025
		1.0570	St 52-3	E 36-3; E 36-4	Fe 510 B; C; D	11 523	4360-50 B	2132		SM 50 YA	17 GS		
		1.1121	Ck 10	XC 10	C 10	12 010	045 M 10	1265	F-1510	S 10 C; S 9 CK	08; 10	G 10100	1010
		1.1133	20 Mn 5	20 M 5	G 22 Mn 3	42 2714	120 M 19			SMnC 420		G 10220	1022; 1518
		1.1141	Ck 15	XC 15; XC 18	C 15; C 16	12 020	080 M 15	1370	F-1511	S 15 C; S 15 CK	15	G 10170	1015
		1.1151	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20		1023
		1.1158	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250	1025
	P.1.2	1.0050	St 50-2	A 50-2	Fe 490	11 500	4360-50 B	2172		SS 50	BSt 5 ps; sp		A 570 Gr. 50
		1.0060	St 60-2	A 60-2	Fe 590; Fe 60-2	11 600	4360-SSE; SSC			SM 58	St 6 ps; sp		
		1.0406	C 25	AF 50 C 30	C 25	12 030	070 M 26						1025
		1.0420	GS-38										
		1.0446	GS-45										
		1.0481	17 Mn 4			11 748							
		1.0501	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350	1035
		1.0503	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430	1045
		1.0511	C 40	AF 60 C 40	C 40	12 041							1040
		1.0528	C 30			12 031							
		1.0540	C 50			12 051							
		1.0552	GS-52										
		1.0558	GS-60										
		1.0619	GS-C 25										
		1.0711	9 S 20		CF 9 S 22		220 M 07	220 M 07		SUM 21	SUM 21	G 12120	1212
		1.0715	9 SMn 28	S 250	CF 9 SMn 28	11 109	230 M 07	1912	F-211 / F-2111	SUM 22		G 12130	1213
		1.0718	9 SMnPb 28	S 250 Pb	CF 9 SMnPb 28			1914	F-212 / F-2112	SUM 22 L		G 12134	12 L 13
		1.0721	10 S 20	10 F 1	CF 10 S 20	10 110	210 M 15		F-2121				1108
		1.0722	10 SPb 20	10 PbF 2	CF 10 SPb 20				F-2122				11 L 08
		1.0723	15 S 20				210 A 15	1922		SUM 32			
		1.0736	9 SMn 36	S 300	CF 9 SMn 36		240 M 07		F-2113			G 12150	1215
		1.0737	9 SMnPb 36	S 300 Pb	CF 9 SMnPb 36			1926	F-2114			G 12144	12 L 14
		1.1118	GS-24 Mn 6			42 2714							
		1.1120	GS-20 Mn 5										
		1.1131	GS-16 Mn 5										
		1.1138	GS-21 Mn 5										
		1.1142	GS-Ck 16										
		1.1151	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20		1023
		1.1155	GS-Ck 25										
		1.1158	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250	1025
		1.1178	Ck 30										
		1.1181	Ck 35	XC 38 H1:XC 32	C 35	12 040	080 M 36	1572		S 35 C	35	G 10340	1035
		1.1186	Ck 40	XC 42 H1	C 40	12 041	080 M 40			S 40 C	40		1040
		1.1191	Ck 45	XC 42	C 45	12 050	080 M 46	1672		S 45 C	45	G 10420	1045
		1.1206	Ck 50	XC 48 H1		12 051	080 M 50				50		1050
		1.1730	C 45 W	Y3 42		19 083							

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
P	P.1.3	1.0501	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350	1035
		1.0503	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430	1045
		1.0511	C 40	AF 60 C 40	C 40	12 041							1040
		1.0528	C 30			12 031							
		1.0540	C 50			12 051							
		1.0726	35 S 20	35 MF 4		11 140	212 M 36	1957	F-210.G			G 11400	1140
		1.0727	45 S 20	45 MF 4			212 M 44	1973				G 11460	1146
		1.0728	60 S 20	60 MF 4									
		1.1178	Ck 30										
		1.1181	Ck 35	XC 38 H1:XC 32	C 35	12 040	080 M 36	1572		S 35 C	35	G 10340	1035
		1.1186	Ck 40	XC 42 H1	C 40	12 041	080 M 40			S 40 C	40		1040
		1.1191	Ck 45	XC 42	C 45	12 050	080 M 46	1672		S 45 C	45	G 10420	1045
		1.1206	Ck 50	XC 48 H1		12 051	080 M 50				50		1050
	P.1.4	1.0535	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55		1055
		1.0601	C 60	CC 55	C 60	12 061	080 A 62				60	G 10600	1060
		1.0757	46 SPb 20										
		1.1203	Ck 55	XC 55	C50	12 060	070 M 55			S 55 C	55		1055
		1.1221	Ck 60	XC 60	C60	12 061	080 A 62	1665; 1678		S 58 C	60; 60G	G 10640	1060
		1.1248	Ck 75	XC 75	C 75	12 081	060 A 78	1774; 1778			75	G 10780	1078; 1080
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
		1.1520	C 70 W1										
		1.1525	C 80 W1	Y1 90; Y1 80	C 80 KU						U8A	T 72301	W 108
		1.1545+G502	C 105 W1	Y1 105	C 100 KU			1880			U10A	T 72301	W 110
		1.1620	C 70 W2			19 132							
		1.1625	C 80 W2		C 80 KU	19 152	BW 1 B			SKC 3; SK 5; SK 6	U8; 80	T 72301	W 1
		1.1645	C 105 W2	Y2 105	C 100 KU	19 191				SK 3	U10	T 72301	
		1.1663	C 125 W	Y2 120	C 120 KU					SK 2	U13	T 72301	W 112
		1.1673	C 135 W	Y2 140	C 140 KU					SK 1			
		1.1740	C 60 W	Y3 55		19 103				SK 7			
		1.1750	C 75 W				BW 1A				75		W 1
		1.1820	C 55 W										
		1.1830	C 85 W	Y3 90						SK 5			
	P.1.5	1.0535	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55		1055
		1.0601	C 60	CC 55	C 60	12 061	080 A 62				60	G 10600	1060
		1.1203	Ck 55	XC 55	C50	12 060	070 M 55			S 55 C	55		1055
		1.1221	Ck 60	XC 60	C60	12 061	080 A 62	1665; 1678		S 58 C	60; 60G	G 10640	1060
		1.1231	Ck 67	XC 68	C 70	12 071	060 A 67	1770			70	G 10700	1070
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
		1.1520	C 70 W1										
	P.2.1	1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2323	GS-48 CrMoV 6 7			19 512							
		1.2341	X 6 CrMo 4										
		1.2369	81 CrMov 42 16										
		1.2516	120 WV 4	110 WC 20	110 W 4 KU	19 711	BF 1						
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2735	15 NiCr 14	10 NC 12		16 240				SNC 22		T 51606	
		1.2762	75 CrMoNiW 6 7										
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
P	P.2.1	1.5015	GS-8 Mn 7										
		1.5122	37 MnSi 4			13 240							
		1.5415	15 Mo 3	15 D 3	16 Mo 3	15 020	1501-240	2912					A 204 Gr. A
		1.5419	GS-22 Mo 4										
		1.5621	GS-10 Ni 6										
		1.5622	14 Ni 6	16 N 6	14 Ni 6								A 350-LF 5
		1.5633	GS-24 Ni 8										
		1.5638	GS-10 Ni 14										
		1.5732	14 NiCr 10	14 NC 11	16 NiCr 11				F-1540	SNC 415 (H)			3415
		1.5752	14 NiCr 14	12 NC 15		16 240	655 M 13		F-1540	SNC 815 (H)		G 33106	3310; 9314
		1.5919	15 CrNi 6	16 NC 6	16 CrNi 4	16 220	S 107						
		1.5920	18 CrNi 8	20 NC 6		13 231							
		1.6221	GS-13 MnNi 6 4										
		1.6523	21 NiCrMo 2	20 NCD 2	20 NiCrMo 2		805 M 20	2506	F-1522	SNCM 220 (H)		G 86170	8620
		1.6587	17 CrNiMo 6	18 NCD 6	18 NiCrMo 7		820 A 16						
		1.6750	GS-20 NiCrMo 3 7										
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7012	13 Cr 2										
		1.7015	15 Cr 3	12 C 3		14 120	523 M 15			SCr 415 (H)	15Ch	G 50150	5015
		1.7020	32 Cr 2										
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7139	16 MnCrS 5						F-150D				
		1.7147	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200	5120
		1.7149	20 MnCrS 5						F-1551				
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7219	GS-26 CrMo 4										
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7262	15 CrMo 5	12 CD 4	12 CrMo 4					SCM 415 (H)			
		1.7264	20 CrMo 5	18 CD 4						SCM 421			
		1.7271	23 CrMoB 3 3										
		1.7311	20 CrMo 2						F-1523				
		1.7321	20 MoCr 4	20 CD 4									
		1.7335	13 CrMo 4 4	15 CD 3.5	14 CrMo 4 5	15 121	1501-620 Gr. 27	2216			12ChM; 15ChM		A 182-F11; F12
		1.7337	16 CrMo 4 4	15 CD 4.5	14 CrMo 4 5		1501-620 Gr. 27	2216			15ChM		A 387 Gr. 12 Cl. 2
		1.7357	GS-17 CrMo 5 5										
		1.7363	GS-12 CrMo 19 5										
		1.7377	GS-17 CrMo 9 10										
		1.7379	GS-18 CrMo 9 10										
		1.7380	10 CrMo 9 10	10 CD 9.10	12 CrMo 9 10		1501-622 Gr. 31; 45	2218				J 21890	A 182-F22
		1.7715	14 MoV 6 3				1503-660-440						
		1.7725	GS-30 CrMoV 6 4										
		1.8504	34 CrAl 6			14 340							
		1.8506	34 CrAlS 5									K 23745	
		1.8521	15 CrMoV 5 9										
		1.0904	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2		9255
	P.2.2	1.2067	100 Cr 6	Y 100 C 6			BL 3					T 61203	L 3
		1.2101	62 SiMnCr 4										
		1.2103	58 SiCr 8			19 452							

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
P	P.2.2	1.2108	90 CrSi 5P										
		1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2311	40 CrMnMo 7			19 520							
		1.2312	40 CrMnMoS 8 6	40 CMD 8 + S									
		1.2323	GS-48 CrMoV 6 7			19 512							
		1.2330	35 CrMo 4	34 CD 4	35 CrMo 4		708 A 37	2234			35 HM	T 51620	4135
		1.2332	47 CrMo 4	42 CD 4	40 CrMo 4		708 M 40	2244					4142
		1.2419	105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG		
		1.2510	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501	O 1
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2713	55 NiCrMoV 6	55 NCDV 7		19 662			F-520.S	SKT 4	5ChNM	T 61206	L 6
		1.2721	50 NiCr 13										
		1.2738	40 CrMnNiMo 8						F-5303				
		1.2826	60 MnSiCr 4										
		1.2833	100 V 1	Y1 105 V	102 V 2 KU	19 356	BW 2			SKS 43		T 72302	W 210
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.3520	100 CrMn 6			14 209							
		1.3561	44 Cr 2										
		1.3563	43 CrMo 4										
		1.5120	38 MnSi 4										
		1.5121	46 MnSi 4										
		1.5122	37 MnSi 5			13 240							
		1.5131	50 MnSi 4										
		1.5141	53 MnSi 4										
		1.5223	42 MnV 7			13 242							
		1.5710	36 NiCr 6	35 NC 6		16 240	640 A 35			SNC 236			3135
		1.5736	36 NiCr 10	30 NC 11	35 NiCr 9					SNC 631 (H)			3435
		1.5755	31 NiCr 14	18 NC 13		14 440	653 M 31			SNC 836			
		1.6511	36 CrNiMo 4	40 NCD 3	38 NiCrMo 4 (KB)	16 341	816 M 40				40 ChN2MA	G 98400	9840
		1.6513	28 NiCrMo 4										
		1.6546	40 NiCrMo 2 2	40 NCD 2	40 NiCrMo 2 (KB)		311-Type 7			SNCM 240	38ChGNM	G 87400	8740
		1.6565	40 NiCrMo 6				311-Type 6			SNCM 439	40Ch2N2MA		4340
		1.6570	GS-30 NiCrMo 8 5										
		1.6580	30 CrNiMo 8	30 CND 8	30 NiCrMo 8		823 M 30		F-1272	SNCM 431			
		1.6582	34 CrNiMo 6	35 NCD 6	35 NiCrMo 6 (KW)	16 342	817 M 40	2541	F-128 / F-1270	SNCM 447	38Ch2N2MA		4340
		1.6746	32 NiCrMo 14 5	35 NCD 14			830 M 31						
		1.6781	GS-18 NiCrMo 12 6										
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7034	37 Cr 4	38 C 4	38 Cr 4	14 140	530 A 36			SCr 435 H	40Ch		5135
		1.7035	41 Cr 4	42 C 4	41 Cr 4		530 M 40			SCr 440 (H)	40Ch	G 51400	5140
		1.7045	42 Cr 4	42 C 4 TS	41 Cr 4		530 A 40	2245		SCr 440	40Ch		5140
		1.7103	67 SiCr 5										
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7139	16 MnCrS 5						F-150D				

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P	P.2.2	1.7147	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200	5120
		1.7149	20 MnCrS 5						F-1551				
		1.7176	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550	5155
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7223	41 CrMo 4	42 CD 4 TS	41 CrMo 4		708 M 40	2244		SCM 440	40 ChFA	G 41420	4142; 4140
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
		1.7228	50 CrMo 4	50 CR MO4			708 A 47			SCM 445 (H)	50ChFA	G 41470	4150
		1.7323	20 MoCrS 4	20 CD 4 S									
		1.7325	25 MoCr 4	25 CD 4									
		1.7326	25 MoCrS 4	25 CD 4 S									
		1.7361	32 CrMo 12	30 CD 12	32 CrMo 12	15 230	722 M 24	2240	F-124A				
		1.7707	30 CrMoV 9			15 330							
		1.7709	21 CrMoV 5 7										
		1.7725	GS-30 CrMoV 6 4										
		1.7735	14 CrMoV 6 9	15 CDV 6									
		1.8159	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230	F-143 / F-1430	SUP 10	50ChGFA	G 61500	6150
		1.8161	58 CrV 4			15 261							
		1.8507	34 CrAlMo 5	30 CAD 6.12	34 CrAlMo 7		905 M 31		F-1741			K 23545	A 355 Cl. D
		1.8509	41 CrAlMo 7	40 CAD 6.12	41 CrAlMo 7	15 340	905 M 39	2940	F-1740	SACM 645	38ChMJuA	K 24065	A 355 Cl. A
		1.8515	31 CrMo 12	30 CD 12	31 CrMo 12		722 M 24	2240	F-1712				
		1.8519	31 CrMoV 9						F-1721				
		1.8523	39 CrMoV 13 9		36 CrMoV 13 9		897 M 39						
		1.8550	34 CrAlNi 7									K 52440	
		1.0904	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2		9255
		1.1157	40 Mn 4	35 M 5			150 M 36				40G	G 10390	1039
		1.1165	30 Mn 5	35 M 5		13 141	120 M 36			SMn 433 H; SCMn 2	30GSL		1330
		1.1167	36 Mn 5	40 M 5		42 2715	150 M 36	2120		SMn 438 (H); SCMn 3	35G2; 35GL	G 13350	1335
		1.1170	28 Mn 6	20 M 5	C 28 Mn	13 141	150 M 28			SCMn 1	30G		1330
	P.2.3	1.2744	57 NiCrMoV 7 7										
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17		F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7755	GS-35 CrMoV 10 4										
	P.2.4	1.2714	56 NiCrMoV 7			19 663							
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
	P.3.1	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2201	G-X 165 CrV 12			19 572							
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2367	X 38 CrMoV 5 3										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrVMo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2436	X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2			
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2601	X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310					
		1.2606	G-X 37 CrMoW 5 1										
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.2880	G-X 165 CrCoMo 12										
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									

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P	P.3.1	1.3302	S 12-1-4			19 810							
		1.3318	S 12-1-2			19 802							
		1.3333	S 3-3-2		HS 3-3-2	19 820							
		1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	HS 6-5-2	19 830	BM 2	2722	F-5603	SKH 9; SKH 51	R6AM5	T 11302	M 2
		1.3346	S 2-9-1	Z 85 DCWV 08-04-02-0	HS 1-8-1		BM 1				H41	T 11301	H 41; M 1
		1.4943	X 4 NiCrTi 25 15	Z 6 NCTDV 25.15 B			HR 251; HR 52; HR 51			SUH 660			
		1.5662	G-X 8 Ni 9										
		1.5680	12 Ni 19	Z 18 N 5									2515
	P.3.2	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	X 40 CrMo 5 1 1 KU	19 554	BH 13	2242	F-5318	SKD 61	4Ch5MF1S	T 20813	H 13
		1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2367	X 38 CrMoV 5 3										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrVMo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2606	G-X 37 CrMoW 5 1										
		1.2709	X 2 NiCoMoTi 18 9 5										
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									
		1.3207	S 10-4-3-10	Z 130 WKCDV 10-10-04	HS 10-4-3-10	19 861	BT 42		F-5553	SKH 57			
		1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05	HS 6-5-2-5	19 852		2723	F-5613	SKH 55	R6M5K5		
		1.3246	S 7-4-2-5	Z 110 WKCDV 07-05-04	HS 7-4-2-5	19 851						T 11341	M 41
		1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	HS 2-9-1-8		BM 42			SKH 51		T 11342	M 42
		1.3249	S 2-9-2-8				BM 34					T 11333	M 33; M 34
		1.3255	S 18-1-2-5	Z 80 WKCV 18-05-04-0	HS 18-1-1-5	19 855	BT 4			SKH 3		T 12004	T 4
		1.3265	S 18-1-2-10		HS 18-0-1-10	19 860	BT 5			SKH 4 A		T 12005	T 5
		1.3344	S 6-5-3	Z 120 WDCV 06-05-04	HS 6-5-3		BM 4			SKH 52; SKH 53		T 11323	M 3 Cl. 2
		1.3348	S 2-9-2	Z 100 DCWV 09-04-02	HS 2-9-2			2782				T 11307	M 7
		1.3401	G-X 120 Mn 12	Z 120 M 12	XG 120 Mn 12		Z 120 M 12			SCMnH 1	110G13L		A 128 (A)
		1.5860	14 NiCr 18			16 523							
		1.5864	35 NiCr 18			16 640			F-122				
	P.3.3	1.6359	X 2 NiCrMo 18 8 5	Maraging 250								K 92890	
	P.4.1	1.2083	X 42 Cr 13	Z 40 C 14	X 41 Cr 13 KU	19 435			F-5263	SUS 420 J 2			
		1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.3543	X 102 CrMo 17	Z 100 CD 17									
		1.4001	G-X 7 Cr 13	Z 8 C 13 FF		17 020			F-8401				
		1.4002	X 6 CrAl 13	Z 6 CA 13	X 6 CrAl 13		405 S 17	2302	F-3111	SUS 405		S 40500	405
		1.4005	X 12 CrS 13	Z 12 CF 13	X 12 CrS 13		416 S 21	2380		SUS 416		S 41600	416
		1.4006	X 10 Cr 13	Z 12 C 13	X 12 Cr 13	17 021	410 S 21	2302	F-3401	SUS 410	12Ch13	S 41000	410; CA-15
		1.4008	G-X 8 CrNi 13	Z 12 CN 13 M		42 2904							
		1.4016	X 6 Cr 17	Z 8 C 17	X 8 Cr 17	17 040	430 S 15	2320	F-3113	SUS 430	12Ch17	S 43000	430
		1.4021	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000	420
		1.4024	X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1			
		1.4027	G-X 20 Cr 14	Z 20 C 13 M		42 2906	420 C 29			SCS 2	20Ch13L		
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4085	G-X 70 Cr 29										

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P	P.4.1	1.4104	X 14 CrMoS 17	Z 10 CF 17	X 10 CrS 17	17 140		2383	F-3403	SUS 430 F		S 43020	430 F
		1.4105	X 4 CrMoS 18						F-3114				
		1.4106	X 2 CrMoSiS 18 2 1										
		1.4107	G-X 8 CrNi 12			42 2904							
		1.4109	X 65 CrMo 14										
		1.4112	X 90 CrMoV 18									S 44003	
		1.4113	X 6 CrMo 17	Z 8 CD 17.01	X 8 CrMo 17		434 S 17	2325	F-3116	SUS 434		S 43400	434
		1.4116	X 45 CrMoV 15						F-3422				
		1.4122	G-X 35 CrMo 17			17 137							
		1.4125	X 105 CrMo 17	Z 100 CD 17	X 105 CrMo 17					SUS 440 C		S 44004	440 C
		1.4136	G-X 70 CrMo 29 2										
		1.4405	G-X 5 CrNiMo 16 5										
		1.4407	G-X 5 CrNiMo 13 4										
		1.4510	X 6 CrTi 17	Z 8 CT 17	X 6 CrTi 17					SUS 430 LX	08Ch17T	S 43036	XM 8; 430 Ti
		1.4511	X 8 CrNb 17	Z 8 CNb 17	X 6 CrNb 17				F-3122	SUS 430 LX			
		1.4512	X 5 CrTi 12	Z 6 CT 12	X 6 CrTi 12		409 S 19		F-3121	SUH 409		S 40900	409
		1.4528	X 105 CrCoMo 18 2										
		1.4540	G-X 4 CrNiCuNb 16 4										
		1.4724	X 10 CrAl 13	Z 10 C 13	X 10 CrAl 12	17 125	403 S 17		F-3152		10Ch13SJu		
		1.4742	X 10 CrAl 18	Z 10 CAS 18	X 8 Cr 17		430 S 15		F-3153	SUS 430; SUH21			430
		1.4761	G-X 120 CrSi 23										
		1.4762	X 10 CrAl 24	Z 10 CAS 24	X 16 Cr 26	17 153			F-3154			S 44600	446
		1.4931	G-X 22 CrMoV 12 1										
		1.4962	X 12 CrNiWTi 16 3										
		1.6982	G-X 3 CrNi 13 4										
	P.4.2	1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.4000	X 6 Cr 13	Z 6 C 13	X 6 Cr 13	17 020	403 S 17	2301		SUS 403	08Ch13	S 40300	403
		1.4021	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000	420
		1.4024	X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1			
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4057	X 20 CrNi 17 2	Z 15 CN 16.02	X 16 CrNi 16	17 145	431 S 29	2321	F-3427	SUS 431	20Ch17N2	S 43100	431
		1.4059	G-X 22 CrNi 17										
		1.4086	G-X 120 Cr 29										
		1.4108	X 100 CrMo 13										
		1.4112	X 90 CrMoV 18									S 44003	
		1.4116	X 45 CrMoV 15						F-3422				
		1.4120	G-X 20 CrMo 13										
		1.4122	G-X 35 CrMo 17			17 137							
		1.4138	G-X 120 CrMo 29 2										
		1.4313	X 5 CrNi 13 4	Z 5 CN 13.4	X 6 CrNi 13 04		425 C 11	2385		SCS 5			CA 6-NM
		1.4340	G-X 40 CrNi 27 4										
		1.4464	G-X 40 CrNiMo 27 5										
		1.4542	X 7 CrNiCu 16 4 4	Z7 CNU 17 04 04 (17-4PH)						SCS 24; SUS 630		S 17400	630
		1.4545	X 5 CrNiCu 15-5	E-Z5 CNU 15 05 (15-5PH)									
		1.4710	G-X 30 CrSi 6										
		1.4718	X 45 CrSi 9 3	Z 45 CS 9	X 45 CrSi 8	17 115	401 S 45		F-3220	SUH 1	40Ch9S2	S 65007	HNV 3
		1.4729	G-X 40 CrSi 13										
		1.4740	G-X 40 CrSi 17										
		1.4743	G-X 160 CrSi 18										

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P	P.4.2	1.4745	G-X 40 CrSi 23										
		1.4747	X 80 CrNiSi 20	Z 80 CSN 20.02	X 80 CrSiNi 20		443 S 65			SUH 4		S 65006	HNV 6
		1.4776	G-X 40 CrSi 29										
		1.4823	G-X 40 CrNiSi 27 4										
		1.4923	X 22 CrMoV 12 1			17 134	762						
		1.4928	G-X 12 CrNiMoCoVN 12										
		1.4935	X 20 CrMoWV 12 1									S 42200	
M	M.1.1	1.3941	G-X 4 CrNi 18 13										
		1.3944	G-X 5 CrNi 18 11										
		1.3952	G-X 4 CrNiMoN 18 14										
		1.3953	G-X 2 CrNiMo 18 15										
		1.3955	G-X 12 CrNi 18 11										
		1.3959	G-X 10 CrNiNb 16 13										
		1.4301	X 5 CrNi 18 10	Z6 CN 18-09	X 5 CrNi 18 10	17 240	304 S 15	2332; 2333	F-3504	SUS 304	08Ch18N10	S 30400	304; 304 H
		1.4303	X 5 CrNi 18 12	Z 8 CN 18.12	X 8 CrNi 19 10		305 S 19			SUS 305	06Ch18N11	S 30500	308; 305
		1.4305	X 10 CrNiS 18 9	Z8 CNF 18-03	X 10 CrNi 18 09	17 243	303 S 21	2346		SUS 303		S 30300	303
		1.4306	X 2 CrNi 19 11	Z3 CN 18-10	X 2 CrNi 18 11	17 249	304 S 12	2352; 2333	F-3503	SCS 19	03Ch18N11	S 30403	304 L
		1.4308	G-X 6 CrNi 18 9	Z 6 CN 18.10 M		42 2930	304 C 15	2333	F-8411	SCS 13	07Ch18N9L		CF-8
		1.4311	X 2 CrNiN 18 10	Z 2 CN 18 .10	X 2 CrNiN 18 11	17 249	304 S 62	2371		SUS 304 LN		S 30453	304 LN
		1.4312	G-X 10 CrNi 18 8			42 2931							
		1.4401	X 5 CrNiMo 18 10	Z6 CND 17 12 02	X 5 CrNiMo 17 12	17 346	316 S 16	2347	F-3543	SUS 316		S 31600	316
		1.4404	X 2 CrNiMo 17 13 2	Z3 CND 17 12 02	X 2 CrNiMo 17 12	17 349	316 S 11	2348	F-3533	SUS 316 L		S 31603	316 L
		1.4406	X 2 CrNiMoN 17 12 2	Z 2 CND 17.12 Az	X 2 CrNiMoN 17 12		316 S 61			SUS 316 LN		S 31653	316 LN
		1.4408	G-X 6 CrNiMo 18 10			42 2940			F-8414				
		1.4413	G-X 4 CrNiMo 13-4										
		1.4429	X 2 CrNiMoN 17 13 3	Z3 CND 17 11 03 Az	X 2 CrNiMoN 17 13		316 S 62	2375		SUS 316 LN		S 31653	316 LN
		1.4435	X 2 CrNiMo 18 14 3	Z 2 CND 17.13	X 2 CrNiMo 17 13		316 S 12	2353		SCS 16; SUS 316 L	03Ch17N 14M2	S 31603	316 L
		1.4436	X 5 CrNiMo 17 13 3	Z 6 CND 17.12	X 5 CrNiMo 17 13		316 S 16	2343		SUS 316		S 31600	316
		1.4437	G-X 6 CrNiMo 18 12			42 2940							
		1.4438	X 2 CrNiMo 18 16 4	Z 2 CND 19.15	X 2 CrNiMo 18 15		317 S 12	2367		SUS 317 L		S 31703	317 L
		1.4439	G-X 3 CrNiMo 17 13 5						F-3544				
		1.4446	G-X 2 CrNiMo 17 13 4										
		1.4448	G-X 6 CrNiMo 17 13										
		1.4449	X 3 CrNiMo 18 12 3										
		1.4507	X 2 CrNiMOCuN 25 6 3	Z3 CNDU 25 07 Az (Uranus 52 N)								S 32750	F61
		1.4541	X 6 CrNiTi 18 10	Z 6 CNT 18.10	X 6 CrNiTi 18 11	17 248	321 S 12	2337		SUS 321	12Ch18N 10T	S 32100	321
		1.4546	X 5 CrNiNb 18 10		X 6 CrNiNb 18 11		347 S 18					S 34800	348
		1.4550	X 6 CrNiNb 18 10	Z10 CNNb 18-10	X 6 CrNiNb 18 11	17 245	347 S 17	2338	F-3552 / F-3524	SUS 347	08Ch18N 12B	S 34700	347
		1.4552	G-X 5 CrNiNb 18 9			42 2933			F-8413				
		1.4571	X 6 CrNiMoTi 17 12 2	Z 6 CNT 17.12	X 6 CrNiMoTi 17 12	17 348	320 S 31	2350	F-3535		10Ch17N13M2T	S 31635	316 Ti
		1.4573	X 10 CrNiMoTi 18 12		X 6 CrNiMoTi 17 13		320 S 33				10Ch17N13M3T	S 31635	316 Ti
		1.4580	X 6 CrNiMoNb 17 12 2	Z 6 CNDNb 17.12	X 6 CrNiMoNb 17 12		318 S 17		F-3536		08Ch16N13M2B	S 31640	316 Cb
		1.4581	G-X 5 CrNiMoNb 18 10	Z 4 CNDNb 18.12 M	GX 6 CrMoNb 20 11	42 2941	318 C 17			SCS 22			
		1.4583	X 10 CrNiMoNb 18 12		X 6 CrNiMoNb 17 13								318
		1.4821	X 15 CrNiSi 25-4	Z20 CNS 25 04									
		1.4825	G-X 25 CrNiSi 18 9			42 2932							
		1.4826	G-X 40 CrNiSi 22 9			42 2934							
		1.4828	X 15 CrNiSi 20 12	Z 15 CNS 20.12		17 251	309 S 24		F-3312	SUH 309	20Ch20N 14S2	S 30900	309
		1.4832	G-X 25 CrNiSi 20 14										
		1.4876	X 10 NiCrAlTi 32 20	Z10 NCAT 32-21 (Incoloy 800)		17 358	NA 15 (H)		F-3314	NCF 800			B 163
		1.4878	X 12 CrNiTi 18 9	Z 6 CNT 18.12 (B)	X 6 CrNiTi 18 11	17 246	321 S 20	2337		SUS 321	12Ch18N 10T		321

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
M	M.1.1	1.4968	G-X 7 CrNiNb 16 13										
		1.4988	G-X 8 CrNiMoVNb 16 1										
		1.6901	G-X 8 CrNi 18 10										
		1.6902	G-X 6 CrNi 18 10										
		1.6905	G-X 5 CrNiNb 18 10										
	M.2.1	1.3964	G-X 4 CrNiMnMoN 19 1										
		1.4310	X 12 CrNi 17 7	Z 12 CN 17.07	X 12 CrNi 17 07		301 S 21			SUS 301		S 30100	301
		1.4465	G-X 2 CrNiMoN 25 25										
		1.4536	G-X 2 NiCrMoCuN 25 2										
		1.4539	X 1 NiCrMoCu 25 20 5	Z2 NCDU 25 20 (Uranus B6)								N 08904	904L
		1.4547	X 1 CrNiMoCuN 20 18 17	Z1 CNDU 20 18 06 Az (254 SMO)									F44
		1.4568	X 7 CrNiAl 17 7										17-7 PH
		1.4837	G-X 40 CrNiSi 25 12			42 2936							
		1.4840	G-X 15 CrNi 25 20										
		1.4841	X 15 CrNiSi 25 20	Z 15 CNS 25.20	X 16 CrNiSi 25 20	17 255			F-3310	SUH 310	20Ch25N 20S2	S 31000	314; 310
		1.4845	X 12 CrNi 25 21	Z 12 CN 25.20	X 6 CrNi 26 20	17 255	310 S24	2361		SUH 310;		S 31008	310 S
		1.4848	G-X 40 CrNiSi 25 20		GX 40 CrNi 26 20	42 2952							
		1.4849	G-X 40 NiCrSiNb 38 1										
		1.4852	G-X 40 NiCrNb 35 25										
		1.4855	G-X 30 CrNiSiNb 24 2										
		1.4857	G-X 40 NiCrSi 35 25										
		1.4864	X 12 NiCrSi 36 16	Z 12 NCS 37.18		17 253	NA 17		F-3313	SUH 330		N 08330	330
		1.4865	G-X 40 NiCrSi 38 18		GX 50 NiCr 39 19		330 C 40			SCH 15; SCH 16			
		1.4871	X 53 CrMnNiN 21 9	Z 52 CMN 21.09	X 53 CrMnNiN 21 9		349 S 54		F-3217	SUH 35; SUH 36	55Ch20G9AN4	S 63008	EV 8
		1.4873	X 45 CrNiW 18 9	Z 35 CNWS 20.09	X 45 CrNiW 18 9		331 S 40			SUH 31			
	M.3.1	1.4339	G-X 32 CrNi 28 10										
		1.4347	G-X 8 CrNi 26 7										
		1.4410	X 2 CrNiMoN 25 7 4	Z2 CND 25 07 04 Az					F-3552				F53
		1.4460	X 8 CrNiMo 27 5	Z5 CND 25 05 AZ				2324		SUS 329 J 1		S 32900	329 LN
		1.4462	X 2 CrNiMoN 22 5 3	Z2 CND 22 05 03 AZ (Uranus 45 N)		17 381			F-3308			S 31803	329 A (F51)
		1.4463	G-X 6 CrNiMo 24 8 2										
		1.4501	X 2 CrNiMoCuWN 25 7 4	Z2 CNDUW 25 07 04 Az (Zeron 100)								S 32760	F55
		1.4815	G-X 8 CrNi 19 10										
		1.4822	G-X 40 CrNi 24 5										
K	K.1.1	0.6010	GG-10	Ft 10 D	G 10	42 2410		01 10-00		FC 10	Sc 10		A48-20 B
		0.6015	GG-15	Ft 15 D	G 15	42 2415	Grade 150	01 15-00	FG-15	FC 15	Sc 15		A48-25 B
		0.6020	GG-20	Ft 20 D	G 20	42 2420	Grade 220	01 20-00	FG-20	FC 20	Sc 20		A48-30 B
		0.6025	GG-25	Ft 25 D	G 25	42 2425	Grade 260	01 25-00	FG-25	FC 25	Sc 25		A48-40 B
	K.1.2	0.6030	GG-30	Ft 30 D	G 30	42 2430	Grade 300	01 30-00	FG-30	FC 30	Sc 30		A48-45 B
		0.6035	GG-35	Ft 35 D	G 35	42 2435	Grade 350	01 35-00	FG-35	FC 35	Sc 35		A48-50 B
		0.6040	GG-40	Ft 40 D		42 2440	Grade 400	01 40-00			Sc 40		A48-60 B
		0.6652	GGL-NiMn 13 7	L- NM 13 7			L-NiMn 13 7						
		0.6655	GGL-NiCuCr 15 6 2	L-NUC 15 6 2			L-NiCuCr 15 6 2						A 436 Type 1
		0.6656	GGL-NiCuCr 15 6 3	L-NUC 15 6 3			L-NiCuCr 15 6 3						A 436 Type 1b
		0.6660	GGL-NiCr 20 2	L-NC 20 2			L-NiCr 20 2	05 23-00					A 436 Type 2
		0.6661	GGL-NiCr 20 3	L-NC 20 3			L-NiCr 20 3						A 436 Type 2b
		0.6667	GGL-NiSiCr 20 5 3	L-NSC 20 5 3			L-NiSiCr 20 5 3						
		0.6676	GGL-NiCr 30 3	L-NC 30 3			L-NiCr 30 3						A 436 Type 3
		0.6680	GGL-NiSiCr 30 5 5	L-NSC 30 5 5			L-NiSiCr 30 5 5						A 436 Type 4
	K.2.1	0.7033	GGG-35.3			42 2303							
		0.7040	GGG-40	FGS 400-12	GS 400-12	42 2304	SNG 420/12	0717-02	FGE 38-17	FCD 40	VC 42-12		60 40 18

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K	K.2.1	0.7043	GGG-40.3	FGS 370-17	GSO 42/17	42 2314	SNG 370/17	0717-15			VC 42-12		
		0.7050	GGG-50	FGS 500-7	GS 500/7	42 2305	SNG 500/7	0727-02	FGE 50-7	FCD 50	VC 50-2		65-45-12
		0.7060	GGG-60	FGS 600-3	GS 600/3	42 2306	SNG 600/3	0732-03		FCD 60	VC 60-2		80-55-06
	K.2.2	0.7070	GGG-70	FGS 700-2	GS 700-2	42 2307	SNG 700/2	0737-01	FGS 70-2	FCD 70	VC 70-2		100-70-03
		0.7080	GGG-80	FGS 800-2	GS 800-2	42 2308	SNG 800/2				VC 80-2		120-90-02
		0.7652	GGG-NiMn 13 7	S-NM 13 7			S-NiMn 13 7						
		0.7660	GGG-NiCr 20 2	S-NC 20 2			S-NiCr 20 2						A 439 Type D-2
		0.7661	GGG-NiCr 20 3	S-NC 20 3			S-NiCr 20 3						A 439 Type D-2B
		0.7665	GGG-NiSiCr 20 5 2	S-NSC 20 5 2			S-NiSiCr 20 5 2						
		0.7670	GGG-Ni 22	S-N 22			S-Ni 22						A 439 Type D-2C
		0.7673	GGG-NiMn 23 4	S-NM 23 4			S-NiMn 23 4						A 439 Type D-2M
		0.7676	GGG-NiCr 30 3	S-NC 30 3			S-NiCr 30 3						A 439 Type D-3
		0.7677	GGG-NiCr 30 1	S-NC 30 1			S-NiCr 30 1						A 439 Type D-3A
		0.7680	GGG-NiSiCr 30 5 5	S-NSC 30 5 5			S-NiSiCr 30 5 5						A 439 Type D-4
		0.7683	GGG-Ni 35	S-N 35			S-Ni 35						A 439 Type D-5
		0.7685	GGG-NiCr 35 3	S-NC 35 3			S-NiCr 35 3						A 439 Type D-5B
		0.8065	GTW-65										
	K.3.1	0.8035	GTW-35-04			42 2536			GTW 35				
		0.8040	GTW-40-05			42 2540							
		0.8045	GTW-45-07										
		0.8055	GTW-55										
		0.8135	GTS-35-10	MN 35-10		42 2533	B 340/12		GTS 35				
		0.8145	GTS-45-06			42 2545	P 440/7		GTS 45				
		0.8155	GTS-55-04	MP 50-5		42 2555	P 510/4		GTS 55				
		0.8165	GTS-65-02	MP 60-3			P 570/3		GTS 65				
	K.3.2	0.8170	GTS-70-02	IP 70-2			P 690/2		GTS 70				
N	N.1.1	3.3307	Al99.85Mg0.5										
		3.3308	Al99,9Mg0,5										
		3.3315	AlMg1	5005 (AlMg1)					L-3350				
		3.3316	AlMg1.5										
		3.3317	Al99.85Mg1										
		3.3318	Al99.9Mg1										
		3.3326	AlMg1.8										
		3.3523	AlMg2.5										
		3.3525	AlMg2Mn0.3										
		3.3527	AlMg2Mn0.8										
		3.3535	AlMg3	5754									
		3.3537	AlMg2.7Mn										
		3.3555	AlMg5	5056 A									
		3.3561	G-AlMg5										
		3.3591	G-AlMg10										
		3.0205	Al99	1200 (A4)	9001/1	42 4009			L-3001				
		3.0255	Al99.5	1050 A	9001/2	42 4004			L-3051				
		3.0275	Al99.7	1070 A		42 4003			L-3071				
		3.0285	Al99.8	1080 A (A8)		42 4002			L-3081				
		3.0305	Al99.9										
		3.0505	AlMn0.5Mg0.5										
		3.0506	AlMn0.6										
		3.0515	AlMn1			42 4432			L-3810				
		3.0517	AlMnCu										
		3.0525	AlMn1Mg0.5	3005									

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N	N.1.1	3.0526	AlMn1Mg1										
		3.0615	AlMgSiPb										
		3.0915	AlFeSi										
	N.1.2	3.2307	Al99.85MgSi										
		3.2315	AlMgSi1	6082	9006/4	42 4400							6082
		3.3206	AlMgSi0,5	6060 (AGS)		42 4401			L-3441				6063
		3.3208	Al99.9MgSi										
		3.3210	AlMgSi0.7	6005 A									
		3.3211	AlMg1SiCu	6061									
		3.3345	AlMg4.5										
		3.3545	AlMg4Mn	5086 (AG4MC)	9005/5				L-3322				5083
		3.3547	AlMg4,5Mn0,7	5083 (AlMg5Mn0,7)			N8		L-3321	A 5083			A95083
		3.3549	AlMg5Mn										
		3.4335	AlZn4,5Mg1	7020 (AZ5G)	9007/1	42 4441			L-3741				7020
		3.4337	Al99.8ZnMg										
		3.4345	AlZnMgCu0.5										
		3.4365	AlZnMgCu1.5	7075 (AZ5GU)		42 4222			L-3710				7075
		2.1086	G-CuSn10Zn										
		3.1255	AlCuSiMn	2014	9002/3								2014
		3.1305	AlCu2.5Mg0.5										
		3.1325	AlCuMg1	2017 A (AU4G)					L-3120				2017 A
		3.1355	AlCuMg2	2024 (AU4G1)	9002/4	42 4203			L-3140				2024
		3.1645	AlCuMgPb	2030 (AU4PB)		42 4254			L-3121				
		3.1655	AlCuBiPb	2011 (AU5PbBi)	9002/5				L-3192				2011
		MFK											
	N.2.1	3.2581	G-AlSi12			42 4330							
		3.2583	G-AlSi12(Cu)			42 4330							
		3.3261	G-AlMg5Si			42 4515							
		3.3292	GD-AlMg9			42 4519							
		3.3541	G-AlMg3										
		3.3543	G-AlMg3(Cu)										
	N.2.2	3.2134	G-AlSi5Cu1Mg										
		3.2151	G-AlSi6Cu4			42 4357							
		3.2161	G-AlSi8Cu3										
		3.2341	G-AlSi5Mg										
		3.2371	G-AlSi7Mg			42 4334							
		3.2373	G-AlSi9Mg			42 4331							
		3.2381	G-AlSi10Mg			42 4331							
		3.2383	G-AlSi10Mg(Cu)			42 4331							
		3.3241	G-AlMg3Si										
		3.1371	G-AlCu4TiMg										
		3.1841	G-AlCu4Ti										
	N.3.1	2.0040	OF-Cu			42 3000							
		2.0060	E-Cu57			42 3001							
		2.0065	E-Cu58			42 3001							
		2.0070	SE-Cu										
		2.0076	SW-Cu										
		2.0090	SF-Cu			42 3003							
		2.0220	CuZn5			42 3200							
		2.0230	CuZn10			42 3201							
		2.0240	CuZn15			42 3202							

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N	N.3.1	2.0250	CuZn20			42 3203							
		2.0261	CuZn28										
		2.0265	CuZn30			42 3210							
		2.0280	CuZn33			42 3212							
		2.0321	CuZn37		C2700	42 3213							
		2.0335	CuZn36										
		2.0360	CuZn40			42 3220							
		2.0460	CuZn20Al2										
		2.0470	CuZn28Sn1										
		2.0510	CuZn37Al1			42 3231							
		2.0530	CuZn38Sn1			42 3237							
		2.0730	CuNi12Zn24										
		2.0740	CuNi18Zn20										
		2.0830	CuNi25										
		2.0842	CuNi44Mn1										
		2.0853	CuNi1.5Si										
		2.0855	CuNi2Si			42 3054							
		2.0857	CuNi3Si										
		2.0872	CuNi10Fe1Mn										
		2.0875	CuNi9Sn2										
		2.0882	CuNi30Mn1Fe										
		2.0883	CuNi30Fe2Mn2										
		2.0918	CuAl5As										
		2.0920	CuAl8										
		2.0932	CuAl8Fe3										
		2.0936	CuAl10Fe3Mn2										
		2.0960	CuAl9Mn2										
		2.0966	CuAl10Ni5Fe4										
		2.0971	CuAl9Ni3Fe2										
		2.1016	CuSn4										
		2.1020	CuSn6										
		2.1030	CuSn8										
		2.1080	CuSn6Zn6										
		2.1191	CuAg0.1P										
		2.1203	CuAg0.1										
		2.1245	CuBe1.7										
		2.1247	CuBe2										
		2.1293	CuCrZr			42 3039							
		2.1310	CuFe2P										
		2.1522	CuSi2Mn										
		2.1525	CuSi3Mn										
		Ampco 16	CuAl10Fe3										
		Ampco 18	CuAl10.5Fe3.5										
		Ampco 8	CuAl6.5Fe2.5Sn										
			Ampco 8-16										
	N.3.2	2.0331	CuZn36Pb1.5			42 3214							
		2.0332	CuZn37Pb0.5										
		2.0372	CuZn39Pb0.5			42 3221							
		2.0540	CuZn35Ni2										
		2.0550	CuZn40Al2										
		2.0561	CuZn40Al1			42 3231							

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N	N.3.2	2.0572	CuZn40Mn1			42 3234							
		2.0580	CuZn40Mn1Pb										
		2.0780	CuNi12Zn30Pb1										
		2.0790	CuNi18Zn19Pb1										
		2.1498	CuSP										
		2.1504	NiAlBz										
		2.1546	CuTeP										
		Ampco 12	CuAl9Fe3										
		Ampco 20	CuAl11Fe4										
	N.3.3	2.0371	CuZn38Pb1.5			42 3222							
		2.0375	CuZn36Pb3										
		2.0380	CuZn39Pb2			42 3223							
		2.0401	CuZn39Pb3										
		2.0402	CuZn40Pb2			42 3223							
		2.0410	CuZn44Pb2										
		2.0490	CuZn31Si1										
		2.0500	CuZn23Al6Mn4Fe3										
		2.0771	CuNi7Zn39Mn5Pb3										
		2.0978	CuAl11Ni6Fe5										
		2.1093	G-CuSn6ZnNi										
		2.1096	G-CuSn5ZnPb										
		2.1285	CuCo2Be										
		Ampco 21	CuAl13Fe4.5										
		Ampco 22	CuAl14Fe5										
		Ampco 25											
		Ampco 26											
			Ampco 18-26										
	N.4.1	3.5101	G-MgZn4SE1Zr1										
		3.5102	G-MgZn5Th2Zr1										
		3.5103	G-MgSE3Zn2Zr1										
		3.5105	G-MgTh3Zn2Zr1										
		3.5106	G-MgAg3Se2Zr1										
		3.5200	MgMn2										
		3.5312	MgAl3Zn										
		3.5470	GD-MgAl4Si1										
		3.5612	GD-MgAl6Zn1										
		3.5662	G-MgAl6										
		3.5812	G-MgAl8Zn1			42 4911							
		3.5912	GD-MgAl9Zn1			42 4911							
S	S.1.2	1.4980	X 5 NiCrTi 26 15									S66286	
	S.2.1	1.3924	Ni54										
		1.3926	RNi12			42 3484							
		1.3927	RNi8			42 3484							
		2.4360	NiCu30Fe	Monel 400		42 3431							
		2.4610	NiMo16Cr16Ti	Hastelloy C-4									
		2.4617	NiMo28	Hastelloy B-2									
		2.4630	NiCr20Ti	Nimonic 75			HR 5						
		2.4668	NiCr19Fe18Nb5Mg	Inconel 718									
		2.4812	NiCr17Mo17FeW	Hastelloy C									
		2.4819	NiMo16Cr15W	Hastelloy C-276									
		2.4851	NiCr23Fe, Inconel 601	Inconel 601									

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S	S.2.1	2.4856	NiCr22Mo9Nb	Inconel 625									
		2.4858	NiCr21Mo				NA 16			NCF 825		N 08825	
		2.4951	NiCr20Ti	Nimonic 75			HR 5						
		2.4964	CoCr20W15Ni										
		2.4989	CoCr20NiW										
	S.2.2	2.4375	NiCu30Al	Monel K 500									
		2.4631	NiCr20TiAl	Nimonic 80 A			HR 401; 601			NCF 80 A		N 07080	
		2.4634	NiCo20Cr15MoAlTi	Nimonic 105									
		2.4640	NiCr15Fe	Inconel 600									
		2.4654	NiCr20Co13Mo4Ti4Al	Waspaloy									
		2.4662	NiCr13Mo6Ti3	Nimonic 901									
		2.4668	NiCr19Fe18Nb5Mg	Inconel 718									
		2.4816	NiCr15Fe	Inconel 600			NA 14			NCF 600		N 06600	
		2.4952	NiCr20TiAl	Nimonic 80 A									
		2.4973	NiCr19Co11MoTi										
		2.4983	NiCr18Co18MoAlTi	Udimet 500									
	S.2.3	2.4670	G-NiCr13Al6MoNb	Nimocast 713									
		2.4674	NiCo15Cr10MoAlTi	Nimocast PK 24									
		2.4979	CoCr28MoNi										
	S.3.1	3.7024	Ti99,5										
		3.7025	Ti99,8										
		3.7034	Ti99,7										
		3.7055	Ti99,4										
		3.7064	Ti99,2										
		3.7124	TiCu2										
	S.3.2	3.7114	TiAl5Sn2										
		3.7144	TiAl6Sn2Zr4Mo2										
		3.7154	TiAl6Zr5										
		3.7165	TiAl6V4	T-A 6 V			TA 10 – TA 13					R 56400	
		3.7174	TiAl6V6Sn2										
		3.7184	TiAl4Mo4Sn2				TA 45 – TA 51						
H	H.1.1	1.2311	40 CrMnMo 7			19 520							
		1.2312	40 CrMnMoS 8 6	40 CMD 8 + S									
		1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2738	40 CrMnNiMo 8						F-5303				
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4112	X 90 CrMoV 18									S 44003	
		1.5122	37 MnSi 4			13 240							
		1.6358	X 2 NiCoMoTi 18 9 5										
		1.6582	34 CrNiMo 6	35 NCD 6	35 NiCrMo 6 (KW)	16 342	817 M 40	2541	F-128 / F-1270	SNCM 447	38Ch2N2MA		4340
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7176	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550	5155
		1.0961	60 SiCr 7	60 SC 7	60 SiCr 8					SUP 7			9262

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
H	H.1.1	1.1248	Ck 75	XC 75	C 75	12 081	060 A 78	1774; 1778			75	G 10780	1078; 1080
		1.1273	90 Mn 4										
	H.1.2	1.2083	X 42 Cr 13	Z 40 C 14	X 41 Cr 13 KU	19 435			F-5263	SUS 420 J 2			
		1.2323	GS-48 CrMoV 6 7										
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2367	X 38 CrMoV 5 3										
		1.2510	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501	O 1
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2606	G-X 37 CrMoW 5 1										
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2713	55 NiCrMoV 6	55 NCDV 7		19 662			F-520.S	SKT 4	5ChNM	T 61206	L 6
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.4109	X 65 CrMo 14										
		1.4112	X 90 CrMoV 18									S 44003	
		1.1157	40 Mn 4	35 M 5			150 M 36				40G	G 10390	1039
		1.1231	Ck 67	XC 68	C 70	12 071	060 A 67	1770			70	G 10700	1070
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
	H.1.3	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2101	62 SiMnCr 4										
		1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2201	G-X 165 CrV 12										
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2341	X 6 CrMo 4										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrVMo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2419	105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG		
		1.2601	X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310					
		1.2721	50 NiCr 13										
		1.2735	15 NiCr 14	10 NC 12		16 240				SNC 22		T 51606	
		1.2833	100 V 1	Y1 105 V	102 V 2 KU	19 356	BW 2			SKS 43		T 72302	W 210
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.4112	X 90 CrMoV 18									S 44003	
		1.4125	X 105 CrMo 17	Z 100 CD 17	X 105 CrMo 17					SUS 440 C		S 44004	440 C
		1.8161	58 CrV 4			15 261							
		1.1520	C 70 W1										
	H.1.4	1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2436	X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2			
		1.2880	G-X 165 CrCoMo 12										
		1.3202	S 12-1-4-5			19 858						T 12015	T15
		1.3207	S 10-4-3-10	Z 130 WKCDV 10-10-04	HS 10-4-3-10	19 861	BT 42		F-5553	SKH 57			
		1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05	HS 6-5-2-5	19 852		2723	F-5613	SKH 55	R6M5K5		
		1.3246	S 7-4-2-5	Z 110 WKCDV 07-05-04	HS 7-4-2-5	19 851						T 11341	M 41
		1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	HS 2-9-1-8		BM 42			SKH 51		T 11342	M 42
		1.3249	S 2-9-2-8				BM 34					T 11333	M 33; M 34
		1.3257	S 18-1-2-15										
		1.3333	S 3-3-2		HS 3-3-2	19 820							
		1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	HS 6-5-2	19 830	BM 2	2722	F-5603	SKH 9; SKH 51	R6AM5	T 11302	M 2
		1.3344	S 6-5-3	Z 120 WDCV 06-05-04	HS 6-5-3		BM 4			SKH 52; SKH 53		T 11323	M 3 Cl. 2
		1.3346	S 2-9-1	Z 85 DCWV 08-04-02-0	HS 1-8-1		BM 1				H41	T 11301	H 41; M 1

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	GOST	UNS	USA
H	H.1.4	1.3348	S 2-9-2	Z 100 DCWV 09-04-02	HS 2-9-2			2782				T 11307	M 7
		1.3355	S 18-0-1	Z 80 WCV 18-04-01	HS 18-0-1	19 824	BT 1			SKH 2	R18	T 12001	T 1
		1.1654	C 110 W										
	H.3.1	0.9620	G-X 260 NiCr 4 2				Grade 2 A	0512-00					A 532 I B NiCr-LC
		0.9625	G-X 330 NiCr 4 2				Grade 2 B	0513-00					A 532 I A NiCr-HC
		0.9630	G-X 300 CrNiSi 9 5 2				Grade 2 C; D; E	0457-00					A 532 I D Ni-HiCr
		0.9635	G-X 330 CrMo 15 3				Grade 3 A; B						A 532 II C 15% CrMo-
		0.9640	G-X 300 CrMoNi 15 2				Grade 3 A; B						
		0.9645	G-X 260 CrMoNi 20 2				Grade 3 C						A 532 II D 20% CrMo-
		0.9650	G-X 260 Cr 27				Grade 3 D	0466-00					A 532 III A 25% Cr
		0.9655	G-X 300 CrMo 27 1				Grade 3 E						A 532 III A 25% Cr
O	O.1.1	EP											
		MF											
		PF											
		UP											
	O.1.2	PA											
		PC											
		PE											
		PI											
		PMMA											
		POM											
		PP											
		PS											
		PTFE											
		PVC											
	O.2.1	AFK											
	O.2.2	CFK											
		GFK											
	O.3.1	Graphit											

ISO designation system

ISO attribute	Feature Description
A	
ADJRG	Adjustment range
ADJRGR	Adjustment range radial
ALP	Clearance angle axial
AN	Clearance angle major
APMX	Depth of cut maximum
B	
B	Shank width
BD	Body diameter
BD_1	Body diameter, 1st cutting step
BD_2	Body diameter, 2nd cutting step
BD_3	Body diameter, 3rd cutting step
BD_4	Body diameter, 4th cutting step
BDRED	Body diameter, reduced
BDX	Body diameter maximum
BHTA	Body half taper angle
BLQ	Balance quality code
BN	Face land width
BS	Trailing edge length
BTED	Body taper end diameter
C	
CDX	Cutting depth maximum
CF	Central flat
CHW	Corner chamfer width
CHWTL	Flank chamfer width left hand
CLDIS_1	Centre line distance 1
CLDIS_2	Centre line distance 2
CLDIS_3	Centre line distance 3
CND	Coolant entry diameter
CNT	Coolant entry, thread size
CODX	Parting off diameter, max.
CRE	Spot radius
CRKS	Pull stud thread size
CW	Cutting width
CXD	Coolant exit diameter
D	
D1	Fixing hole diameter
DAXN	Axial groove outside diameter minimum
DAXX	Axial groove outside diameter maximum
DC	Cutting diameter
DC_1	Cutting diameter, 1st cutting step
DC_2	Cutting diameter, 2nd cutting step
DCD	Cutting diameter drilling part
DCINTF	Interference cutting diameter
DCN	Cutting diameter minimum
DCONMS	Mounting spigot diameter
DCONWS	Connection diameter workpiece side
DCONWS_1	Connection diameter workpiece side – 1
DCONWS_2	Connection diameter workpiece side – 2
DCSKX	Countersunk diameter, max
DCX	Cutting diameter maximum
DF	Flange diameter
DFC	Functional diameter
DHUB	Hub diameter
DLN	Diameter lock nut
DMIN	Minimum bore diameter
DN	Neck Diameter
DRVS	Drive size

ISO attribute	Feature Description
G	
GAN	Insert rake angle
GB	Face land angle
H	
H	Shank height
HDD	Head diameter
HDW	Head width
HF	Functional height
HLN	Lock nut height
HSUP	Support height
I	
IC	Inscribed circle diameter
IDNR	Identifying order number
IH	Insert hand
INSL	Insert length
K	
KAPR	Tool cutting edge angle
KCH	Corner chamfer angle
L	
L	Cutting edge length
L_1	Cutting edge length 1
L_2	Cutting edge length 2
L_3	Cutting edge length 3
LB	Body length
LB_1	Body length 1
LB_2	Body length 2
LCF	Length chip flute
LCOL	Collet length
LDRED	Reduced body diameter length
LE	Cutting edge effective length
LF	Functional length
LF_1	Functional length 1
LF_2	Functional length 2
LF_3	Functional length 3
LFSF	Distance to face
LH	Head length
LPCON	Connection protruding length
LPR	Protruding length
LS	Shank length
LSC	Clamping length machine side
LSCN	Clamping length minimum machine side
LSCX	Clamping length maximum machine side
LTA	Length tool assembly
LU	Usable length
M	
MXC	Clamping force maximum
N	
NOF	Flute count
NT	Tooth count
O	
OAH	Overall height
OAL	Overall length
OAW	Overall width

Continued on next page

ISO designation system

ISO attribute	Feature Description
P	
PDPT	Profile depth insert
PDX	Profile distance ex
PDY	Profile distance ey
PHD	Premachined hole diameter
PL	Point length
PLGL	Plug length
PNA	Profile included angle
PRFA	Profile angle
PRFRAD	Profile radius
PRFRAD1	Profile radius 1
PRFRAD2	Profile radius 2
PRFRAD3	Profile radius 3
PSIR	Tool lead angle
R	
RA	Relief angle
RADH	Radial height
RADW	Radial width
RADWOF	Radial offset width
RAL	Relief angle lh
RAR	Relief angle rh
RCSK	Radius countersunk
RE	Corner radius
RE_1	Corner radius 1
RE_2	Corner radius 2
RE_3	Corner radius 3
REL	Corner radius left hand
RETL	Flank radius left hand
RETR	Flank radius right hand
RHCDL	Radial height chamfer distance lower
RHCDU	Radial height chamfer distance upper
RPMX	Rotational speed maximum
S	
S	Insert thickness
S1	Insert thickness total
SD	Step distance
SDL	Step diameter length
SDL_1	Step diameter length 1
SDL_2	Step diameter length 2
SZID	Nominal size
T	
TD	Thread diameter
TDIN	Thread diameter, inch measure
THID	Thread designation inside
THL	Thread cutting part length
THOD	Thread designation outside
THSZMS	Connection thread nominal size
THSZWS	Connection thread nominal size workpiece side
TP	Thread pitch
TPI	Threads per inch
TQX	Torque maximum

ISO attribute	Feature Description
W	
W1	Insert width
WF	Functional width
WF2	Functional width 2
WT	Weight of item
Z	
ZEFF	Face effective cutting edge count
ZEFP	Peripheral effective cutting edge count
ZNF	Face mounted insert count
ZNP	Peripheral mounted insert count

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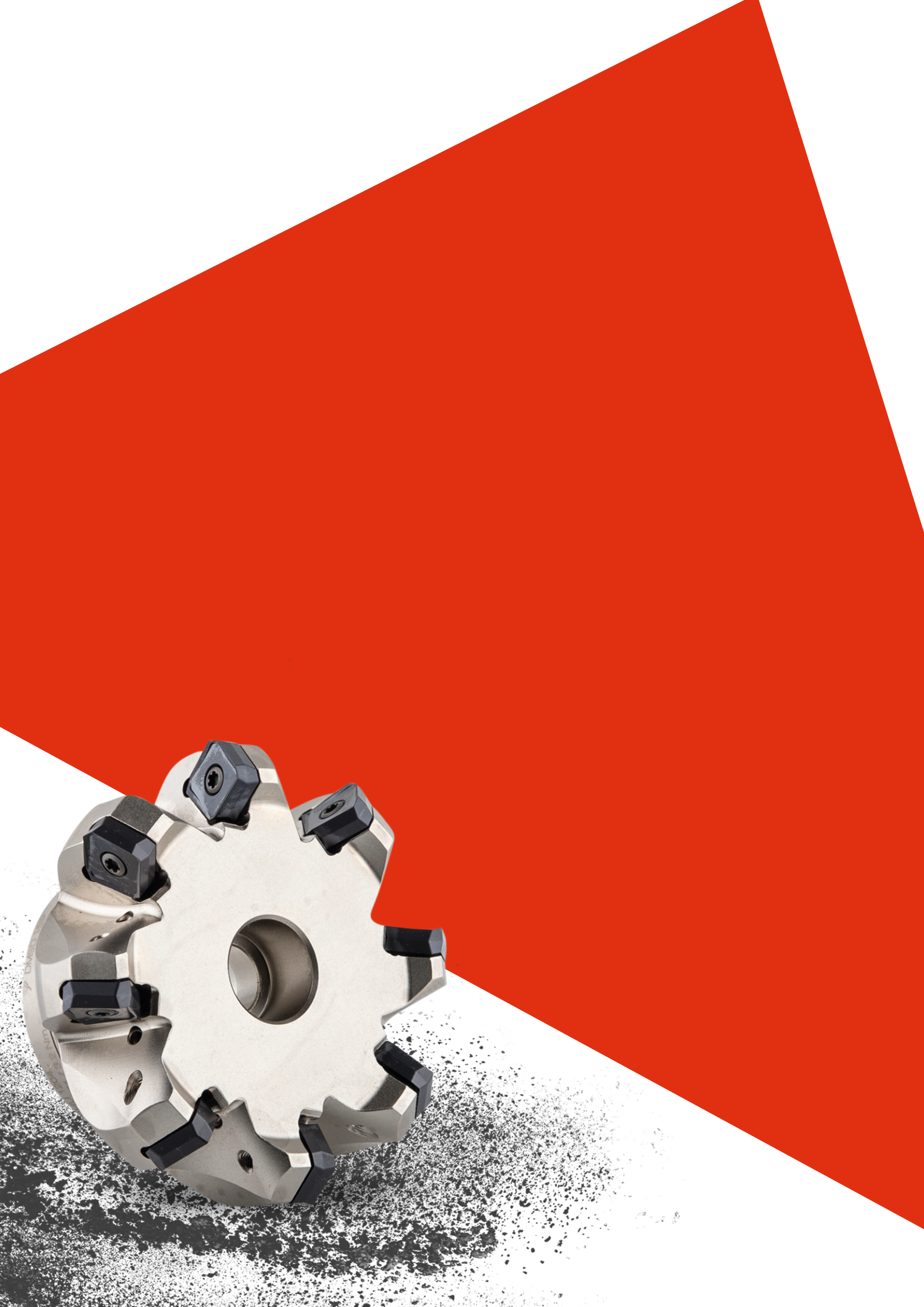



CERATIZIT is a high-technology engineering group specialised in cutting tools and hard material solutions.

Tooling a Sustainable Future

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UP2DATE



Machining titanium the easy way!

MaxiMill – 211-DC with DirectCooling

Faster. Longer. Safer.

... ADDITIONAL PRODUCT HIGHLIGHTS

- **Cermet grade CTEP110-P:** Be amazed with our Coating update for finish turning
- Precise aluminum machining complex small components with the new **Micro milling cutters AluLine – Micro**

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Your customer number



Precision cooling strategy

with the additively manufactured
MaxiMill – 211-DC milling system

CERATIZIT

The ideal nozzle position for decisive added value when machining titanium and other heat-resistant materials

Want to achieve maximum process security despite high cutting speeds while working efficiently?

We offer you these exact advantages in a single tool – our 3D-printed MaxiMill – 211-DC indexable insert milling system manufactured here at CERATIZIT. The patented shoulder mill stands out for its decisive added value when machining titanium and other heat-resistant materials, thanks to an **optimum DirectCooling supply on the indexable insert flanks**. Because these materials in particular require the most effective possible cooling with emulsion to achieve a good machining result.

→ **from page 44**
You can find further information on the product here.

cts.ceratizit.com/gb/en/maximill-211-dc



CERATIZIT

The cool way to machine titanium alloys

Optimising the flank cooling system for machining titanium and super alloys was a top priority for the base body of the MaxiMill – 211-DC. So our developers at CERATIZIT came up with a concept that wouldn't have been possible with conventional machining processes. The aim was to deliver as much coolant as possible straight to the cutting edge. This called for a highly complex design that was feasible thanks to additive manufacturing.



3D-printed tool holder with perfectly positioned coolant channels

Advantage/benefit

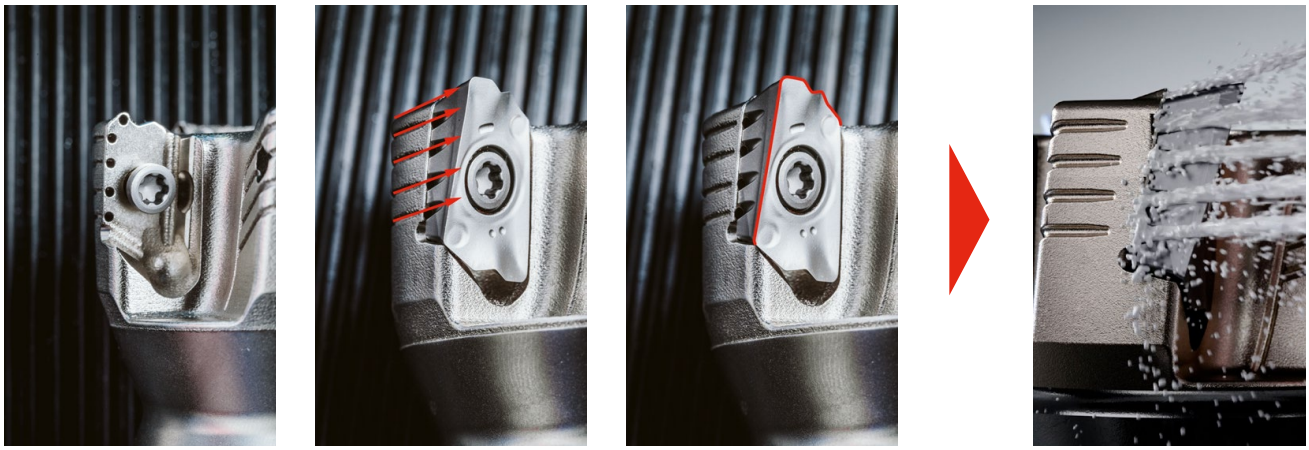
- ▲ Optimum DirectCooling supply on the indexable insert flanks
- ▲ Indexable insert geometry and nozzle position perfectly tailored to DirectCooling

Less wear to indexable inserts → **Lowers tool costs**

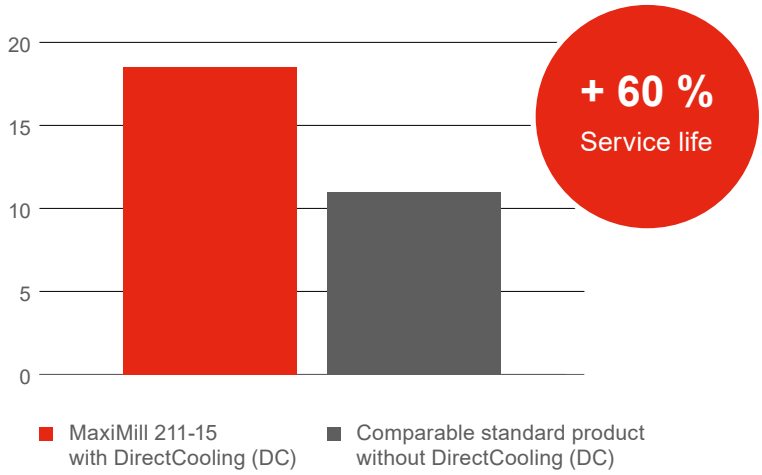
Enables higher machining parameters → **Optimises production time**

The perfect combination: an ideal nozzle position with matching insert geometry

Produced with additive manufacturing, the base body of the milling cutter on the MaxiMill – 211-DC opens up scope for the complexity required for flank cooling. This creates the perfect combination of geometric and functional properties – the ideal nozzle position, paired with an **insert geometry that is precisely tailored** for cooling – guaranteeing full-coverage wetting of the coolant on the indexable insert cutting surface.



Test report: Service life [min] compared to standard tools

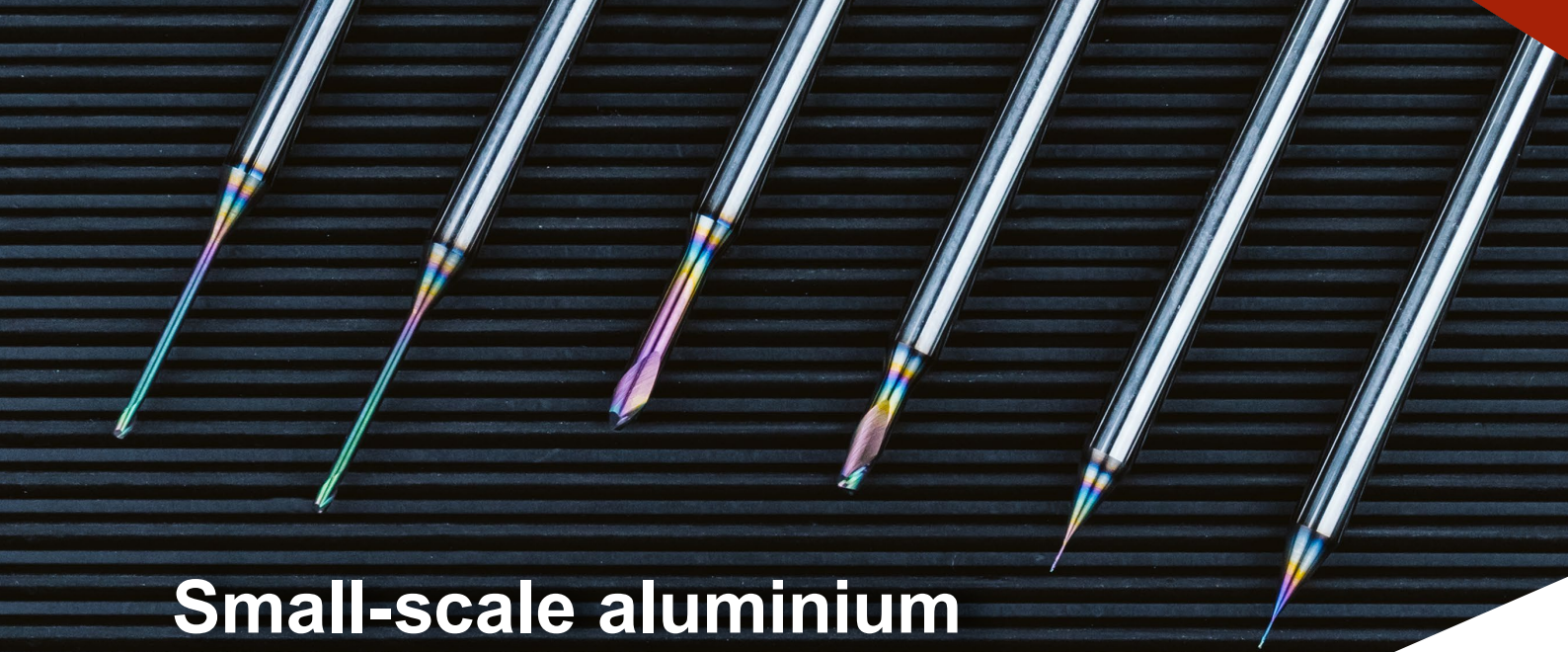


Machine:	GROB G1050
Workpiece:	TiAl6V4
Tool:	MaxiMill – 211-DC
v_c:	65 m/min.
a_p:	6 mm / a_e 18 mm / f_z 0,13 mm
Coolant pressure:	80 bar



Having that extra time on the service life really takes the pressure off for our customers when machining titanium and super alloys. Plus, they benefit from a reliable process – with significantly lower tool usage.

Manuel Höfferer, Application Manager Aerospace & Defence



Small-scale aluminium machining

with AluLine – Micro



WNT

Micro cutter for complex micro components

AluLine – Micro: with DLC coating and minimal tolerances

Workpieces are getting smaller all the time – from the medtech sector, to the latest smartphones, through to elegant watch cases. This means the tools used to make these components are going miniature as well. So we decided to completely redesign the micro cutters in our AluLine – Micro range and adapt them to the industry's requirements.

→ from page 34
You can find further information on the product here.

cts.ceratizit.com/gb/en/aluline-micro

Advantages of the AluLine – Micro cutters

- ▲ Latest geometry
- ▲ Polish grinding for uniform cutting edges and optimal chip removal
- ▲ Wear-resistant, thin and ultra-smooth DLC coating
- ▲ Outstanding price-performance ratio
- ▲ Extensive, integrated range up to overhang lengths of 12xD
- ▲ Also suitable for shrinking with shank diameter of 4 mm
- ▲ Smallest tolerances, for maximum contour quality on the component (3 µm at diameter of 0.2 mm)

Large portfolio of micro tools for machining aluminium

We offer a range of tool variants for AluLine – Micro:

- ▲ Radius and torus cutters, plus end mills with corner chamfer
- ▲ Various shank versions and geometries
- ▲ Diameters ranging from 0.2 mm to 3.0 mm
- ▲ Overhang lengths from 3xD to 12xD

With this product range, CNC machinists can be confident they have the right tool for most micro-cutting jobs involving aluminium alloys, copper and other non-ferrous metals.



Corner chamfer

Full Radius



Torus





Cermet cutting material grades take finish turning to the next level

CERATIZIT

Coating update for cermet CTEP110-P grade

Cermet cutting inserts are a top choice for those looking to lower their costs when finishing steel. These cutting inserts are more heat-resistant than those made of carbide, so CNC Machinists can use higher cutting data and shorten their processes. Other stand-out features include dimensional accuracy and long service lives, especially when the cutting inserts are equipped with a powerful DRAGONSKIN coating including insert detection – which is exactly what the new cermet inserts from CERATIZIT do.

→ **from page 14**
You can find further information on the product here.

cts.ceratizit.com/gb/en/cermet-inserts

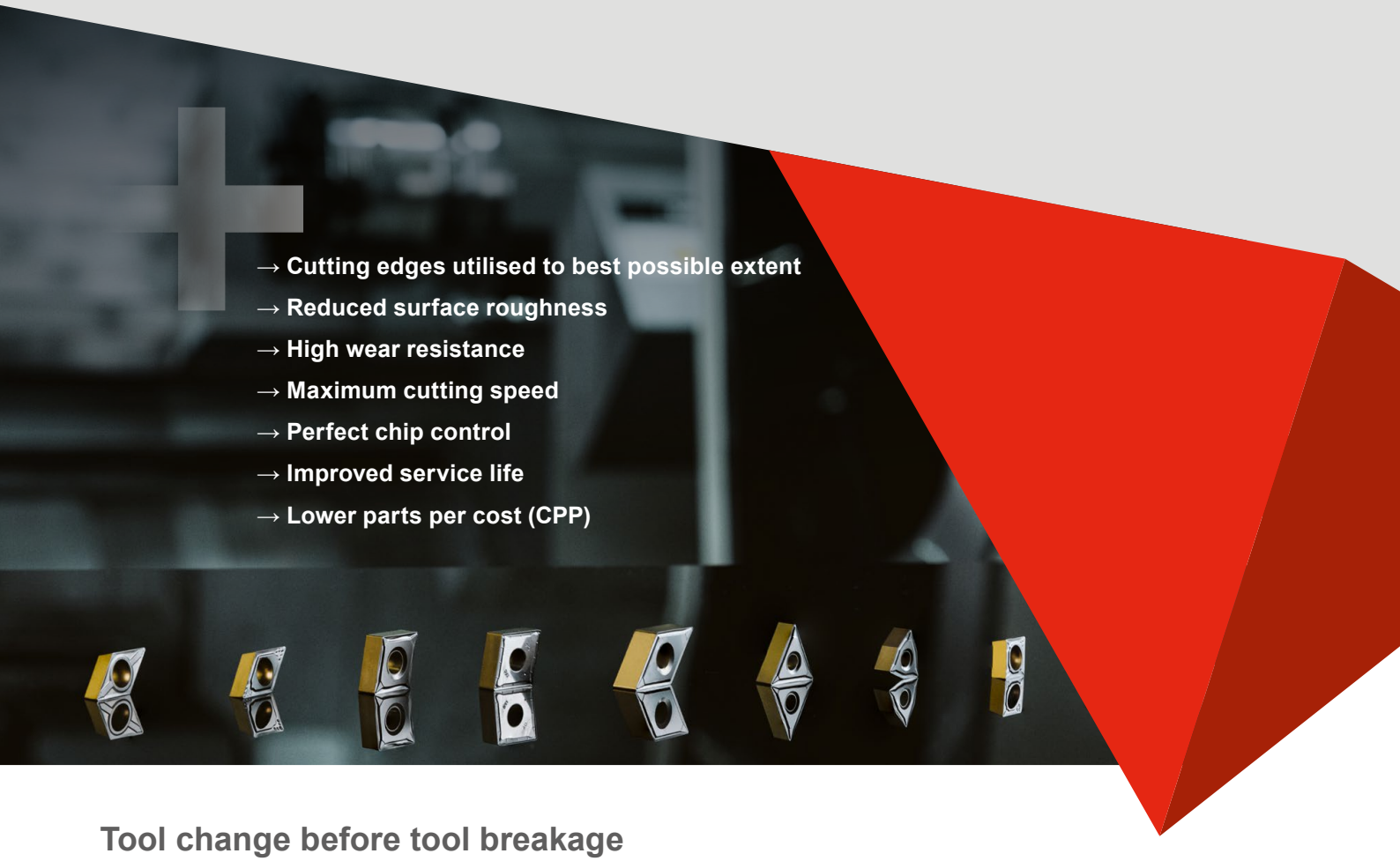
Why choose cermet?

Cermet offers a number of advantages over carbide in certain applications, creating the conditions for very high cutting speeds in combination with long service lives – while delivering extremely smooth surfaces on the workpiece.

Efficient production thanks to all-round package with optimised characteristics

Advantages of the CTEP110-P cermet cutting material with a new coating:

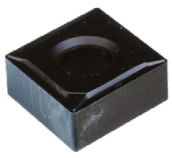
- ▲ Unique multilayer CVD coating
- ▲ Gold-coloured indicator layer for insert detection
- ▲ Improved texture and grain sizes of TiCN- & Al_2O_3layers
- ▲ Special post-treatment process
- ▲ Optimised chip breakers
- ▲ Perfect match between chip breakers and grade



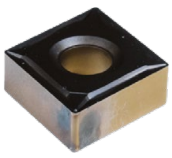
→ Cutting edges utilised to best possible extent
→ Reduced surface roughness
→ High wear resistance
→ Maximum cutting speed
→ Perfect chip control
→ Improved service life
→ Lower parts per cost (CPP)

Tool change before tool breakage

Thanks to the newly updated coating with insert detection, wear is more readily identified simply by taking a quick look at the cutting edges. This lets you utilise each individual cutting edge on the indexable insert to the best possible extent while avoiding tedious tool breakages.



Predecessor insert with coating / without insert detection



CTEP110-P with coating upgrade and insert detection

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Cermet indexable inserts
CTEP110-P

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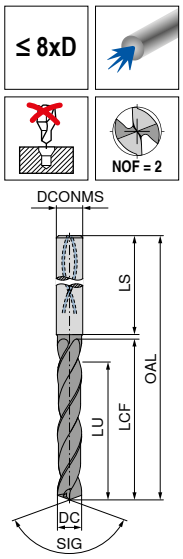
Shoulder milling system
MaxiMill – 211-DC

WTX – High Speed Drill, DIN 6537

- For corrosion and acid-resistant steels
- Developed for high cutting speeds
- Three guide lands for low friction



NEW

Speed VA

Ti800



SIG 135°

Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 701 ... £ T4	
3.0	6	72	34	29	36	194.07	03000
3.1	6	72	34	29	36	194.07	03100
3.2	6	72	34	29	36	194.07	03200
3.3	6	72	34	29	36	194.07	03300
3.4	6	72	34	29	36	194.07	03400
3.5	6	72	34	29	36	194.07	03500
3.6	6	72	34	29	36	194.07	03600
3.7	6	72	34	29	36	194.07	03700
3.8	6	81	43	36	36	194.07	03800
3.9	6	81	43	36	36	194.07	03900
4.0	6	81	43	36	36	194.07	04000
4.1	6	81	43	36	36	194.07	04100
4.2	6	81	43	36	36	194.07	04200
4.3	6	81	43	36	36	194.07	04300
4.4	6	81	43	36	36	194.07	04400
4.5	6	81	43	36	36	194.07	04500
4.6	6	81	43	36	36	194.07	04600
4.8	6	95	57	48	36	194.07	04800
5.0	6	95	57	48	36	194.07	05000
5.1	6	95	57	48	36	194.07	05100
5.2	6	95	57	48	36	194.07	05200
5.3	6	95	57	48	36	194.07	05300
5.4	6	95	57	48	36	194.07	05400
5.5	6	95	57	48	36	194.07	05500
5.6	6	95	57	48	36	194.07	05600
5.7	6	95	57	48	36	194.07	05700
5.8	6	95	57	48	36	194.07	05800
5.9	6	95	57	48	36	194.07	05900
6.0	6	95	57	48	36	194.07	06000
6.1	8	114	76	64	36	236.34	06100
6.2	8	114	76	64	36	236.34	06200
6.3	8	114	76	64	36	236.34	06300
6.4	8	114	76	64	36	236.34	06400
6.5	8	114	76	64	36	236.34	06500
6.6	8	114	76	64	36	236.34	06600
6.8	8	114	76	64	36	236.34	06800
6.9	8	114	76	64	36	236.34	06900
7.0	8	114	76	64	36	236.34	07000
7.5	8	114	76	64	36	236.34	07500
7.8	8	114	76	64	36	236.34	07800
8.0	8	114	76	64	36	236.34	08000
8.1	10	142	95	80	40	308.20	08100
8.2	10	142	95	80	40	308.20	08200
8.3	10	142	95	80	40	308.20	08300
8.5	10	142	95	80	40	308.20	08500
8.8	10	142	95	80	40	308.20	08800
9.0	10	142	95	80	40	308.20	09000
9.3	10	142	95	80	40	308.20	09300
9.5	10	142	95	80	40	308.20	09500
9.8	10	142	95	80	40	308.20	09800
10.0	10	142	95	80	40	308.20	10000
10.2	12	162	114	96	45	420.02	10200
10.5	12	162	114	96	45	420.02	10500
10.8	12	162	114	96	45	420.02	10800
11.0	12	162	114	96	45	420.02	11000
11.5	12	162	114	96	45	420.02	11500
11.8	12	162	114	96	45	420.02	11800
12.0	12	162	114	96	45	420.02	12000
12.2	14	178	133	112	45	578.73	12200
12.5	14	178	133	112	45	578.73	12500
12.8	14	178	133	112	45	578.73	12800
13.0	14	178	133	112	45	578.73	13000
13.5	14	178	133	112	45	578.73	13500
13.8	14	178	133	112	45	578.73	13800
14.0	14	178	133	112	45	578.73	14000
14.5	16	203	152	128	48	765.98	14500
15.0	16	203	152	128	48	765.98	15000
15.5	16	203	152	128	48	765.98	15500
16.0	16	203	152	128	48	765.98	16000
16.5	18	222	171	144	48	1,053.20	16500
17.0	18	222	171	144	48	1,053.20	17000
17.5	18	222	171	144	48	1,053.20	17500
18.0	18	222	171	144	48	1,053.20	18000

P	●
M	●
K	●
N	○
S	●
H	
O	

→ v_c Page 13

Cutting data standard values – WTX – Speed VA

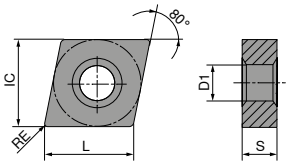
	Material sub-group	Index	Tensile strength N/mm²* / HB / HRC	10 701 ... with through coolant	8xD Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
				v_c (m/min)	f (mm/rev)				
P	Unalloyed steel	P.1.1	420 N/mm² / 125 HB	165	0,12	0,17	0,23	0,28	0,31
		P.1.2	640 N/mm² / 190 HB	160	0,11	0,16	0,22	0,26	0,30
		P.1.3	840 N/mm² / 250 HB	150	0,11	0,15	0,20	0,25	0,28
		P.1.4	910 N/mm² / 270 HB	145	0,10	0,15	0,19	0,24	0,27
		P.1.5	1010 N/mm² / 300 HB	135	0,10	0,14	0,18	0,23	0,26
	Low-alloy steel	P.2.1	610 N/mm² / 180 HB	165	0,14	0,20	0,27	0,33	0,37
		P.2.2	930 N/mm² / 275 HB	150	0,13	0,18	0,24	0,30	0,34
		P.2.3	1010 N/mm² / 300 HB	135	0,11	0,16	0,22	0,27	0,30
		P.2.4	1200 N/mm² / 375 HB	105	0,11	0,15	0,19	0,24	0,27
	High-alloy steel and high-alloy tool steel	P.3.1	680 N/mm² / 200 HB	115	0,11	0,16	0,22	0,27	0,30
		P.3.2	1100 N/mm² / 300 HB	90	0,10	0,13	0,18	0,22	0,25
		P.3.3	1300 N/mm² / 400 HB	90	0,08	0,11	0,14	0,17	0,19
	Stainless steel	P.4.1	680 N/mm² / 200 HB	70	0,08	0,11	0,14	0,18	0,20
		P.4.2	1010 N/mm² / 300 HB	70	0,08	0,11	0,14	0,18	0,20
M	Stainless steel	M.1.1	610 N/mm² / 180 HB	80	0,09	0,13	0,18	0,22	0,25
		M.2.1	300 HB	75	0,08	0,11	0,15	0,19	0,21
		M.3.1	780 N/mm² / 230 HB	75	0,08	0,11	0,15	0,19	0,21
K	Grey cast iron	K.1.1	350 N/mm² / 180 HB	150	0,15	0,24	0,33	0,41	0,47
		K.1.2	500 N/mm² / 260 HB	125	0,14	0,20	0,27	0,33	0,37
	Spherulitic graphite cast iron	K.2.1	540 N/mm² / 160 HB	200	0,15	0,22	0,31	0,38	0,43
		K.2.2	845 N/mm² / 250 HB	125	0,14	0,20	0,27	0,33	0,37
	Malleable iron	K.3.1	440 N/mm² / 130 HB	115	0,15	0,21	0,29	0,35	0,40
		K.3.2	780 N/mm² / 230 HB	100	0,12	0,17	0,23	0,28	0,32
N	Aluminium wrought alloy	N.1.1	60 HB						
		N.1.2	340 N/mm² / 100 HB						
	Cast aluminium alloy	N.2.1	250 N/mm² / 75 HB						
		N.2.2	300 N/mm² / 90 HB						
		N.2.3	440 N/mm² / 130 HB						
	Copper and copper alloys (bronze/brass)	N.3.1	375 N/mm² / 110 HB						
		N.3.2	300 N/mm² / 90 HB	145	0,14	0,20	0,27	0,33	0,37
		N.3.3	340 N/mm² / 100 HB						
	Magnesium alloys	N.4.1	70 HB						
S	Heat-resistant alloys	S.1.1	680 N/mm² / 200 HB	35	0,07	0,10	0,14	0,17	0,19
		S.1.2	950 N/mm² / 280 HB	25	0,05	0,07	0,10	0,12	0,14
		S.2.1	840 N/mm² / 250 HB	25	0,05	0,07	0,10	0,12	0,14
		S.2.2	1180 N/mm² / 350 HB	20	0,06	0,09	0,12	0,15	0,17
		S.2.3	1080 N/mm² / 320 HB	20	0,05	0,07	0,10	0,12	0,14
	Titanium alloys	S.3.1	400 N/mm²						
		S.3.2	1050 N/mm² / 320 HB	35	0,08	0,11	0,15	0,18	0,20
		S.3.3	1400 N/mm² / 410 HB	30	0,06	0,09	0,12	0,15	0,17
H	Hardened steel	H.1.1	46–55 HRC						
		H.1.2	56–60 HRC						
		H.1.3	61–65 HRC						
		H.1.4	66–70 HRC						
	Chilled iron	H.2.1	400 HB						
	Hardened cast iron	H.3.1	55 HRC						
O	Non-metal materials	O.1.1	≤ 150 N/mm²						
		O.1.2	≤ 100 N/mm²						
		O.2.1	≤ 1000 N/mm²						
		O.2.2	≤ 1000 N/mm²						
		O.3.1							

* Tensile strength

The cutting data depends extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced according to the application conditions.

CNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
CNMG 1204..	12.9	4.76	5.16	12.7



CNMG

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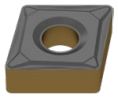
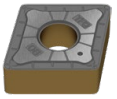
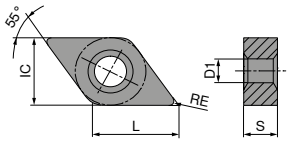
		-CF20	-TFQ
		CTEP110-P	CTEP110-P
		DRAGONSKIN	DRAGONSKIN
			
		F	F
		CERMET	CERMET
		CNMG	CNMG
		76 101 ...	76 110 ...
ISO	RE	£	£
	mm	1A/78	1A/78
120404EN	0.4	13.16 02801	15.30 02801
120408EN	0.8	13.16 03001	15.30 03001
120412EN	1.2		15.30 03201
P		●	●
M		○	○
K		○	○
N			
S			
H			
O			

DNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
DNMG 1104..	11.6	4.76	3.81	9.52
DNMG 1506..	15.5	6.35	5.16	12.70

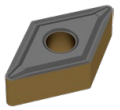


DNMG

NEW

-CF20
CTEP110-P

DRAGONSKIN



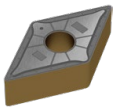
F
CERMET
DNMG

76 102 ...

NEW

-TFQ
CTEP110-P

DRAGONSKIN



F
CERMET
DNMG

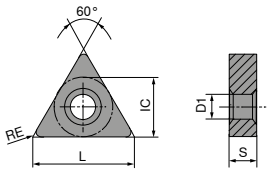
76 153 ...

ISO	RE	£ 1A/78		£ 1A/78	
	mm				
110404EN	0.4	15.86	**00401**		
110408EN	0.8	15.86	**00601**		
150604EN	0.4	20.82	**02801**	23.15	**02801**
150608EN	0.8	20.82	**03001**	23.15	**03001**
150612EN	1.2	20.82	**03201**		

P	●	●
M	○	○
K	○	○
N		
S		
H		
O		

TNMG

Designation	L mm	S mm	D1 mm	IC mm
TNMG 1604..	16.5	4.76	3.81	9.52



TNMG

NEW

-CF20
CTEP110-P

DRAGONSKIN



F
CERMET
TNMG

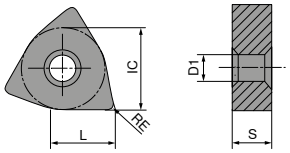
76 149 ...

ISO	RE mm	£ 1A/78	
160404EN	0.4	13.16	01601
160408EN	0.8	13.16	01801
160412EN	1.2	13.16	02001

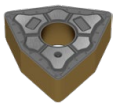
P	●
M	○
K	○
N	
S	
H	
O	

WNMG

Designation	L	S	D1	IC
	mm	mm	mm	mm
WNMG 0604..	6.5	4.76	3.81	9.52
WNMG 0804..	8.6	4.76	5.16	12.70

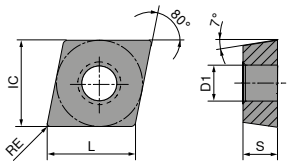


WNMG

		NEW	NEW
		-CF20	-TFQ
		CTEP110-P	CTEP110-P
		DRAGONSKIN	DRAGONSKIN
			
		F	F
		CERMET	CERMET
		WNMG	WNMG
		76 171 ...	76 177 ...
ISO	RE mm	£ 1A/78	£ 1A/78
060404EN	0.4	12.60 00401	
060408EN	0.8	12.60 00601	14.99 00601
080404EN	0.4		18.76 01601
080408EN	0.8	16.31 01801	18.76 01801
P		●	●
M		○	○
K		○	○
N			
S			
H			
O			

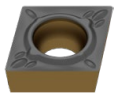
CCGT / CCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
CC.T 0602..	6.4	2.38	2.8	6.35
CC.T 09T3..	9.7	3.97	4.4	9.52
CC.T 1204..	12.9	4.76	5.5	12.70



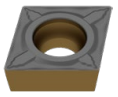
CCGT / CCMT

NEW
-CF05
CTEP110-P
DRAGONSKIN



F
CERMET
CCGT
76 247 ...

NEW
-CF55
CTEP110-P
DRAGONSKIN

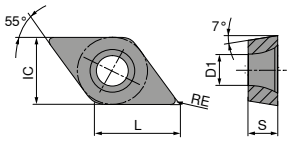


F
CERMET
CCMT
76 248 ...

ISO	RE	£ 1A/78		£ 1A/78	
	mm				
060202EN	0.2	18.04	00201		
060204EN	0.4	18.04	00401	9.81	00401
09T302EN	0.2	19.22	01401		
09T304EN	0.4	19.22	01601	12.60	01601
09T308EN	0.8	19.22	01801	12.60	01801
120404EN	0.4	24.07	02001	17.78	02801
P		●		●	
M		○		○	
K		○		○	
N					
S					
H					
O					

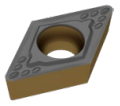
DCGT / DCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
DC.T 0702..	7.75	2.38	2.8	6.35
DC.T 11T3..	11.60	3.97	4.4	9.52



DCGT / DCMT

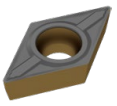
NEW
-CF05
CTEP110-P
DRAGONSKIN



F
CERMET
DCGT

76 245 ...

NEW
-CF55
CTEP110-P
DRAGONSKIN



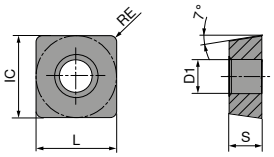
F
CERMET
DCMT

76 246 ...

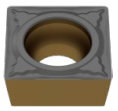
ISO	RE	£ 1A/78		£ 1A/78	
	mm				
070201EN	0.1	18.04	**00101**		
070202EN	0.2	18.04	**00201**	10.24	**00201**
070204EN	0.4	18.04	**00401**	10.24	**00401**
11T302EN	0.2	23.88	**01401**		
11T304EN	0.4	23.88	**01601**	14.20	**01601**
11T308EN	0.8	23.88	**01801**	14.20	**01801**
P		●		●	
M		○		○	
K		○		○	
N					
S					
H					
O					

SCGT / SCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
SC.T 09T3..	9.52	3.97	4.4	9.52

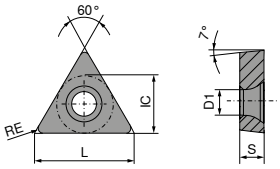


SCGT / SCMT

		NEW	NEW
		-CF05 CTEP110-P	-CF55 CTEP110-P
		DRAGONSKIN	DRAGONSKIN
			
		F	F
		CERMET SCGT	CERMET SCMT
		76 261 ...	76 260 ...
ISO	RE mm	£ 1A/78	£ 1A/78
09T304EN	0.4	19.66 00401	12.60 00401
09T308EN	0.8	19.66 00601	12.60 00601
P		●	●
M		○	○
K		○	○
N			
S			
H			
O			

TCGT / TCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
TC.T 1102..	11.0	2.38	2.8	6.35
TC.T 16T3..	16.5	3.97	4.4	9.52



TCGT / TCMT

NEW

-CF05
CTEP110-P

DRAGONSKIN



F
CERMET
TCGT

76 272 ...

NEW

-CF55
CTEP110-P

DRAGONSKIN



F
CERMET
TCMT

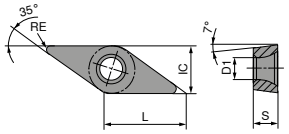
76 266 ...

ISO	RE	£		£	
	mm	1A/78		1A/78	
110202EN	0.2	17.62	01401		
110204EN	0.4	17.62	01601	10.04	01601
110208EN	0.8	17.62	01801		
16T304EN	0.4	22.32	02801		
16T308EN	0.8			13.93	03001

P	●	●
M	○	○
K	○	○
N		
S		
H		
O		

VCGT / VCMT

Designation	L	S	D1	IC
	mm	mm	mm	mm
VC.T 1103..	11.1	3.18	2.9	6.35
VC.T 1604..	16.6	4.76	4.4	9.52

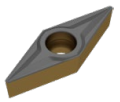


VCGT / VCMT

NEW NEW

-CF05 CTEP110-P | -CF55 CTEP110-P

DRAGONSKIN



F F

CERMET VCGT | CERMET VCMT

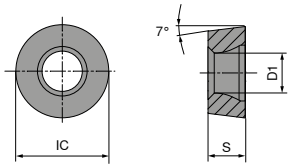
76 276 ... | 76 292 ...

ISO	RE	£ 1A/78		£ 1A/78	
	mm				
110301EN	0.1	21.86	01201		
110302EN	0.2	21.86	01401		
110304EN	0.4	21.86	01601	16.97	01601
160404EN	0.4	26.07	02801	20.82	02801
160408EN	0.8	26.07	03001	20.82	03001

P	●	●
M	○	○
K	○	○
N		
S		
H		
O		

RCMT

Designation	S mm	D1 mm	IC mm
RCMT 0803..	3.18	3.4	8



RCMT

NEW

-M23
CTCP115-P

DRAGONSKIN



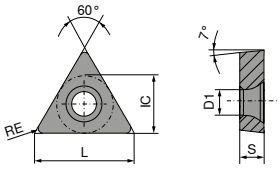
M
RCMT
74 121 ...
£
1A/08

ISO	RE mm		
0803M0SN	4	8.22	21300

P	●
M	
K	○
N	
S	
H	
O	

TCGT

Designation	L mm	S mm	D1 mm	IC mm
TCGT 16T3..	16.5	3.97	4.4	9.52



TCGT

-27
CTPX715

DRAGONSKIN



M
TCGT

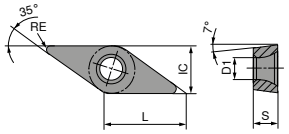
70 276 ...

ISO	RE mm	£ 1A/90	
16T302FN	0.2	19.00	72600

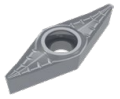
P	●
M	●
K	○
N	●
S	●
H	
O	○

VCGT

Designation	L	S	D1	IC
	mm	mm	mm	mm
VCGT 1604..	16.6	4.76	4.4	9.52



VCGT

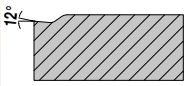
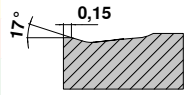
		-25P CTPX710	-27 CTPX715
		DRAGONSKIN	DRAGONSKIN
			
		M VCGT	M VCGT
		70 282 ...	70 280 ...
ISO	RE mm	£ 1A/90	£ 1A/90
160402FN	0.2	26.80 72600	25.54 72600
160412FN	1.2		25.54 73200
P		●	●
M		●	●
K			○
N		●	●
S		●	●
H			
O			○

	Material sub-group	Index	Tensile strength N/mm²* / HB / HRC	CTEP110-P DRAGONSKIN		CTCP115-P	CTPX710 -25P DRAGONSKIN	CTPX715 -27 DRAGONSKIN
P	Unalloyed steel	P.1.1	420 N/mm² / 125 HB	500	P.1.1	370	340	275
		P.1.2	640 N/mm² / 190 HB	440	P.1.2	315	300	235
		P.1.3	840 N/mm² / 250 HB	380	P.1.3	270	260	200
		P.1.4	910 N/mm² / 270 HB	360	P.1.4	250	250	190
		P.1.5	1010 N/mm² / 300 HB	330	P.1.5	230	235	170
	Low-alloy steel	P.2.1	610 N/mm² / 180 HB	450	P.2.1	325	300	240
		P.2.2	930 N/mm² / 275 HB	360	P.2.2	250	250	185
		P.2.3	1010 N/mm² / 300 HB	330	P.2.3	230	235	170
		P.2.4	1200 N/mm² / 375 HB	250	P.2.4	170	190	125
	High-alloy steel and high-alloy tool steel	P.3.1	680 N/mm² / 200 HB	380	P.3.1	200	150	140
		P.3.2	1100 N/mm² / 300 HB	310	P.3.2	140	95	80
		P.3.3	1300 N/mm² / 400 HB	230	P.3.3	85	35	25
	Stainless steel	P.4.1	680 N/mm² / 200 HB	380	P.4.1	200	155	140
		P.4.2	1010 N/mm² / 300 HB	340	P.4.2	170	130	110
M	Stainless steel	M.1.1	610 N/mm² / 180 HB	380	M.1.1		150	140
		M.2.1	300 HB		M.2.1		90	80
		M.3.1	780 N/mm² / 230 HB		M.3.1		130	120
K	Grey cast iron	K.1.1	350 N/mm² / 180 HB	450	K.1.1	255		200
		K.1.2	500 N/mm² / 260 HB	340	K.1.2	235		160
	Spherulitic graphite cast iron	K.2.1	540 N/mm² / 160 HB	480	K.2.1	270		190
		K.2.2	845 N/mm² / 250 HB	380	K.2.2	205		150
	Malleable iron	K.3.1	440 N/mm² / 130 HB	460	K.3.1	250		210
		K.3.2	780 N/mm² / 230 HB	280	K.3.2	210		180
N	Aluminium wrought alloy	N.1.1	60 HB		N.1.1		1840	1750
		N.1.2	340 N/mm² / 100 HB		N.1.2		1600	1500
	Cast aluminium alloy	N.2.1	250 N/mm² / 75 HB		N.2.1		1250	1200
		N.2.2	300 N/mm² / 90 HB		N.2.2		1250	1200
		N.2.3	440 N/mm² / 130 HB		N.2.3		750	700
	Copper and copper alloys (bronze/brass)	N.3.1	375 N/mm² / 110 HB		N.3.1		650	625
		N.3.2	300 N/mm² / 90 HB		N.3.2		630	600
		N.3.3	340 N/mm² / 100 HB		N.3.3		500	475
	Magnesium alloys	N.4.1	70 HB		N.4.1		340	325
S	Heat-resistant alloys	S.1.1	680 N/mm² / 200 HB		S.1.1		110	40
		S.1.2	950 N/mm² / 280 HB		S.1.2		85	30
		S.2.1	840 N/mm² / 250 HB		S.2.1		75	30
		S.2.2	1180 N/mm² / 350 HB		S.2.2		45	25
		S.2.3	1080 N/mm² / 320 HB		S.2.3		45	20
	Titanium alloys	S.3.1	400 N/mm²		S.3.1		100	110
		S.3.2	1050 N/mm² / 320 HB		S.3.2		60	70
		S.3.3	1400 N/mm² / 410 HB		S.3.3		45	50
H	Hardened steel	H.1.1	46–55 HRC		H.1.1			
		H.1.2	56–60 HRC		H.1.2			
		H.1.3	61–65 HRC		H.1.3			
		H.1.4	66–70 HRC		H.1.4			
	Chilled iron	H.2.1	400 HB		H.2.1			
	Hardened cast iron	H.3.1	55 HRC		H.3.1			
O	Non-metal materials	O.1.1	≤ 150 N/mm²		O.1.1			140
		O.1.2	≤ 100 N/mm²		O.1.2			
		O.2.1	≤ 1000 N/mm²		O.2.1			150
		O.2.2	≤ 1000 N/mm²		O.2.2			
		O.3.1			O.3.1			

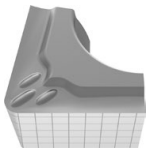
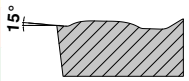
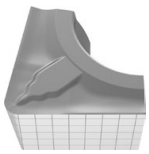
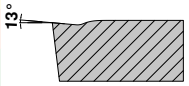
* Tensile strength

Standard chip breakers / application notes

Negative

Main application steel and cast iron, secondary application stainless steels	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-CF / -CF20 ▲ Fine finishing ▲ Sharp cutting edge for low cutting forces ▲ Good chip control even at small depths of cut	 F	**CTEP110-P / TCM10** CTEP110-P / TCM10 CTEP110-P / TCM10			 0,30–1,50	0,07–0,25	CN.. DN.. TN.. WN..
-TFQ ▲ Wiper geometry ▲ Finishing to medium machining ▲ Very high feeds ▲ High surface quality	 F	**CTEP110-P / CTCP115-P** CTEP110-P CTEP110-P / CTCP115-P	**CTCP115-P / CTCP125-P** CTCP115-P / CTCP125-P		 0,50–5,00	0,10–0,60	CN.. DN.. WN..

Positive

Main application steel and cast iron, secondary application stainless steels and super alloys	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-CF05 ▲ Fine finishing ▲ For all common steel materials, stainless steels and GGG ▲ Good swarf control ▲ High surface quality	 F	**CTEP110-P / TCM407** CTEP110-P CTEP110-P	TCM10 / TCM407 TCM10 / TCM407		 0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..
-CF55 ▲ Finishing to medium machining ▲ Suitable for general and stainless steels ▲ Low cutting forces ▲ Good swarf control ▲ High surface quality	 F M	**CTEP110-P** CTEP110-P CTEP110-P	**TCM10** / CTEP110-P CTEP110-P CTEP110-P		 0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..

Standard chip breakers / application notes

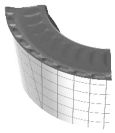
Positive

Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry
				a_p mm	f mm	

Main application steel and cast iron, secondary application stainless steels and super alloys

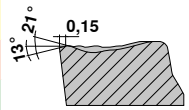
-M23

▲ Soft cutting geometry with outstanding chip breaking behaviour at low cutting depths in finish machining



F
M

Smooth cut	Irregular cutting depth	Interrupted cut
CTCP115-P / CTCP125-P	**CTCP125-P**	**CTCP125-P**
CTCP115-P / CTCP125-P	CTCP125-P	CTCP125-P



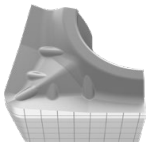
a_p mm	f mm	Geometry
0,30–4,0	1,0–0,45	RC..

Positive

Main application non-ferrous metals, secondary application stainless steels, steels, super alloys, cast iron

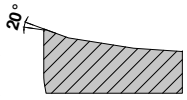
-25P

▲ Sharp cutting edge
▲ Good swarf control on soft aluminium alloys
▲ Low adhesion



F

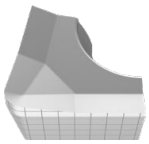
Smooth cut	Irregular cutting depth	Interrupted cut
CTPX710	CTPX710	
CTPX710	CTPX710	
CTPX710 / H216T	**CTPX710 / H216T**	**CTPX710 / H216T**
CTPX710	CTPX710	
CTPX710	CTPX710	



a_p mm	f mm	Geometry
0,50–4,50	0,05–0,60	CC.. DC.. SC.. VC..

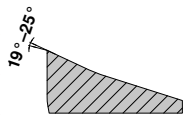
-27

▲ The universal Alu geometry
▲ Sharp cutting edge
▲ Extremely positive rake angle
▲ Low adhesion
▲ High feed rates



M
R

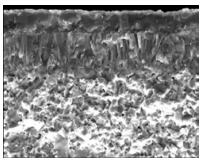
Smooth cut	Irregular cutting depth	Interrupted cut
CTPX715	CTPX715	
CTPX715	CTPX715	
CTPX715 / H216T	CTPX715 / H216T	
CTPX715 / H216T	**CTPX715 / H216T**	**CTPX715 / H216T**
CTPX715	CTPX715	
CTPX715 / H216T	CTPX715 / H216T	CTPX715 / H216T



a_p mm	f mm	Geometry
1,00–10,00	0,10–0,75	CC.. DC.. RC.. SC.. TC.. VC..

Grade description

CTEP110-P

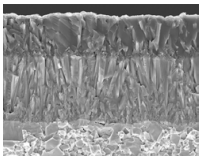


ISO | **P10** | M10 | K05

Specifications:
Composition: Co/Ni 12.2%; additives 26.4%; Ti(C,N) balance | Grain size: 0.8-1.0 µm | Hardness: HV_{30} 1650 | Layer system: CVD TiCN-Al_2O_3 + TiN cover layer

Recommended use:
Coated cermet grade with reserves of toughness for finish machining at high cutting speeds.

CTCP115-P

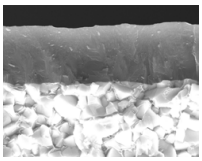


ISO | **P15** | K25

Specification:
Composition: Co 5.5%; mixed carbides 6.4%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1530 | Layer system: CVD TiCN-Al_2O_3

Usage recommendation:
The wear-resistant high-performance grade for steel machining with stable conditions and a continuous cut.

CTPX710

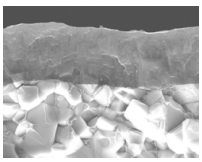


ISO | **P10 | M10** | K10 | **N10 | S15**

Specification:
Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV_{30} 1820 | Layer system: PVD AlTiN

Usage recommendation:
The universal carbide grade for the most demanding machining requirements on multiple materials.

CTPX715



ISO | **P15 | M15** | K15 | **N15 | S20** | O10

Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1650 | Layer system: PVD AlTiN

Usage recommendation:
The universal carbide grade for the most demanding machining requirements on multiple materials.

C T C P 1 2 5 -P (Example)

CT
CERATIZIT

-P
Performance

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
20	ISO 20
25	ISO 25
30	ISO 30
35	ISO 35
40	ISO 40

Application

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Others
7	Several processes

Main application – material

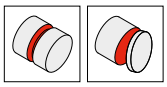
P	Steel
M	Stainless steel
K	Cast iron
N	Non-ferrous metals
S	Heat-resistant
H	Tempered steel
O	Non-metal materials
X	Universal application

Coating

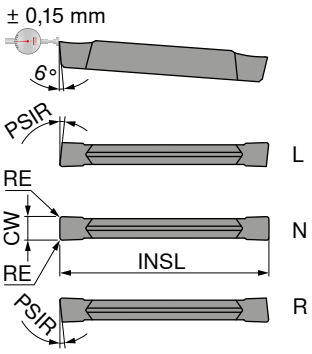
W	Uncoated carbide
C	CVD-coated carbide
P	PVD-coated carbide
T	Cermet, uncoated
E	Cermet, coated
N	Silicon nitride, uncoated
M	Silicon nitride, coated
S	Mixed ceramic
K	Whisker ceramic
I	SiAlON
D	PDC
B	PcBN
H	HSS sintered

Insert GX 35

▲ For parting and grooving

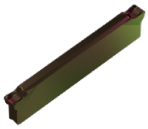


F	M	R
		



NEW
-M1
CTCP325
DRAGONSKIN

NEW
-M1
CTP1340
DRAGONSKIN





Designation	IH	INSL mm	CW +/-0,15 mm	RE +/-0,15 mm	PSIR °	for tool holder	70 390 ... £ 1C/72		70 390 ... £ 1C/72	
GX 35-E3.00 L 6	L	35	3	0.2	6	-GX35	21.07	**92300**	21.07	**62300**
GX 35-E3.00 N 0.20	N	35	3	0.2		-GX35	21.07	**93300**	21.07	**63300**
GX 35-E3.00 R 6	R	35	3	0.2	6	-GX35	21.07	**94300**	21.07	**64300**
P								●		●
M								○		●
K								●		●
N										○
S								○		●
H										
O										○

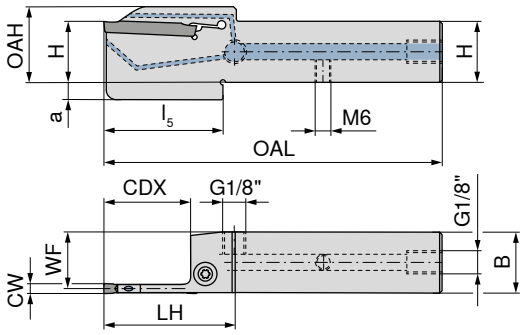
→ v_c Page 33

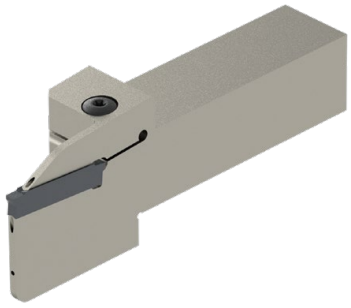
Note: reduce feed rate by 20–50 % with R/L version!
→ **Page 33**

MonoClamp – Radial Monoholder GX-DC 35

Scope of supply:
Mono holder incl. key and clamping screw

Direct Cooling





Illustrations show right-hand versions

												NEW Left-hand		NEW Right-hand	
												70 869 ...		**70 869 ...**	
ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	CDX mm	a mm	for grooving inserts	£ 2C/71		£ 2C/71	
E20 R/L 0034S3-2020X-S-DC-GX35	20	20	3	18.75	31	117	55	48	34	10	GX 35-E3.00	220.50	**32001**	220.50	**32000**
E25 R/L 0034S3-2525X-S-DC-GX35	25	25	3	23.75	36	132	55	48	34	10	GX 35-E3.00	230.30	**32501**	230.30	**32500**



Key D



Clamping screw

			80 950 ...			**70 950 ...**
Spare parts for grooving inserts			£ Y7			£ 2A/28
GX 35-E3.00	T20 - IP	22.06	**129**	M6x22 - 20IP	13.47	**92200**

→ **Chapter 16 Adapters and accessories**
Here you will find the suitable base adaptors.

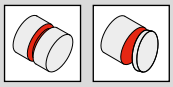
Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

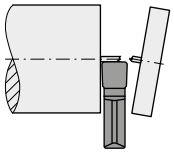
*** Tensile strength**

Cutting data values for grooving inserts

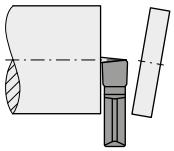
Index	GX	
	CTCP325	CTP1340
	DRAGONSKIN	
	v_c (m/min)	
P.1.1	220	180
P.1.2	195	150
P.1.3	170	125
P.1.4	165	115
P.1.5	150	100
P.2.1	200	155
P.2.2	160	110
P.2.3	150	100
P.2.4	120	70
P.3.1	150	110
P.3.2	95	75
P.3.3	45	40
P.4.1	150	110
P.4.2	125	95
M.1.1	150	110
M.2.1	95	80
M.3.1	135	100
K.1.1	170	150
K.1.2	150	125
K.2.1	160	140
K.2.2	145	120
K.3.1	210	170
K.3.2	140	120
N.1.1		300
N.1.2		200
N.2.1		300
N.2.2		200
N.2.3		150
N.3.1		300
N.3.2		300
N.3.3		200
N.4.1		200
S.1.1	35	35
S.1.2	30	30
S.2.1	20	20
S.2.2	15	15
S.2.3	15	15
S.3.1		85
S.3.2		40
S.3.3		30
H.1.1		
H.1.2		
H.1.3		
H.1.4		
H.2.1		
H.3.1		
O.1.1		130
O.1.2		
O.2.1		105
O.2.2		
O.3.1		

GX-M1	
Groove width CW (mm)	 Parting / Grooving
	Feed rate f (mm/rev.)
3	0,10–0,20

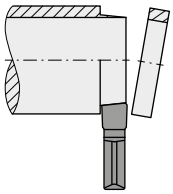
References for Parting off



From Ø 5 mm on, reduce feed “f“ by approx. 50 %. No parting across centre (risk of breakage).

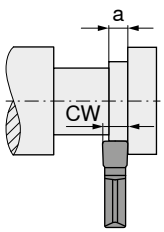


For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.

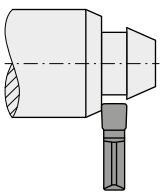


In order to prevent ring formation, use R or L inserts. Reduce feed “f“ because of lateral deflection by approx. 20–50 %.

References for grooving



When grooving with an axial displacement the width „a“ should amount to at least 70 % of the grooving width „CW“.



When grooving oblique surfaces the feed should be reduced by approx. 20–50 % until fully engaged.

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

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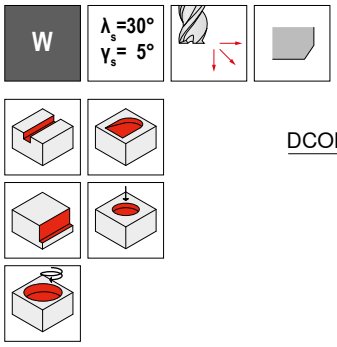
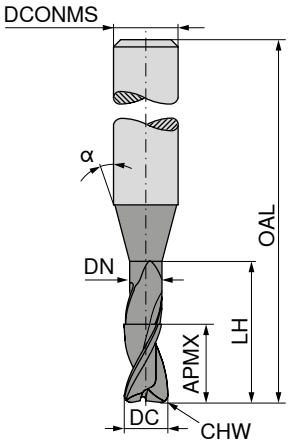
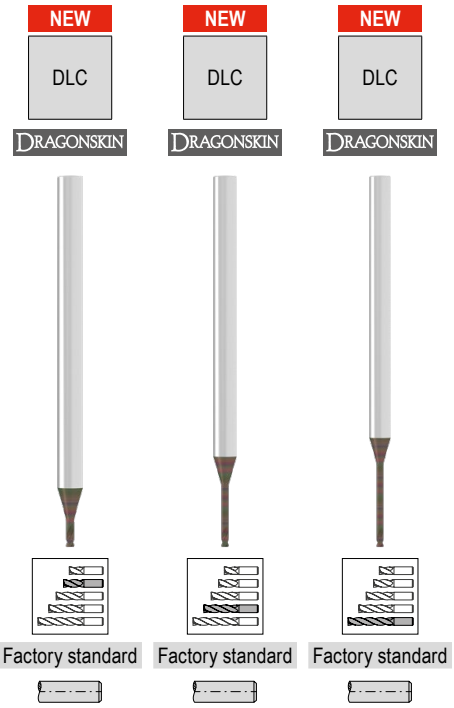
▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard

DC -0,01	APMX	DN	LH	OAL	LPR	α°	DCONMS h5	T_X	CHW	ZEFP	53 900 ... £ V1/5B		53 900 ... £ V1/5B		53 900 ... £ V1/5B	
mm	mm	mm	mm	mm	mm		mm		mm							
0.2	0.2	0.18	0.6	45	17	15	4	3 x DC	0.02	2	87.40	**02101**				
0.2	0.2	0.18	1.0	45	17	15	4	5 x DC	0.02	2	87.40	**02201**				
0.2	0.2	0.18	1.6	45	17	15	4	8 x DC	0.02	2			97.30	**02301**		
0.2	0.2	0.18	2.0	50	22	15	4	10 x DC	0.02	2			87.40	**02401**		
0.3	0.3	0.28	0.9	45	17	15	4	3 x DC	0.03	2	87.40	**03101**				
0.3	0.3	0.28	1.5	45	17	15	4	5 x DC	0.03	2	96.50	**03201**				
0.3	0.3	0.28	2.4	50	22	15	4	8 x DC	0.03	2			87.40	**03301**		
0.3	0.3	0.28	3.0	50	22	15	4	10 x DC	0.03	2			87.40	**03401**		
0.4	0.4	0.37	1.2	45	17	15	4	3 x DC	0.04	2	80.30	**04101**				
0.4	0.4	0.37	2.0	45	17	15	4	5 x DC	0.04	2	80.30	**04201**				
0.4	0.4	0.37	3.2	50	22	15	4	8 x DC	0.04	2			80.30	**04301**		
0.4	0.4	0.37	4.0	50	22	15	4	10 x DC	0.04	2			80.30	**04401**		
0.5	0.5	0.45	1.5	45	17	15	4	3 x DC	0.05	2	67.40	**05101**				
0.5	0.5	0.45	1.5	45	17	15	3	3 x DC	0.05	2	67.40	**05100**				
0.5	0.5	0.45	2.5	45	17	15	4	5 x DC	0.05	2	67.40	**05201**				
0.5	0.5	0.45	2.5	45	17	15	3	5 x DC	0.05	2	67.40	**05200**				
0.5	0.5	0.45	4.0	45	17	15	3	8 x DC	0.05	2			67.40	**05300**		
0.5	0.5	0.45	4.0	50	22	15	4	8 x DC	0.05	2			67.40	**05301**		
0.5	0.5	0.45	5.0	50	22	15	3	10 x DC	0.05	2			67.40	**05400**		
0.5	0.5	0.45	5.0	50	22	15	4	10 x DC	0.05	2			67.40	**05401**		
0.6	0.6	0.58	2.0	45	17	15	4	3,3 x DC	0.06	2	67.40	**06101**				
0.6	0.6	0.58	3.0	50	22	15	4	5 x DC	0.06	2	67.40	**06201**				
0.6	0.6	0.58	5.0	50	22	15	4	8,3 x DC	0.06	2			85.30	**06301**		
0.6	0.6	0.58	6.0	50	22	15	4	10 x DC	0.06	2			67.40	**06401**		
0.8	0.8	0.77	2.5	45	17	15	4	3,1 x DC	0.08	2	67.40	**08101**				
0.8	0.8	0.77	4.0	50	22	15	4	5 x DC	0.08	2	67.40	**08201**				
0.8	0.8	0.77	6.5	50	22	15	4	8,1 x DC	0.08	2			67.40	**08301**		
0.8	0.8	0.77	8.0	50	22	15	4	10 x DC	0.08	2			67.40	**08401**		
1.0	1.0	0.95	3.0	45	17	15	4	3 x DC	0.10	2	64.00	**10101**				
1.0	1.0	0.95	3.0	45	17	15	3	3 x DC	0.10	2	64.00	**10100**				
1.0	1.0	0.95	5.0	45	17	15	3	5 x DC	0.10	2	64.00	**10200**				
1.0	1.0	0.95	5.0	50	22	15	4	5 x DC	0.10	2	64.00	**10201**				
1.0	1.0	0.95	8.0	50	22	15	3	8 x DC	0.10	2			64.00	**10300**		
1.0	1.0	0.95	8.0	50	22	15	4	8 x DC	0.10	2			64.00	**10301**		
1.0	1.0	0.95	10.0	50	22	15	3	10 x DC	0.10	2			64.00	**10400**		
1.0	1.0	0.95	10.0	55	27	15	4	10 x DC	0.10	2			64.00	**10401**		
1.0	1.0	0.95	12.0	55	27	15	3	12 x DC	0.10	2					64.00	**10500**
1.0	1.0	0.95	12.0	55	27	15	4	12 x DC	0.10	2					64.00	**10501**
1.2	1.2	1.15	3.0	45	17	15	4	2,5 x DC	0.10	2	67.40	**12101**				
1.2	1.2	1.15	6.0	50	22	15	4	5 x DC	0.10	2	67.40	**12201**				
1.2	1.2	1.15	10.0	55	27	15	4	8,3 x DC	0.10	2			67.40	**12301**		
1.2	1.2	1.15	12.0	55	27	15	4	10 x DC	0.10	2			70.90	**12401**		

P			
M			
K			
N	●	●	●
S			
H			
O			

→ v_c/f_z Page 40–42

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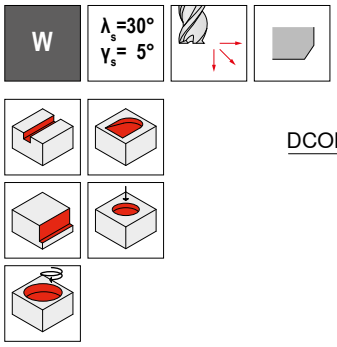
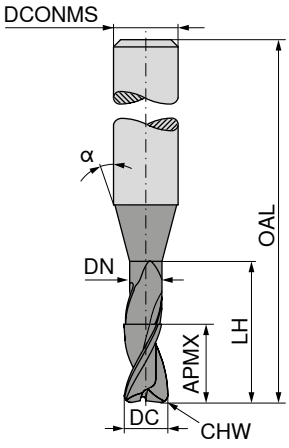
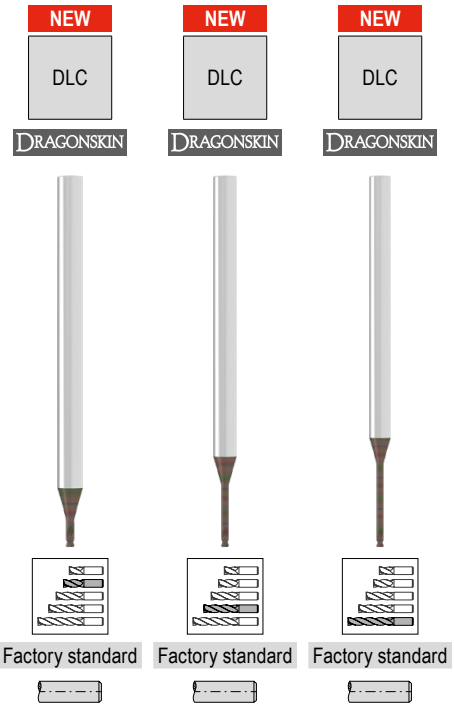
▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	LPR mm	α°	DCONMS h5 mm	T_x	CHW mm	ZEFP	53 900 ... £ V1/5B		53 900 ... £ V1/5B		53 900 ... £ V1/5B	
1.3	1.3	1.25	4.0	45	17	15	4	3,1 x DC	0.10	2	78.20	**13101**				
1.3	1.3	1.25	7.0	50	22	15	4	5,4 x DC	0.10	2			80.40	**13201**		
1.3	1.3	1.25	11.0	55	27	15	4	8,5 x DC	0.10	2			87.00	**13301**		
1.3	1.3	1.25	13.0	55	27	15	4	10 x DC	0.10	2			92.60	**13401**		
1.5	1.5	1.44	5.0	50	22	15	4	3,3 x DC	0.10	2	67.40	**15101**				
1.5	1.5	1.44	5.0	45	17	15	3	3,3 x DC	0.10	2	67.40	**15100**				
1.5	1.5	1.44	7.5	50	22	15	3	5 x DC	0.10	2	67.40	**15200**				
1.5	1.5	1.44	7.5	50	22	15	4	5 x DC	0.10	2	67.40	**15201**				
1.5	1.5	1.44	12.0	55	27	15	3	8 x DC	0.10	2			70.90	**15300**		
1.5	1.5	1.44	12.0	55	27	15	4	8 x DC	0.10	2			70.90	**15301**		
1.5	1.5	1.44	15.0	55	27	15	3	10 x DC	0.10	2			70.90	**15400**		
1.5	1.5	1.44	15.0	60	32	15	4	10 x DC	0.10	2			70.90	**15401**		
1.6	1.6	1.52	5.0	50	22	15	4	3,1 x DC	0.10	2	80.40	**16101**				
1.6	1.6	1.52	8.0	50	22	15	4	5 x DC	0.10	2	80.40	**16201**				
1.6	1.6	1.52	13.0	55	27	15	4	8,1 x DC	0.10	2			87.00	**16301**		
1.6	1.6	1.52	16.0	60	32	15	4	10 x DC	0.10	2			92.60	**16401**		
1.8	1.8	1.72	5.5	50	22	15	4	3,1 x DC	0.10	2	67.40	**18101**				
1.8	1.8	1.72	9.0	50	22	15	4	5 x DC	0.10	2	67.40	**18201**				
1.8	1.8	1.72	14.5	55	27	15	4	8,1 x DC	0.10	2			67.40	**18301**		
1.8	1.8	1.72	18.0	60	32	15	4	10 x DC	0.10	2			70.90	**18401**		
2.0	2.0	1.92	6.0	50	22	15	4	3 x DC	0.10	2	67.40	**20101**				
2.0	2.0	1.92	6.0	45	17	15	3	3 x DC	0.10	2	67.40	**20100**				
2.0	2.0	1.92	10.0	50	22	15	4	5 x DC	0.10	2	67.40	**20201**				
2.0	2.0	1.92	10.0	50	22	15	3	5 x DC	0.10	2	67.40	**20200**				
2.0	2.0	1.92	14.0	55	27	15	3	7 x DC	0.10	2			70.90	**20300**		
2.0	2.0	1.92	14.0	55	27	15	4	7 x DC	0.10	2			70.90	**20301**		
2.0	2.0	1.92	16.0	55	27	15	3	8 x DC	0.10	2			70.90	**20400**		
2.0	2.0	1.92	16.0	60	32	15	4	8 x DC	0.10	2			70.90	**20401**		
2.0	2.0	1.92	20.0	60	32	15	3	10 x DC	0.10	2			70.90	**20500**		
2.0	2.0	1.92	20.0	60	32	15	4	10 x DC	0.10	2			70.90	**20501**		
2.3	2.3	2.22	7.0	50	22	15	4	3 x DC	0.10	2	74.30	**23101**				
2.3	2.3	2.22	11.5	55	27	15	4	5 x DC	0.10	2	74.30	**23201**				
2.3	2.3	2.22	18.5	60	32	15	4	8 x DC	0.10	2			82.60	**23301**		
2.3	2.3	2.22	20.0	60	32	15	4	8,7 x DC	0.10	2			74.30	**23401**		
2.3	2.3	2.22	23.0	65	37	15	4	10 x DC	0.10	2			74.30	**23501**		
3.0	3.0	2.90	9.0	50	22	15	4	3 x DC	0.10	2	74.30	**30101**				
3.0	3.0	2.90	15.0	55	27	15	4	5 x DC	0.10	2	74.30	**30201**				
3.0	3.0	2.90	24.0	65	37	15	4	8 x DC	0.10	2			74.30	**30301**		
3.0	3.0	2.90	30.0	70	42	15	4	10 x DC	0.10	2			87.40	**30401**		

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AluLine – Micro-ball nosed cutter

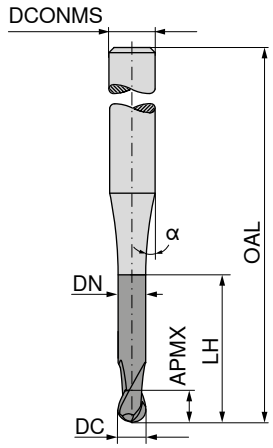
The specialist for machining non-ferrous metals

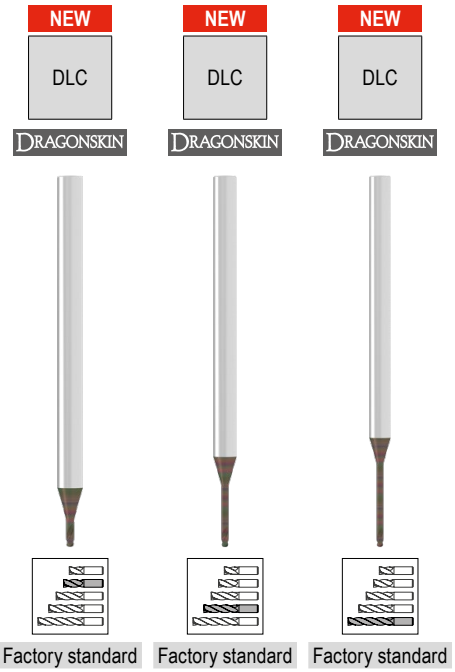
▲ Radius accuracy: ± 0,01 mm

▲ T_x = maximum engagement depth

W

λ_s=30°
γ_s= 5°





Factory standard | Factory standard | Factory standard

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	LPR mm	α°	DCONMS h5 mm	T_x	ZEFP	53 903 ... £ V1/5B		53 903 ... £ V1/5B		53 903 ... £ V1/5B	
0.2	0.2	0.18	0.6	45	17	15	4	3 x DC	2	97.30	**02101**				
0.2	0.2	0.18	1.0	45	17	15	4	5 x DC	2	96.80	**02201**				
0.2	0.2	0.18	1.6	45	17	15	4	8 x DC	2			97.30	**02301**		
0.2	0.2	0.18	2.0	50	22	15	4	10 x DC	2			96.80	**02401**		
0.3	0.3	0.28	0.9	45	17	15	4	3 x DC	2	94.30	**03101**				
0.3	0.3	0.28	1.5	45	17	15	4	5 x DC	2	96.50	**03201**				
0.3	0.3	0.28	2.4	50	22	15	4	8 x DC	2			94.30	**03301**		
0.3	0.3	0.28	3.0	50	22	15	4	10 x DC	2			94.30	**03401**		
0.4	0.4	0.37	1.2	45	17	15	4	3 x DC	2	87.40	**04101**				
0.4	0.4	0.37	2.0	45	17	15	4	5 x DC	2	87.40	**04201**				
0.4	0.4	0.37	3.2	50	22	15	4	8 x DC	2			87.40	**04301**		
0.4	0.4	0.37	4.0	50	22	15	4	10 x DC	2			87.40	**04401**		
0.5	0.5	0.45	1.5	45	17	15	4	3 x DC	2	70.90	**05101**				
0.5	0.5	0.45	1.5	45	17	15	3	3 x DC	2	70.90	**05100**				
0.5	0.5	0.45	2.5	45	17	15	4	5 x DC	2	70.90	**05201**				
0.5	0.5	0.45	2.5	45	17	15	3	5 x DC	2	70.90	**05200**				
0.5	0.5	0.45	4.0	45	17	15	3	8 x DC	2			70.90	**05300**		
0.5	0.5	0.45	4.0	50	22	15	4	8 x DC	2			70.90	**05301**		
0.5	0.5	0.45	5.0	50	22	15	3	10 x DC	2			70.90	**05400**		
0.5	0.5	0.45	5.0	50	22	15	4	10 x DC	2			70.90	**05401**		
0.6	0.6	0.58	2.0	45	17	15	4	3,3 x DC	2	70.90	**06101**				
0.6	0.6	0.58	3.0	50	22	15	4	5 x DC	2	70.90	**06201**				
0.6	0.6	0.58	5.0	50	22	15	4	8,3 x DC	2			85.30	**06301**		
0.6	0.6	0.58	6.0	50	22	15	4	10 x DC	2			70.90	**06401**		
0.8	0.8	0.77	2.5	45	17	15	4	3,1 x DC	2	70.90	**08101**				
0.8	0.8	0.77	4.0	50	22	15	4	5 x DC	2	70.90	**08201**				
0.8	0.8	0.77	6.5	50	22	15	4	8,1 x DC	2			70.90	**08301**		
0.8	0.8	0.77	8.0	50	22	15	4	10 x DC	2			70.90	**08401**		
1.0	1.0	0.95	3.0	45	17	15	4	3 x DC	2	67.40	**10101**				
1.0	1.0	0.95	3.0	45	17	15	3	3 x DC	2	67.40	**10100**				
1.0	1.0	0.95	5.0	45	17	15	3	5 x DC	2	67.40	**10200**				
1.0	1.0	0.95	5.0	50	22	15	4	5 x DC	2	67.40	**10201**				
1.0	1.0	0.95	8.0	50	22	15	3	8 x DC	2			67.40	**10300**		
1.0	1.0	0.95	8.0	50	22	15	4	8 x DC	2			67.40	**10301**		
1.0	1.0	0.95	10.0	50	22	15	3	10 x DC	2			67.40	**10400**		
1.0	1.0	0.95	10.0	55	27	15	4	10 x DC	2			67.40	**10401**		
1.0	1.0	0.95	12.0	55	27	15	3	12 x DC	2					74.30	**10500**
1.0	1.0	0.95	12.0	55	27	15	4	12 x DC	2					74.30	**10501**
1.2	1.2	1.15	3.0	45	17	15	4	2,5 x DC	2	70.90	**12101**				
1.2	1.2	1.15	6.0	50	22	15	4	5 x DC	2	70.90	**12201**				
1.2	1.2	1.15	10.0	55	27	15	4	8,3 x DC	2			70.90	**12301**		

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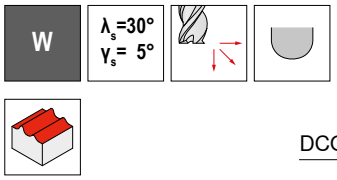
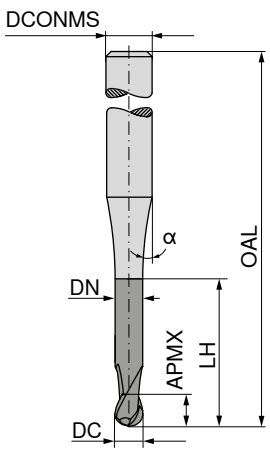
AluLine – Micro-ball nosed cutter

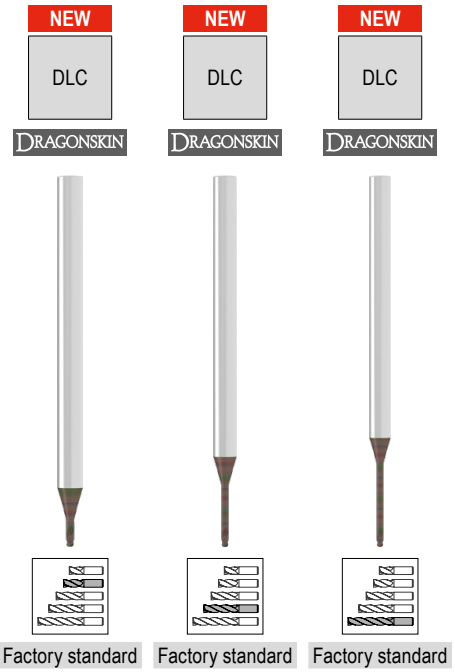
The specialist for machining non-ferrous metals

▲ Radius accuracy: ± 0,01 mm
▲ T_x = maximum engagement depth

W | λ_s=30° γ_s= 5°







Factory standard | Factory standard | Factory standard

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	LPR mm	α°	DCONMS h5 mm	T_x	ZEFP	53 903 ... £ V1/5B		53 903 ... £ V1/5B		53 903 ... £ V1/5B	
1.2	1.2	1.15	12.0	55	27	15	4	10 x DC	2			74.30	**12401**		
1.3	1.3	1.25	4.0	45	17	15	4	3,1 x DC	2	78.20	**13101**				
1.3	1.3	1.25	7.0	50	22	15	4	5,4 x DC	2			78.20	**13201**		
1.3	1.3	1.25	11.0	55	27	15	4	8,5 x DC	2			87.00	**13301**		
1.3	1.3	1.25	13.0	55	27	15	4	10 x DC	2			90.50	**13401**		
1.5	1.5	1.44	5.0	50	22	15	4	3,3 x DC	2	70.90	**15101**				
1.5	1.5	1.44	5.0	45	17	15	3	3,3 x DC	2	70.90	**15100**				
1.5	1.5	1.44	7.5	50	22	15	3	5 x DC	2	70.90	**15200**				
1.5	1.5	1.44	7.5	50	22	15	4	5 x DC	2	70.90	**15201**				
1.5	1.5	1.44	12.0	55	27	15	3	8 x DC	2			74.30	**15400**		
1.5	1.5	1.44	12.0	55	27	15	4	8 x DC	2			74.30	**15401**		
1.5	1.5	1.44	15.0	55	27	15	3	10 x DC	2			74.30	**15300**		
1.5	1.5	1.44	15.0	60	32	15	4	10 x DC	2			74.30	**15301**		
1.6	1.6	1.52	5.0	50	22	15	4	3,1 x DC	2	80.40	**16101**				
1.6	1.6	1.52	8.0	50	22	15	4	5 x DC	2	80.40	**16201**				
1.6	1.6	1.52	13.0	55	27	15	4	8,1 x DC	2			87.00	**16301**		
1.6	1.6	1.52	16.0	60	32	15	4	10 x DC	2			92.60	**16401**		
1.8	1.8	1.72	5.5	50	22	15	4	3,1 x DC	2	78.20	**18101**				
1.8	1.8	1.72	9.0	50	22	15	4	5 x DC	2	70.90	**18201**				
1.8	1.8	1.72	14.5	55	27	15	4	8,1 x DC	2			74.30	**18301**		
1.8	1.8	1.72	18.0	60	32	15	4	10 x DC	2			74.30	**18401**		
2.0	2.0	1.92	6.0	50	22	15	4	3 x DC	2	70.90	**20101**				
2.0	2.0	1.92	6.0	45	17	15	3	3 x DC	2	70.90	**20100**				
2.0	2.0	1.92	10.0	50	22	15	4	5 x DC	2	70.90	**20201**				
2.0	2.0	1.92	10.0	50	22	15	3	5 x DC	2	70.90	**20200**				
2.0	2.0	1.92	14.0	55	27	15	3	7 x DC	2			74.30	**20300**		
2.0	2.0	1.92	14.0	55	27	15	4	7 x DC	2			74.30	**20301**		
2.0	2.0	1.92	16.0	55	27	15	3	8 x DC	2			74.30	**20400**		
2.0	2.0	1.92	16.0	60	32	15	4	8 x DC	2			74.30	**20401**		
2.0	2.0	1.92	20.0	60	32	15	3	10 x DC	2			74.30	**20500**		
2.0	2.0	1.92	20.0	60	32	15	4	10 x DC	2			74.30	**20501**		
2.3	2.3	2.22	7.0	50	22	15	4	3 x DC	2	78.20	**23101**				
2.3	2.3	2.22	11.5	55	27	15	4	5 x DC	2	80.30	**23201**				
2.3	2.3	2.22	18.5	60	32	15	4	8 x DC	2			82.60	**23301**		
2.3	2.3	2.22	20.0	60	32	15	4	8,7 x DC	2			80.30	**23401**		
2.3	2.3	2.22	23.0	65	37	15	4	10 x DC	2			80.30	**23501**		
3.0	3.0	2.90	9.0	50	22	15	4	3 x DC	2	80.30	**30101**				
3.0	3.0	2.90	15.0	55	27	15	4	5 x DC	2	80.30	**30201**				
3.0	3.0	2.90	24.0	65	37	15	4	8 x DC	2			80.30	**30301**		
3.0	3.0	2.90	30.0	70	42	15	4	10 x DC	2			87.40	**30401**		

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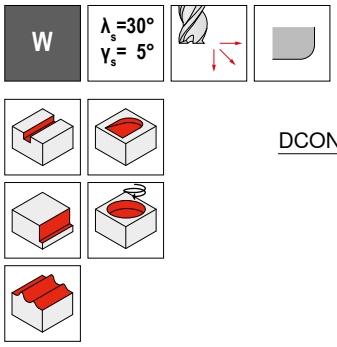
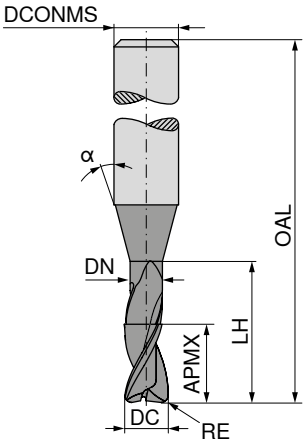
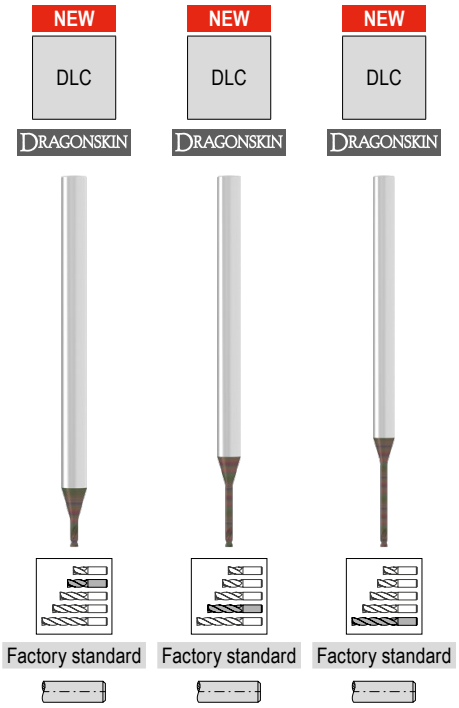
AluLine – Micro-torus cutter

The specialist for machining non-ferrous metals

▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard

DC -0.01 mm	RE ±0.01 mm	APMX mm	DN mm	LH mm	OAL mm	LPR mm	α°	DCONMS h5 mm	T_x	ZEFP	53 901 ... £ V1/5B		53 901 ... £ V1/5B		53 901 ... £ V1/5B	
0.2	0.02	0.2	0.18	0.6	45	17	15	4	3 x DC	2	96.80	**02101**				
0.2	0.02	0.2	0.18	1.0	45	17	15	4	5 x DC	2	96.80	**02201**				
0.2	0.02	0.2	0.18	1.6	45	17	15	4	8 x DC	2			97.30	**02301**		
0.2	0.02	0.2	0.18	2.0	50	22	15	4	10 x DC	2			96.80	**02401**		
0.3	0.03	0.3	0.28	0.9	45	17	15	4	3 x DC	2	94.30	**03101**				
0.3	0.03	0.3	0.28	1.5	45	17	15	4	5 x DC	2	94.30	**03201**				
0.3	0.03	0.3	0.28	2.4	50	22	15	4	8 x DC	2			97.30	**03301**		
0.3	0.03	0.3	0.28	3.0	50	22	15	4	10 x DC	2			94.30	**03401**		
0.4	0.04	0.4	0.37	1.2	45	17	15	4	3 x DC	2	87.40	**04101**				
0.4	0.04	0.4	0.37	2.0	45	17	15	4	5 x DC	2	87.40	**04201**				
0.4	0.04	0.4	0.37	3.2	50	22	15	4	8 x DC	2			87.40	**04301**		
0.4	0.04	0.4	0.37	4.0	50	22	15	4	10 x DC	2			87.40	**04401**		
0.5	0.05	0.5	0.45	1.5	45	17	15	4	3 x DC	2	70.90	**05101**				
0.5	0.05	0.5	0.45	1.5	45	17	15	3	3 x DC	2	70.90	**05100**				
0.5	0.05	0.5	0.45	2.5	45	17	15	4	5 x DC	2	70.90	**05201**				
0.5	0.05	0.5	0.45	2.5	45	17	15	3	5 x DC	2	70.90	**05200**				
0.5	0.05	0.5	0.45	4.0	45	17	15	3	8 x DC	2			70.90	**05300**		
0.5	0.05	0.5	0.45	4.0	50	22	15	4	8 x DC	2			70.90	**05301**		
0.5	0.05	0.5	0.45	5.0	50	22	15	3	10 x DC	2			70.90	**05400**		
0.5	0.05	0.5	0.45	5.0	50	22	15	4	10 x DC	2			70.90	**05401**		
0.6	0.06	0.6	0.58	2.0	45	17	15	4	3,3 x DC	2	80.40	**06101**				
0.6	0.06	0.6	0.58	3.0	50	22	15	4	5 x DC	2	70.90	**06201**				
0.6	0.06	0.6	0.58	4.2	50	22	15	4	7 x DC	2			70.90	**06301**		
0.6	0.06	0.6	0.58	5.0	50	22	15	4	8,3 x DC	2			92.60	**06401**		
0.6	0.06	0.6	0.58	6.0	50	22	15	4	10 x DC	2			70.90	**06501**		
0.8	0.08	0.8	0.77	2.5	45	17	15	4	3,1 x DC	2	70.90	**08101**				
0.8	0.08	0.8	0.77	4.0	50	22	15	4	5 x DC	2	70.90	**08201**				
0.8	0.08	0.8	0.77	6.5	50	22	15	4	8,1 x DC	2			70.90	**08301**		
0.8	0.08	0.8	0.77	8.0	50	22	15	4	10 x DC	2			70.90	**08401**		
1.0	0.10	1.0	0.95	3.0	45	17	15	4	3 x DC	2	67.40	**10101**				
1.0	0.10	1.0	0.95	3.0	45	17	15	3	3 x DC	2	67.40	**10100**				
1.0	0.10	1.0	0.95	5.0	45	17	15	3	5 x DC	2	67.40	**10200**				
1.0	0.10	1.0	0.95	5.0	50	22	15	4	5 x DC	2	67.40	**10201**				
1.0	0.10	1.0	0.95	8.0	50	22	15	3	8 x DC	2			67.40	**10300**		
1.0	0.10	1.0	0.95	8.0	50	22	15	4	8 x DC	2			67.40	**10301**		
1.0	0.10	1.0	0.95	10.0	50	22	15	3	10 x DC	2			67.40	**10400**		
1.0	0.10	1.0	0.95	10.0	55	27	15	4	10 x DC	2			67.40	**10401**		
1.0	0.10	1.0	0.95	12.0	55	27	15	3	12 x DC	2					74.30	**10500**
1.0	0.10	1.0	0.95	12.0	55	27	15	4	12 x DC	2					74.30	**10501**
1.2	0.12	1.2	1.15	3.0	45	17	15	4	2,5 x DC	2	78.20	**12101**				
1.2	0.12	1.2	1.15	6.0	50	22	15	4	5 x DC	2	70.90	**12201**				
1.2	0.12	1.2	1.15	10.0	55	27	15	4	8,3 x DC	2			70.90	**12301**		

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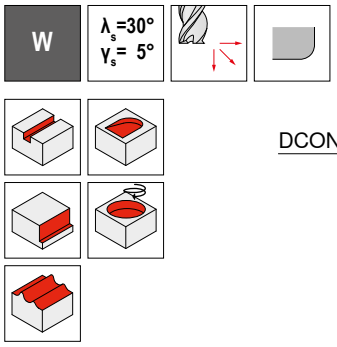
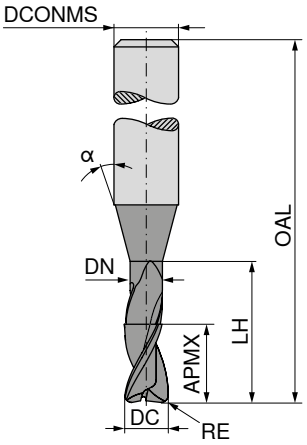
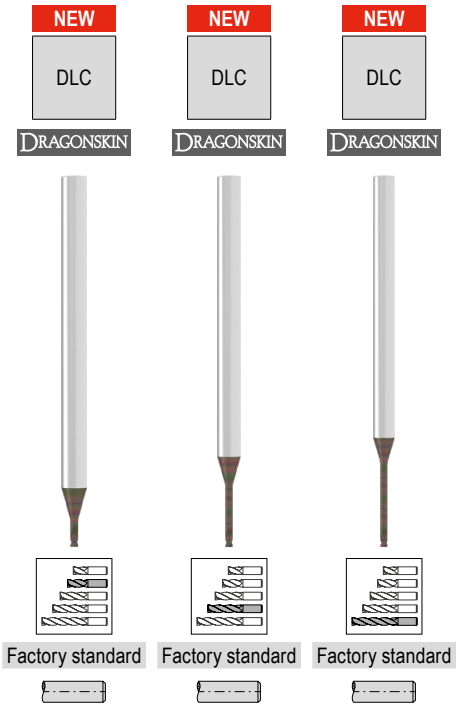
AluLine – Micro-torus cutter

The specialist for machining non-ferrous metals

▲ T_x = maximum engagement depth







Factory standard | Factory standard | Factory standard

DC -0.01 mm	RE ±0.01 mm	APMX mm	DN mm	LH mm	OAL mm	LPR mm	α°	DCONMS h5 mm	T_x	ZEFP	53 901 ... £ V1/5B		53 901 ... £ V1/5B		53 901 ... £ V1/5B	
1.2	0.12	1.2	1.15	12.0	55	27	15	4	10 x DC	2			74.30	**12401**		
1.3	0.13	1.3	1.25	4.0	45	17	15	4	3,1 x DC	2	78.20	**13101**				
1.3	0.13	1.3	1.25	7.0	50	22	15	4	5,4 x DC	2			80.40	**13201**		
1.3	0.13	1.3	1.25	11.0	55	27	15	4	8,5 x DC	2			87.00	**13301**		
1.3	0.13	1.3	1.25	13.0	55	27	15	4	10 x DC	2			92.60	**13401**		
1.5	0.15	1.5	1.44	5.0	50	22	15	4	3,3 x DC	2	70.90	**15101**				
1.5	0.15	1.5	1.44	5.0	45	17	15	3	3,3 x DC	2	70.90	**15100**				
1.5	0.15	1.5	1.44	7.5	50	22	15	3	5 x DC	2	70.90	**15200**				
1.5	0.15	1.5	1.44	7.5	50	22	15	4	5 x DC	2	70.90	**15201**				
1.5	0.15	1.5	1.44	12.0	55	27	15	3	8 x DC	2			74.30	**15300**		
1.5	0.15	1.5	1.44	12.0	55	27	15	4	8 x DC	2			74.30	**15301**		
1.5	0.15	1.5	1.44	15.0	55	27	15	3	10 x DC	2			74.30	**15400**		
1.5	0.15	1.5	1.44	15.0	60	32	15	4	10 x DC	2			74.30	**15401**		
1.6	0.16	1.6	1.52	5.0	50	22	15	4	3,1 x DC	2	80.40	**16101**				
1.6	0.16	1.6	1.52	8.0	50	22	15	4	5 x DC	2	80.40	**16201**				
1.6	0.16	1.6	1.52	13.0	55	27	15	4	8,1 x DC	2			87.00	**16301**		
1.6	0.16	1.6	1.52	16.0	60	32	15	4	10 x DC	2			92.60	**16401**		
1.8	0.18	1.8	1.72	5.5	50	22	15	4	3,1 x DC	2	78.20	**18101**				
1.8	0.18	1.8	1.72	9.0	50	22	15	4	5 x DC	2	70.90	**18201**				
1.8	0.18	1.8	1.72	14.5	55	27	15	4	8,1 x DC	2			74.30	**18301**		
1.8	0.18	1.8	1.72	18.0	60	32	15	4	10 x DC	2			74.30	**18401**		
2.0	0.20	2.0	1.92	6.0	50	22	15	4	3 x DC	2	70.90	**20101**				
2.0	0.20	2.0	1.92	6.0	45	17	15	3	3 x DC	2	70.90	**20100**				
2.0	0.20	2.0	1.92	10.0	50	22	15	4	5 x DC	2	70.90	**20201**				
2.0	0.20	2.0	1.92	10.0	50	22	15	3	5 x DC	2	70.90	**20200**				
2.0	0.20	2.0	1.92	14.0	55	27	15	3	7 x DC	2			74.30	**20300**		
2.0	0.20	2.0	1.92	14.0	55	27	15	4	7 x DC	2			74.30	**20301**		
2.0	0.20	2.0	1.92	16.0	55	27	15	3	8 x DC	2			74.30	**20400**		
2.0	0.20	2.0	1.92	16.0	60	32	15	4	8 x DC	2			74.30	**20401**		
2.0	0.20	2.0	1.92	20.0	60	32	15	3	10 x DC	2			74.30	**20500**		
2.0	0.20	2.0	1.92	20.0	60	32	15	4	10 x DC	2			74.30	**20501**		
2.3	0.23	2.3	2.22	7.0	50	22	15	4	3 x DC	2	78.20	**23101**				
2.3	0.23	2.3	2.22	11.5	55	27	15	4	5 x DC	2	80.40	**23201**				
2.3	0.23	2.3	2.22	14.0	55	27	15	4	6,1 x DC	2			80.30	**23301**		
2.3	0.23	2.3	2.22	18.5	60	32	15	4	8 x DC	2			92.60	**23401**		
2.3	0.23	2.3	2.22	20.0	60	32	15	4	8,7 x DC	2			80.30	**23501**		
2.3	0.23	2.3	2.22	23.0	65	37	15	4	10 x DC	2			80.30	**23601**		
3.0	0.30	3.0	2.90	9.0	50	22	15	4	3 x DC	2	80.30	**30101**				
3.0	0.30	3.0	2.90	15.0	55	27	15	4	5 x DC	2	80.30	**30201**				
3.0	0.30	3.0	2.90	24.0	65	37	15	4	8 x DC	2			80.30	**30301**		
3.0	0.30	3.0	2.90	30.0	70	42	15	4	10 x DC	2			87.40	**30401**		

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Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values – AluLine – micro cutter

Index	$T_x \leq 3xDC$			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice ○ suitable		
				Ø DC (mm) =											
	v_c (mm)	$a_{p\,max.}$ x DC	$a_{e\,max.}$ x DC	0,2	> Ø 0,2 ≤ Ø 0,4	> Ø 0,4 ≤ Ø 0,6	> Ø 0,6 ≤ Ø 0,8	> Ø 0,8 ≤ Ø 1,0	> Ø 1,0 ≤ Ø 1,2	> Ø 1,2 ≤ Ø 1,5	> Ø 1,5 ≤ Ø 2,0	> Ø 2,0 ≤ Ø 3,0	Emulsion	Compressed air	MQL
				f_z (mm)											
N.1.1	400	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	400	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	400	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	300	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	200	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	140	0,08	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	100	0,08	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	150	0,08	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															

Plunging angle for ramping and helical milling: 3°

Index	$T_x > 3xDC$ – 5xDC			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice ○ suitable		
				Ø DC (mm) =											
	v_c (mm)	$a_{p\,max.}$ x DC	$a_{e\,max.}$ x DC	0,2	> Ø 0,2 ≤ Ø 0,4	> Ø 0,4 ≤ Ø 0,6	> Ø 0,6 ≤ Ø 0,8	> Ø 0,8 ≤ Ø 1,0	> Ø 1,0 ≤ Ø 1,2	> Ø 1,2 ≤ Ø 1,5	> Ø 1,5 ≤ Ø 2,0	> Ø 2,0 ≤ Ø 3,0	Emulsion	Compressed air	MQL
				f_z (mm)											
N.1.1	320	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	320	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	320	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	240	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	160	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	110	0,064	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	80	0,064	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	120	0,064	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															

Plunging angle for ramping and helical milling: 2°

Index	$T_x > 5xDC$ – 7xDC			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice ○ suitable		
				Ø DC (mm) =											
	v_c (mm)	$a_{p\,max.}$ x DC	$a_{e\,max.}$ x DC	0,2	> Ø 0,2 ≤ Ø 0,4	> Ø 0,4 ≤ Ø 0,6	> Ø 0,6 ≤ Ø 0,8	> Ø 0,8 ≤ Ø 1,0	> Ø 1,0 ≤ Ø 1,2	> Ø 1,2 ≤ Ø 1,5	> Ø 1,5 ≤ Ø 2,0	> Ø 2,0 ≤ Ø 3,0	Emulsion	Compressed air	MQL
				f_z (mm)											
N.1.1	240	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	240	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	240	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	180	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	120	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	85	0,056	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	60	0,056	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	90	0,056	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															

Plunging angle for ramping and helical milling: 2°

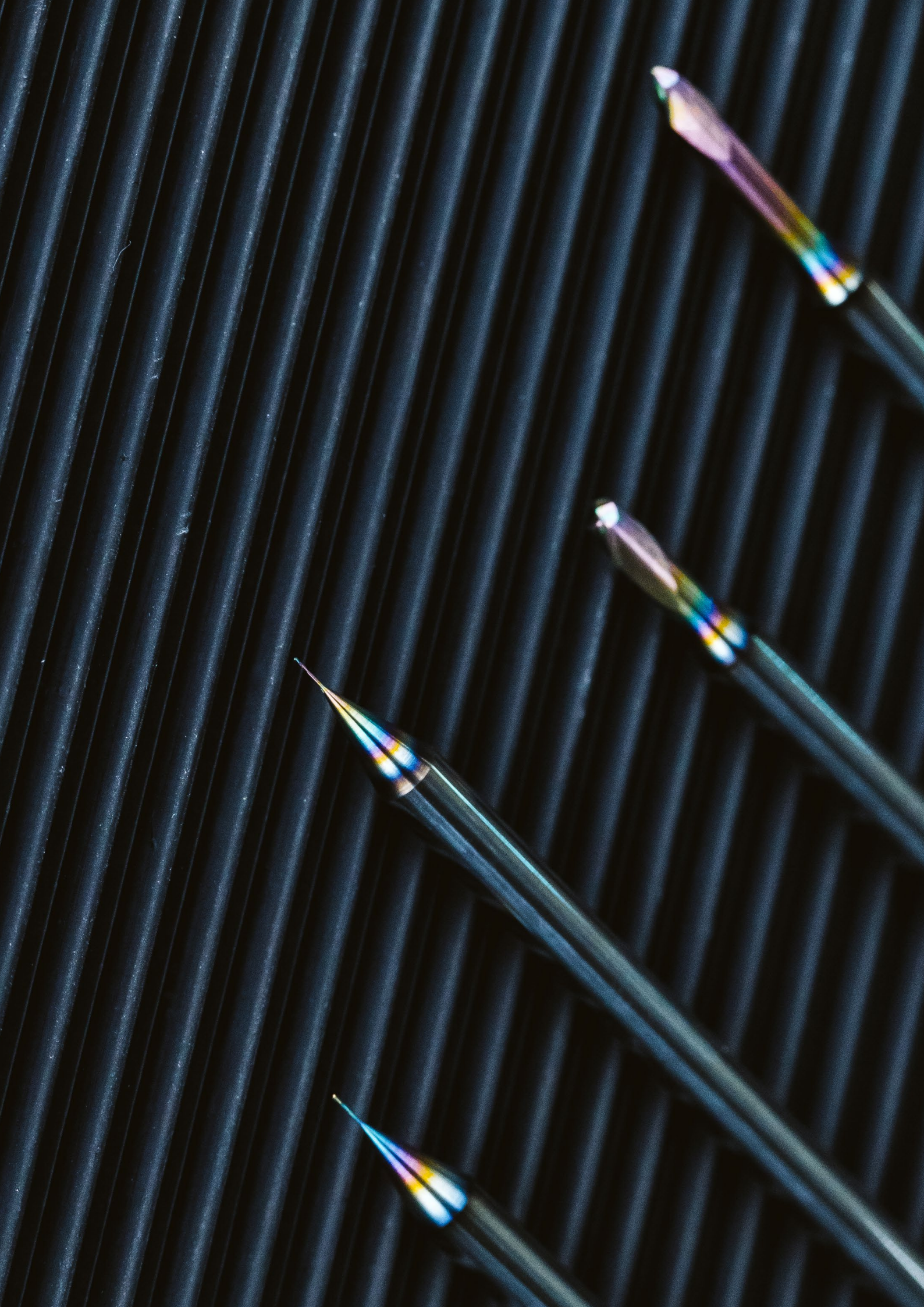
Cutting data standard values – AluLine – micro cutter

Index	T_x > 7xDC – 9xDC			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice ○ suitable		
				Ø DC (mm) =											
	v_c (mm)	$a_{p\,max.}$ x DC	$a_{e\,max.}$ x DC	0,2	> Ø 0,2 ≤ Ø 0,4	> Ø 0,4 ≤ Ø 0,6	> Ø 0,6 ≤ Ø 0,8	> Ø 0,8 ≤ Ø 1,0	> Ø 1,0 ≤ Ø 1,2	> Ø 1,2 ≤ Ø 1,5	> Ø 1,5 ≤ Ø 2,0	> Ø 2,0 ≤ Ø 3,0	Emulsion	Compressed air	MQL
				f_z (mm)											
N.1.1	160	0,09	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	160	0,09	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	160	0,09	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	120	0,09	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	80	0,09	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	55	0,048	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	40	0,048	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	60	0,048	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															

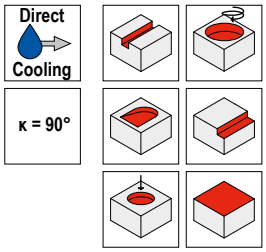
Plunging angle for ramping and helical milling = 1°

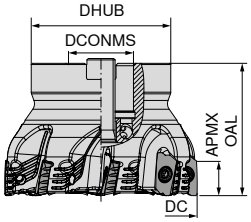
Index	T_x > 9xDC – 12xDC			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice ○ suitable		
				Ø DC (mm) =											
	v_c (mm)	$a_{p\,max.}$ x DC	$a_{e\,max.}$ x DC	0,2	> Ø 0,2 ≤ Ø 0,4	> Ø 0,4 ≤ Ø 0,6	> Ø 0,6 ≤ Ø 0,8	> Ø 0,8 ≤ Ø 1,0	> Ø 1,0 ≤ Ø 1,2	> Ø 1,2 ≤ Ø 1,5	> Ø 1,5 ≤ Ø 2,0	> Ø 2,0 ≤ Ø 3,0	Emulsion	Compressed air	MQL
				f_z (mm)											
N.1.1	120	0,075	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	120	0,075	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	120	0,075	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	90	0,075	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	60	0,075	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	40	0,04	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	30	0,04	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	45	0,04	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															

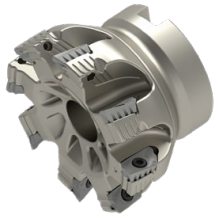
Plunging angle for ramping and helical milling = 1°



MaxiMill – 211-15-DC Shell mill







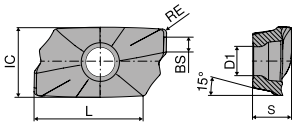
NEW

Designation	DC	ZNF	APMX	OAL	DCONMS H6	DHUB	RPMX	torque moment	Insert	50 798 ... £ 2B/40	
	mm		mm	mm	mm	mm	1/min.	Nm			
A211.40.R.04-15-DCA R08	40	4	14	45	16	38	18000	3,2	XDKT 1505..	771.33	**04004**
A211.40.R.04-15-DCA R40	40	4	14	45	16	38	18000	3,2	XDKT 1505..	771.33	**24004**
A211.50.R.05-15-DCA R40	50	5	14	45	22	45	15000	3,2	XDKT 1505..	986.58	**25005**
A211.50.R.05-15-DCA R08	50	5	14	45	22	45	15000	3,2	XDKT 1505..	986.58	**05005**
A211.63.R.06-15-DCA R40	63	6	14	50	22	48	14000	3,2	XDKT 1505..	1,335.38	**26306**
A211.63.R.06-15-DCA R08	63	6	14	50	22	48	14000	3,2	XDKT 1505..	1,335.38	**06306**
A211.80.R.08-15-DCA R08	80	8	14	55	27	58	12000	3,2	XDKT 1505..	1,763.89	**08008**
A211.80.R.08-15-DCA R40	80	8	14	55	27	58	12000	3,2	XDKT 1505..	1,763.89	**28008**

	TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts	£ Y7	£ Y7	£ 2A/28	£ 2A/28	£ Y7
DC					
40 - 80	8.91 **054**	21.01 **128**	5.31 **303**	3.85 **839**	244.07 **193**

XDKT

Designation	IC	D1	L	BS	S
	mm	mm	mm	mm	mm
XDKT 150508..	9.3	4.4	14.8	1.6	5.56
XDKT 150532..	9.3	4.4	14.8	1.9	5.56
XDKT 150540..	9.3	4.4	14.8	1.2	5.56



XDKT

XDKT

		NEW	NEW
		-F40 CTCS245	-F40 CTC5240
		DRAGONSKIN	DRAGONSKIN
			
		F XDKT	F XDKT
		51 165 ...	51 165 ...
ISO	RE mm	£ 1H/17	£ 1H/17
150508ER	0.8	29.60 50801	29.60 10801
150532ER	3.2	29.60 53201	29.60 13201
150540ER	4.0	29.60 54001	29.60 14001
P			
M			
K			
N			
S		●	●
H			
O			

Cutting data standard values

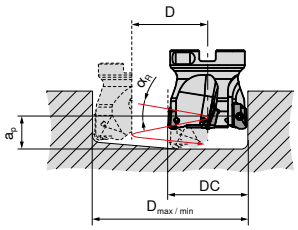
	Material sub-group	Index	Tensile strength N/mm²* / HB / HRC	CTC5240 DRAGONSKIN		CTCS245 DRAGONSKIN	
				Cutting Material **hard** (v_c↑) → **tough** (v_c↓)			
				v_c (m/min)			
P	Unalloyed steel	P.1.1	420 N/mm² / 125 HB				
		P.1.2	640 N/mm² / 190 HB				
		P.1.3	840 N/mm² / 250 HB				
		P.1.4	910 N/mm² / 270 HB				
		P.1.5	1010 N/mm² / 300 HB				
	Low-alloy steel	P.2.1	610 N/mm² / 180 HB				
		P.2.2	930 N/mm² / 275 HB				
		P.2.3	1010 N/mm² / 300 HB				
		P.2.4	1200 N/mm² / 375 HB				
	High-alloy steel and high-alloy tool steel	P.3.1	680 N/mm² / 200 HB				
		P.3.2	1100 N/mm² / 300 HB				
		P.3.3	1300 N/mm² / 400 HB				
	Stainless steel	P.4.1	680 N/mm² / 200 HB				
		P.4.2	1010 N/mm² / 300 HB				
M	Stainless steel	M.1.1	610 N/mm² / 180 HB				
		M.2.1	300 HB				
		M.3.1	780 N/mm² / 230 HB				
K	Grey cast iron	K.1.1	350 N/mm² / 180 HB				
		K.1.2	500 N/mm² / 260 HB				
	Spherulitic graphite cast iron	K.2.1	540 N/mm² / 160 HB				
		K.2.2	845 N/mm² / 250 HB				
	Malleable iron	K.3.1	440 N/mm² / 130 HB				
		K.3.2	780 N/mm² / 230 HB				
N	Aluminium wrought alloy	N.1.1	60 HB				
		N.1.2	340 N/mm² / 100 HB				
	Cast aluminium alloy	N.2.1	250 N/mm² / 75 HB				
		N.2.2	300 N/mm² / 90 HB				
		N.2.3	440 N/mm² / 130 HB				
	Copper and copper alloys (bronze/brass)	N.3.1	375 N/mm² / 110 HB				
		N.3.2	300 N/mm² / 90 HB				
		N.3.3	340 N/mm² / 100 HB				
	Magnesium alloys	N.4.1	70 HB				
S	Heat-resistant alloys	S.1.1	680 N/mm² / 200 HB		80		64
		S.1.2	950 N/mm² / 280 HB		70		56
		S.2.1	840 N/mm² / 250 HB		35		28
		S.2.2	1180 N/mm² / 350 HB		25		20
		S.2.3	1080 N/mm² / 320 HB		30		24
	Titanium alloys	S.3.1	400 N/mm²		80		64
		S.3.2	1050 N/mm² / 320 HB		50		40
		S.3.3	1400 N/mm² / 410 HB		40		32
H	Hardened steel	H.1.1	46–55 HRC				
		H.1.2	56–60 HRC				
		H.1.3	61–65 HRC				
		H.1.4	66–70 HRC				
	Chilled iron	H.2.1	400 HB				
	Hardened cast iron	H.3.1	55 HRC				
O	Non-metal materials	O.1.1	≤ 150 N/mm²				
		O.1.2	≤ 100 N/mm²				
		O.2.1	≤ 1000 N/mm²				
		O.2.2	≤ 1000 N/mm²				
		O.3.1					

*** Tensile strength**

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

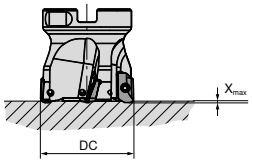
System MaxiMill 211-15

Machining strategy



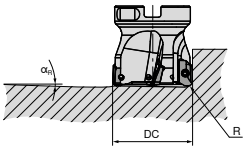
1 Helical plunging





2 Axial ramping





3 Angled ramping



DC mm		1 Helical plunging RE = 0,8 mm	2 Axial ramping X_{max}	3 Angled ramping α_R
25	α_R	7,5 °	2,7 mm	9,5 °
	$D_{max.}$	48 mm		
	$D_{min.}$	37 mm		
32	α_R	5 °	2,5 mm	6,8 °
	$D_{max.}$	62 mm		
	$D_{min.}$	47 mm		
40	α_R	3,2 °	2,5 mm	5,1 °
	$D_{max.}$	78 mm		
	$D_{min.}$	63 mm		
50	α_R	2,5 °	2,5 mm	2,5 °
	$D_{max.}$	98 mm		
	$D_{min.}$	86 mm		
63	α_R	1,5 °	2,5 mm	2,5 °
	$D_{max.}$	124 mm		
	$D_{min.}$	111 mm		
80	α_R	1,3 °	2,5 mm	2,0 °
	$D_{max.}$	158 mm		
	$D_{min.}$	147 mm		
100	α_R	1,1 °	2,5 mm	1,5 °
	$D_{max.}$	198 mm		
	$D_{min.}$	190 mm		
125	α_R	0,9 °	2,5 mm	0,9 °
	$D_{max.}$	248 mm		
	$D_{min.}$	240 mm		
160	α_R	0,6 °	2,5 mm	0,7 °
	$D_{max.}$	318 mm		
	$D_{min.}$	310 mm		

Maximum speed related to projection length n_{max} in min^{-1}			
DC mm	l_a = 2 x Ø mm	l_a = 3 x Ø mm	l_a = 5 x Ø mm
25	26560	19520	13320
32	24160	16720	9520
40	22160	14400	7200
50	20320	12320	4880
63	18640	10320	2960
80	17040	8480	
100	15680	6720	
125	14320		
160	13200		

$D_{max.}$ in mm = largest diameter for flat bottom hole

$D_{min.}$ in mm = Smallest diameter for flat bottom surface

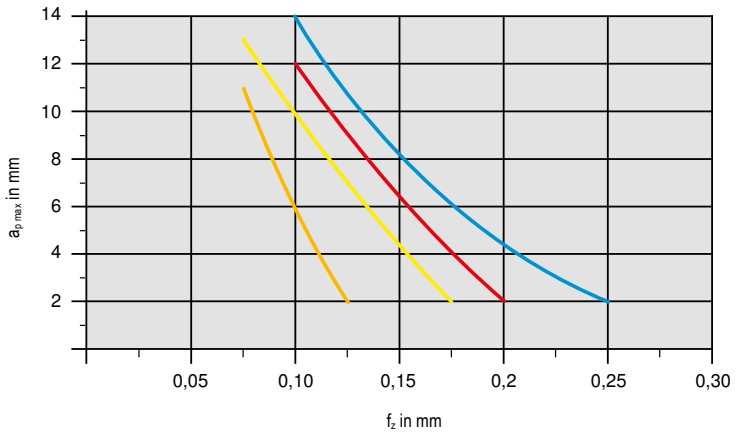
a_p in mm = D x π x tan (α_R) = Pitch

l_a in mm = Overhang length

Starting Parameter



XDKT 15



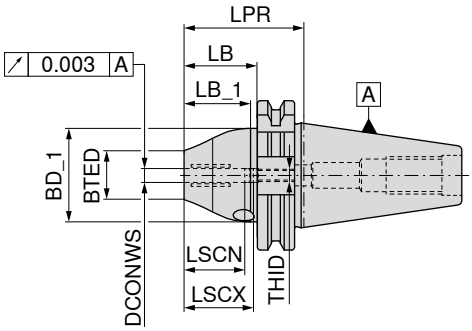
Material			Inserts		v_c in m/min	Cooling
Steel	P.2.2	40CrMnMoS 8-6	XDKT150508SR-M50	CTCP230	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XDKT150508SR-F50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	XDKT150508SR-R50	CTCK215	250	Dry
Heat-resistant	S.2.2	Inconel 718	XDKT150508ER-F40	CTC5240	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 46
From v_c > 400 m/min, the tool must be balanced!

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw





NEW



AD/B
G 2,5 n_{max} 25000

84 254 ...

Adapter	DCONWS	LPR	BTED	BD_1	LB_1	LB	LSCX	LSCN	THID	£	
	mm	mm	mm	mm	mm	mm	mm	mm		Y8	
SK 40	25	110	38	57.0	65.3	90.9	57	47	M10X1	651.52	**12579**
SK 40	32	115	38	62.5	65.5	95.9	61	51	M12X1	651.52	**13279**



Clamping key – T

80 397 ...



Pressure screw

83 950 ...



Stop screw IK

83 950 ...

Spare parts DCONWS		£ Y7			£ Y8			£ Y7	
25	SW5	8.11	**050**	M10x12	13.60	**55000**	M10x1x13,5 - SW5	25.16	**421**
32	SW5	8.11	**050**	M10x12	13.60	**55000**	M12x1x13,5 - SW5	25.16	**422**

Accessories



→ 282

Reduction sleeve



→ 58, 60

Pull stud



→ 284

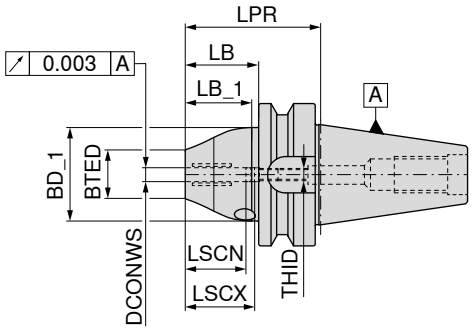
Others

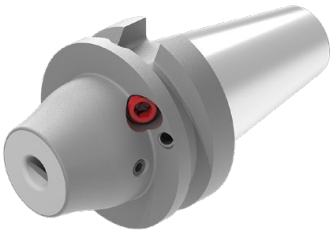
Accessories can be found in the clamping technology catalogue → **Chapter 16, Adapters and accessories**

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw






NEW
AD
G 2,5 n_{max} 25000
84 254 ...


NEW
AD/B
G 2,5 n_{max} 25000
84 254 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	£ Y8		£ Y8	
BT 30	6	54	26	46	29.0	34	37	27	M5	573.76	**10670**		
BT 30	8	54	28	46	29.0	34	37	27	M6	573.76	**10870**		
BT 30	10	54	30	50	23.5	34	41	31	M8X1	573.76	**11070**		
BT 30	12	54	32	50	23.5	34	46	36	M10X1	573.76	**11270**		
BT 30	16	69	38	55	38.5	49	49	39	M12X1	573.76	**11670**		
BT 30	20	69	38	58	38.5	49	51	41	M12X1	573.76	**12070**		
BT 40	25	100	38	57	44.6	75	57	47	M16X1			651.52	**12569**
BT 40	32	105	38	62	50.0	80	61	51	M16X1			651.52	**13269**


Clamping key – T
80 397 ...


Pressure screw
83 950 ...


Stop screw IK
83 950 ...

Spare parts DCONWS		£ Y7			£ Y8			£ Y7	
6	SW5	8.11	**050**	M10x12	13.60	**55000**	M5x12,5 - SW2,5	25.16	**418**
8	SW5	8.11	**050**	M10x12	13.60	**55000**	M6x12,5 - SW3	25.16	**419**
10	SW5	8.11	**050**	M10x12	13.60	**55000**	M8x1x13,5 - SW3	25.16	**420**
12	SW5	8.11	**050**	M10x12	13.60	**55000**	M10x1x13,5 - SW5	25.16	**421**
16	SW5	8.11	**050**	M10x12	13.60	**55000**	M12x1x13,5 - SW5	25.16	**422**
20	SW5	8.11	**050**	M10x12	13.60	**55000**	M12x1x13,5 - SW5	25.16	**422**
25	SW5	8.11	**050**	M10x12	13.60	**55000**	M16x1x13,5 - SW8	29.02	**424**
32	SW5	8.11	**050**	M10x12	13.60	**55000**	M16x1x13,5 - SW8	29.02	**424**

Accessories


→ 282
Reduction sleeve


→ 110+111
Pull stud

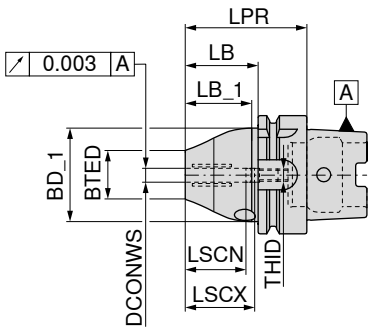

→ 284
Others

Accessories can be found in the clamping technology catalogue → **Chapter 16, Adapters and accessories**

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ **Also available** with Balluff chip on request

Scope of supply:
Base body with backstop screw and pressure screw





NEW



AD
G 2,5 n_{max} 25000

84 254 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	£ Y8	
HSK-A 63	25	95	38	57.0	45.0	69	57	47	M10X1	658.40	**12557**
HSK-A 63	32	110	38	62.5	56.6	84	61	51	M10X1	658.40	**13257**
HSK-A 100	25	95	38	70.0	62.2	66	57	47	M10X1	898.56	**12555**
HSK-A 100	32	100	38	75.0	67.2	71	61	51	M10X1	898.56	**13255**



Clamping key – T

80 397 ...



Pressure screw

83 950 ...



Stop screw IK

83 950 ...

Spare parts DCONWS		£ Y7			£ Y8			£ Y7	
25	SW5	8.11	**050**	M10x12	13.60	**55000**	M10x1x13,5 - SW5	25.16	**421**
32	SW5	8.11	**050**	M10x12	13.60	**55000**	M10x1x13,5 - SW5	25.16	**421**

Accessories



→ 282 Reduction sleeve



→ 156 Coolant transfer pipe



→ 284 Others

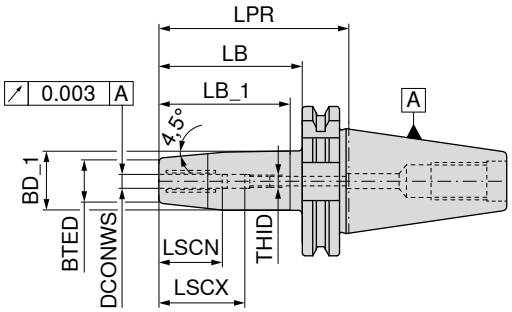
Accessories can be found in the clamping technology catalogue → **Chapter 16, Adapters and accessories**

HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ **Also available** with Balluff chip on request

Scope of supply:

Base body with backstop screw and pressure screw





NEW



AD/B

G 2,5 n_{max} 25000

84 255 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	£ Y8	
SK 40	6	120	21	27	48.9	100.9	37	27	M5	1,009.12	**20679**
SK 40	8	120	21	27	48.9	100.9	37	27	M6	1,009.12	**20879**
SK 40	10	120	24	32	61.6	100.9	41	31	M8X1	1,009.12	**21079**
SK 40	12	120	24	32	61.6	100.9	46	36	M10X1	1,009.12	**21279**
SK 40	16	120		34	56.2	100.9	49	39	M12X1	1,009.12	**21679**
SK 40	20	120	33	42	68.9	100.9	51	41	M16X1	1,009.12	**22079**



Clamping key – T

80 397 ...



Pressure screw

83 950 ...



Stop screw IK

83 950 ...

Spare parts DCONWS		£ Y7			£ Y8			£ Y7	
6	SW5	8.11	**050**	M10x12	13.60	**55000**	M5x12,5 - SW2,5	25.16	**418**
8	SW5	8.11	**050**	M10x12	13.60	**55000**	M6x12,5 - SW3	25.16	**419**
10	SW5	8.11	**050**	M10x12	13.60	**55000**	M8x1x13,5 - SW3	25.16	**420**
12	SW5	8.11	**050**	M10x12	13.60	**55000**	M10x1x13,5 - SW5	25.16	**421**
16	SW5	8.11	**050**	M10x12	13.60	**55000**	M12x1x13,5 - SW5	25.16	**422**
20	SW5	8.11	**050**	M10x12	13.60	**55000**	M16x1x13,5 - SW8	29.02	**424**

Accessories



→ 282

Reduction sleeve



→ 58, 60

Pull stud



→ 284

Others

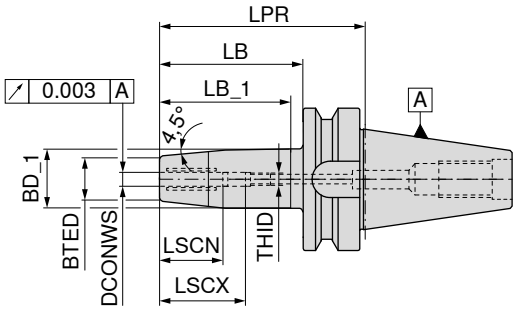
Accessories can be found in the clamping technology catalogue → **Chapter 16, Adapters and accessories**

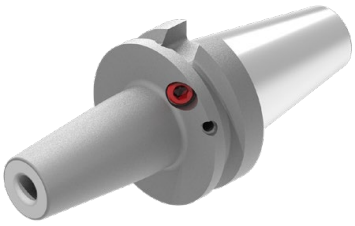
HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ **Also available** with Balluff chip on request

Scope of supply:

Base body with backstop screw and pressure screw





NEW



AD
G 2,5 n_{max} 25000

84 255 ...

NEW



AD/B
G 2,5 n_{max} 25000

84 255 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	£ Y8		£ Y8	
BT 30	6	85	21	27	57.7	65	37	27	M5	739.52	**10670**		
BT 30	8	85	21	27	57.7	65	37	27	M6	739.52	**10870**		
BT 30	10	85	24	32	57.7	65	41	31	M8X1	739.52	**11070**		
BT 30	12	85	24	32	57.7	65	46	36	M10X1	739.52	**11270**		
BT 30	16	85	27	34	57.2	65	49	39	M10X1	739.52	**11670**		
BT 30	20	85	33	42	57.5	65	51	41	M10X1	739.52	**12070**		
BT 40	6	120	21	27	48.9	95	37	27	M5			1,009.12	**20669**
BT 40	8	120	21	27	48.9	95	37	27	M6			1,009.12	**20869**
BT 40	10	120	24	32	61.6	95	41	31	M8X1			1,009.12	**21069**
BT 40	12	120	24	32	61.6	95	46	36	M10X1			1,009.12	**21269**
BT 40	16	120	27	34	56.2	95	49	39	M12X1			1,009.12	**21669**
BT 40	20	120	33	42	68.9	95	51	41	M16X1			1,009.12	**22069**



Clamping key – T

80 397 ...



Pressure screw

83 950 ...



Stop screw IK

83 950 ...

Spare parts DCONWS		£ Y7			£ Y8			£ Y7	
6	SW5	8.11	**050**	M10x12	13.60	**55000**			
6	SW5	8.11	**050**	M10x12	13.60	**55000**	M5x12,5 - SW2,5	25.16	**418**
8	SW5	8.11	**050**	M10x12	13.60	**55000**			
8	SW5	8.11	**050**	M10x12	13.60	**55000**	M6x12,5 - SW3	25.16	**419**
10	SW5	8.11	**050**	M10x12	13.60	**55000**	M8x1x13,5 - SW3	25.16	**420**
10	SW5	8.11	**050**	M10x12	13.60	**55000**			
12	SW5	8.11	**050**	M10x12	13.60	**55000**	M10x1x13,5 - SW5	25.16	**421**
12	SW5	8.11	**050**	M10x12	13.60	**55000**			
16	SW5	8.11	**050**	M10x12	13.60	**55000**	M10x1x13,5 - SW5	25.16	**421**
16	SW5	8.11	**050**	M10x12	13.60	**55000**			
20	SW5	8.11	**050**	M10x12	13.60	**55000**			
20	SW5	8.11	**050**	M10x12	13.60	**55000**	M10x1x13,5 - SW5	25.16	**421**

Accessories



→ 282

Reduction sleeve



→ 110+111

Pull stud



→ 284

Others

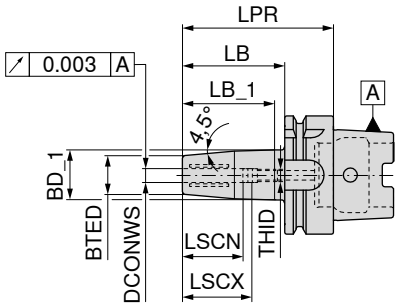
Accessories can be found in the clamping technology catalogue → **Chapter 16, Adapters and accessories**

HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ **Also available** with Balluff chip on request

Scope of supply:

Base body with backstop screw and pressure screw





NEW



AD

G 2,5 n_{max} 25000

84 255 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	£ Y8	
HSK-A 63	6	120	21	27	48.9	94	37	27	M5	1,041.92	**20657**
HSK-A 63	8	120	21	27	48.9	94	37	27	M6	1,041.92	**20857**
HSK-A 63	10	120	24	32	61.6	94	41	31	M8X1	1,041.92	**21057**
HSK-A 63	12	120	24	32	61.6	94	46	36	M10X1	1,041.92	**21257**
HSK-A 63	16	120	27	34	56.2	94	49	39	M12X1	1,041.92	**21657**
HSK-A 63	20	120	33	42	68.9	94	51	41	M16X1	1,041.92	**22057**
HSK-A 100	6	120	21	27	48.9	91	37	27	M5	1,344.48	**20655**
HSK-A 100	8	120	21	27	48.9	91	37	27	M6	1,344.48	**20855**
HSK-A 100	10	120	24	32	61.6	91	41	31	M8X1	1,344.48	**21055**
HSK-A 100	12	120	24	32	61.6	91	46	36	M10X1	1,344.48	**21255**
HSK-A 100	16	120	27	34	56.2	91	49	39	M12X1	1,344.48	**21655**
HSK-A 100	20	120	33	42	68.9	91	51	41	M16X1	1,344.48	**22055**

Clamping key – T

80 397 ...



Pressure screw

83 950 ...



Stop screw IK

83 950 ...

Spare parts for Article no.		£ Y7			£ Y8			£ Y7	
84 255 20657	SW5	8.11	**050**	M10x10	11.05	**55100**	M5x12,5 - SW2,5	25.16	**418**
84 255 20857	SW5	8.11	**050**	M10x10	11.05	**55100**	M6x12,5 - SW3	25.16	**419**
84 255 21057	SW5	8.11	**050**	M10x10	11.05	**55100**	M8x1x13,5 - SW3	25.16	**420**
84 255 21257	SW5	8.11	**050**	M10x10	11.05	**55100**	M10x1x13,5 - SW5	25.16	**421**
84 255 21657	SW5	8.11	**050**	M10x10	11.05	**55100**	M12x1x13,5 - SW5	25.16	**422**
84 255 22057	SW5	8.11	**050**	M10x10	11.05	**55100**	M16x1x13,5 - SW8	29.02	**424**
84 255 20655	SW5	8.11	**050**	M10x12	13.60	**55000**	M5x12,5 - SW2,5	25.16	**418**
84 255 20855	SW5	8.11	**050**	M10x12	13.60	**55000**	M6x12,5 - SW3	25.16	**419**
84 255 21055	SW5	8.11	**050**	M10x12	13.60	**55000**	M8x1x13,5 - SW3	25.16	**420**
84 255 21255	SW5	8.11	**050**	M10x12	13.60	**55000**	M10x1x13,5 - SW5	25.16	**421**
84 255 21655	SW5	8.11	**050**	M10x12	13.60	**55000**	M12x1x13,5 - SW5	25.16	**422**
84 255 22055	SW5	8.11	**050**	M10x12	13.60	**55000**	M16x1x13,5 - SW8	29.02	**424**

Accessories



→ 282

Reduction sleeve



→ 156

Coolant transfer pipe



→ 284

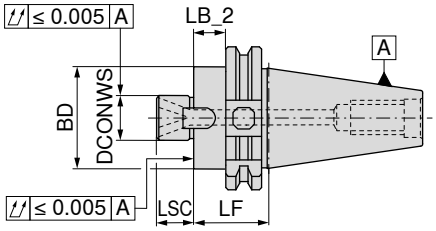
Others

Accessories can be found in the clamping technology catalogue → **Chapter 16, Adapters and accessories**

Shell mill adapter with reduced flange diameter

▲ Screwed drive dogs
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with retaining screw and drive dog





NEW



AD
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	82 315 ... £ Y8/3B	
medium length	SK 40	22	81	100	38	19	178.50	**22279**
	SK 40	27	81	100	48	21	197.70	**22779**
	SK 50	22	81	100	38	19	244.20	**22278**
	SK 50	27	81	100	48	21	267.60	**22778**
long	SK 40	22	111	130	38	19	187.65	**32279**
	SK 40	27	111	130	48	21	203.85	**32779**
	SK 50	22	111	130	38	19	257.55	**32278**
	SK 50	27	111	130	48	21	280.65	**32778**

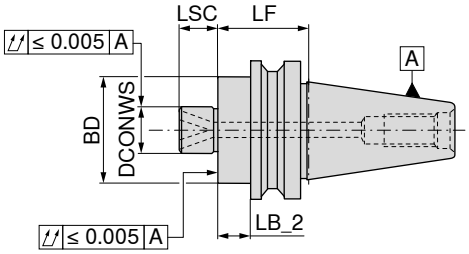
These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters.
Now they can be clamped perfectly, thanks to the adapted flange diameters.

		Screw for drivers			Driver			clamping screw		
		83 950 ...			83 950 ...			83 950 ...		
Spare parts DCONWS		£ Y8/3B			£ Y8/3B			£ Y8/3B		
22	M4x8	0.80	**51700**	10x7x20,5	11.26	**51500**	M10x25	8.50	**124**
27	M5x8	0.98	**51800**	12x9x24,3	12.83	**51600**	M12x30	9.39	**125**

Shell mill adapter with reduced flange diameter

▲ Screwed drive dogs
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with retaining screw and drive dog





NEW



AD
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	BD mm	LB_2 mm	LF mm	LSC mm		82 315 ... £ Y8/3B	
medium length	BT 40	22	38	73	100	19		168.90	**22269**
	BT 40	27	48	73	100	21		184.95	**22769**
	BT 50	22	38	62	100	19		237.15	**22268**
	BT 50	27	48	62	100	21		258.45	**22768**
long	BT 40	22	38	103	130	19		182.40	**32269**
	BT 40	27	48	103	130	21		194.25	**32769**
	BT 50	22	38	92	130	19		255.45	**32268**
	BT 50	27	48	92	130	21		271.65	**32768**

These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters.
Now they can be clamped perfectly, thanks to the adapted flange diameters.



Screw for drivers



Driver



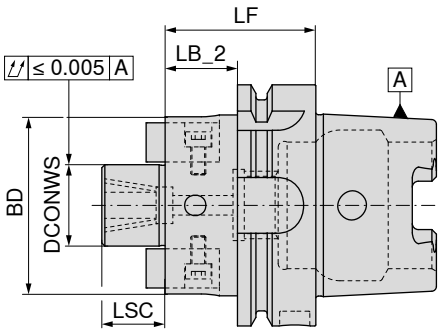
clamping screw

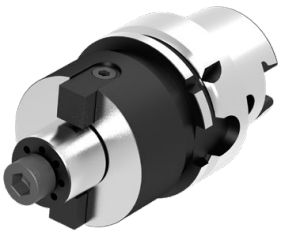
Spare parts DCONWS	83 950 ...	£ Y8/3B		83 950 ...	£ Y8/3B		83 950 ...	£ Y8/3B	
22	M4x8	0.80	**51700**	10x7x20,5	11.26	**51500**	M10x25	8.50	**124**
27	M5x8	0.98	**51800**	12x9x24,3	12.83	**51600**	M12x30	9.39	**125**

Shell mill adapter with reduced flange diameter

▲ Screwed drive dogs
▲ also available with Balluff chip **on request**

Scope of supply:
Base body with retaining screw and drive dog





NEW



G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	82 315 ... £ Y8/3B	
medium length	HSK-A 63	22	74	100	38	19	379.95	**22257**
	HSK-A 63	27	74	100	48	21	379.95	**22757**
	HSK-A 100	22	71	100	38	19	383.85	**22255**
	HSK-A 100	27	71	100	48	21	398.55	**22755**
long	HSK-A 63	22	104	130	38	19	389.55	**32257**
	HSK-A 63	27	104	130	48	21	389.55	**32757**
	HSK-A 100	22	101	130	38	19	394.05	**32255**
	HSK-A 100	27	101	130	48	21	425.55	**32755**

These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters.
Now they can be clamped perfectly, thanks to the adapted flange diameters.


Screw for drivers

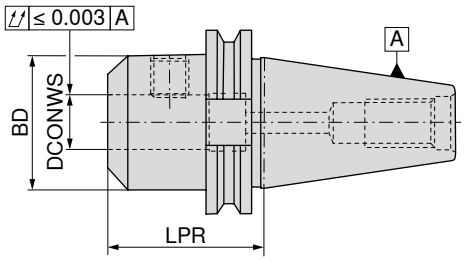

Driver


clamping screw

Spare parts DCONWS	83 950 ...	£ Y8/3B		83 950 ...	£ Y8/3B		83 950 ...	£ Y8/3B	
22	M4x8	0.80	**51700**	10x7x20,5	11.26	**51500**	M10x25	8.50	**124**
27	M5x8	0.98	**51800**	12x9x24,3	12.83	**51600**	M12x30	9.39	**125**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW



AD/Be
G 2,5 n_{max} 25000

82 404 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	£ Y8/3B	
short	SK 40	6	50	25	160.02	**106**
	SK 40	8	50	28	160.02	**108**
	SK 40	10	50	35	160.02	**110**
	SK 40	12	50	42	160.02	**112**
	SK 40	14	50	44	160.02	**114**
	SK 40	16	63	48	160.02	**116**
	SK 40	18	63	50	160.02	**118**
	SK 40	20	63	52	160.02	**120**
	SK 40	25	100	65	160.02	**125** [1]
	SK 40	32	100	72	160.02	**13200** [1]
	SK 50	6	63	25	241.46	**30600**
	SK 50	8	63	28	241.46	**30800**
	SK 50	10	63	35	222.38	**31000**
	SK 50	12	63	42	222.38	**31200**
	SK 50	14	63	44	222.38	**31400**
	SK 50	16	63	48	243.48	**31600**
	SK 50	18	63	50	243.48	**31800**
	SK 50	20	63	52	243.48	**32000**
	SK 50	25	80	65	260.90	**32500** [1]
	SK 50	32	100	72	274.69	**33200** [1]
	SK 50	40	120	90	263.16	**34000**
medium length	SK 40	40	120	80	353.91	**54000** [1]

1) Version with two grubscrews

Accessories



→ 58, 60

Pull stud



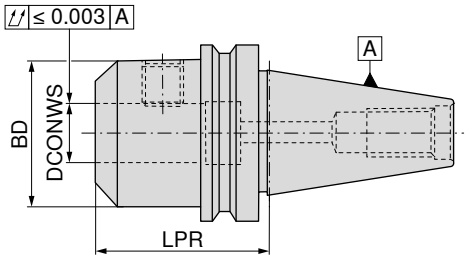
→ 284

Others

Accessories can be found in the clamping technology catalogue
→ **Chapter 16, Adapters and accessories**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW



AD/Be
G 2,5 n_{max} 25000

82 504 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	£ Y8/3B	
short	BT 40	6	50	25	160.02	**106**
	BT 40	8	50	28	160.02	**108**
	BT 40	10	63	35	160.02	**110**
	BT 40	12	63	42	160.02	**112**
	BT 40	14	63	44	160.02	**114**
	BT 40	16	63	48	160.02	**116**
	BT 40	18	63	50	160.02	**118**
	BT 40	20	63	52	160.02	**120**
	BT 40	25	100	65	160.02	**125** [1]
	BT 40	32	100	72	160.02	**13200** [1]
	BT 40	40	120	90	212.22	**14000**
	BT 50	6	63	25	241.46	**30600**
	BT 50	8	63	28	241.46	**30800**
	BT 50	10	80	35	222.38	**31000**
	BT 50	12	80	42	222.38	**31200**
	BT 50	14	80	44	222.38	**31400**
	BT 50	16	80	48	243.48	**31600**
	BT 50	18	80	50	243.48	**31800**
	BT 50	20	80	52	243.48	**32000**
	BT 50	25	100	65	260.90	**32500** [1]
	BT 50	32	105	72	274.69	**33200** [1]
	BT 50	40	120	90	268.74	**34000**

1) Version with two grubscrews

Accessories



→ 58, 60

Pull stud



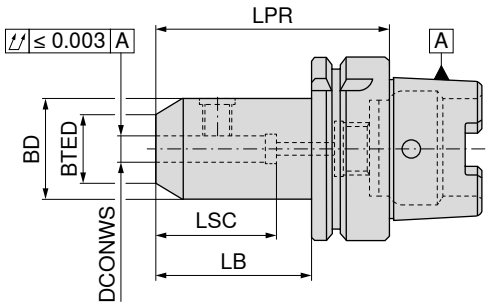
→ 284

Others

Accessories can be found in the clamping technology catalogue
→ **Chapter 16, Adapters and accessories**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW



G 2,5 n_{max} 25000

82 404 ...

	Adapter	DCONWS $_{H4}$ mm	LPR mm	BD mm	BTED mm	LB mm	LSC mm	£ Y8/3B	
short	HSK-A 63	6	65	25	15	39	34	253.08	**10657**
	HSK-A 63	8	65	28	20	39	34	253.08	**10857**
	HSK-A 63	10	65	35	25	39	39	253.08	**11057**
	HSK-A 63	12	80	42	30	54	44	253.08	**11257**
	HSK-A 63	14	80	44	32	54	44	253.08	**11457**
	HSK-A 63	16	80	48	36	54	47	253.08	**11657**
	HSK-A 63	18	80	50	38	54	47	253.08	**11857**
	HSK-A 63	20	80	52	40	54	49	253.08	**12057**
	HSK-A 63	25	110	65	45	84	54	253.08	**12557**
	HSK-A 63	32	110	72	52	84	58	253.08	**13257**
	HSK-A 63	40	125	80	60	99	71	253.08	**14057**
	HSK-A 100	6	80	25	15	51	34	339.30	**10655**
	HSK-A 100	8	80	28	20	51	34	339.30	**10855**
	HSK-A 100	10	80	35	25	51	39	339.30	**11055**
	HSK-A 100	12	80	42	30	51	44	339.30	**11255**
	HSK-A 100	14	80	44	32	51	44	339.30	**11455**
	HSK-A 100	16	100	48	36	71	47	339.30	**11655**
	HSK-A 100	18	100	50	38	71	47	339.30	**11855**
	HSK-A 100	20	100	52	40	71	49	339.30	**12055**
	HSK-A 100	25	100	65	45	71	54	339.30	**12555**
	HSK-A 100	32	100	72	52	71	58	339.30	**13255**
	HSK-A 100	40	110	80	60	81	68	339.30	**14055**



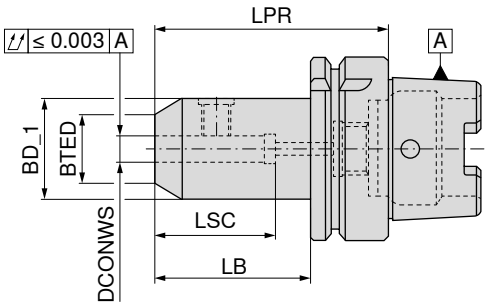
Grubscrew

62 950 ...

Spare parts DCONWS	£ W7	
6	1.16	**006**
8	1.16	**008**
10	2.22	**010**
12	1.76	**012**
14	1.76	**012**
16	2.18	**016**
18	2.18	**016**
20	2.32	**020**
25	4.48	**025**
32	4.68	**032**
40	4.68	**032**

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**





NEW NEW




	Adapter	DCONWS $_{H5}$ mm	LPR mm	BTED mm	BD_1 mm	LB mm	LSC mm	G 2,5 n_{max} 25000 **82 740 ...** £ Y8/3B		G 2,5 n_{max} 25000 **82 741 ...** £ Y8/3B	
short	HSK-A 63	40	120	60	80	94	68	253.08	**14057**		
	HSK-A 63	40	120	60	80	94	68			239.58	**14057**

The M3 screws with WAF 1.5 mm supplied can be used to seal the two additional coolant holes.

Accessories


→ 156

Coolant transfer pipe

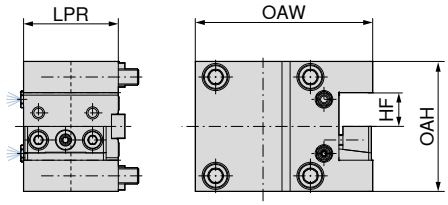

→ 284

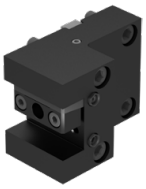
Others

Accessories can be found in the clamping technology catalogue
→ **Chapter 16, Adapters and accessories**

HAAS/Doosan – BMT 65 – Axial square section tool holder

▲ directly screwed version





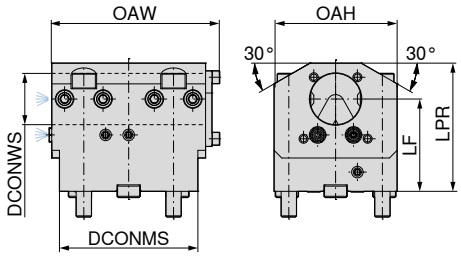
NEW

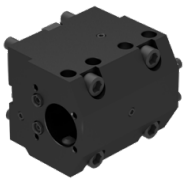
Left-hand

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	82 483 ... £ Y7	
BMT 65	70 x 73	25	75	97	131	1,058.73	**00008**

HAAS/Doosan – BMT 65 – Combi tool holder

▲ directly screwed version
▲ double-sided version





NEW



IC

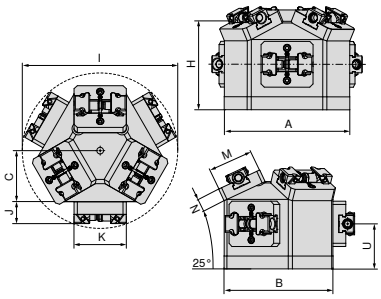
Adapter	Hole pattern	DCONWS mm	LF mm	OAH mm	LPR mm	OAW mm	DCONMS mm	82 483 ... £ Y7	
BMT 65	70 x 73	40	72	96	106	132	103	867.40	**03009**

CentriClamp – ZSG mini – 6-sided clamping tower

Scope of supply:

6-sided clamping tower incl. ZSG mini L-80 mm without system jaws

ZSG mini



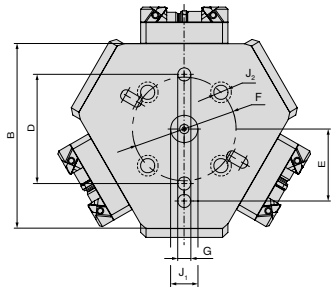


NEW

80 912 ...

A	B	C	H	I	J	K	M	N	U	WT	£	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	Y4	
193,24	169,40	78	135,7	236	33,7	80	70,4	20	70	13.5	4,557.00	**55000**

Underside dimensions of ZSG mini – 6-sided clamping tower

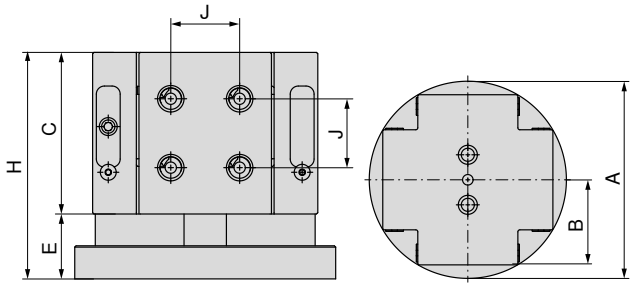


B	$D_{\pm 0.015}$	$E_{\pm 0.015}$	Ø F	G_{H7}	$J_{1\,H7}$	Ø J_2
mm	mm	mm	mm	mm	mm	mm
169,40	100	66	95	12	25	13

MNG mini – 4-sided clamping tower

- ▲ Incl. 4 x MNG mini zero point clamping systems
- ▲ Order mounting bolts separately
- ▲ Material: hard-anodised aluminium

MNG mini



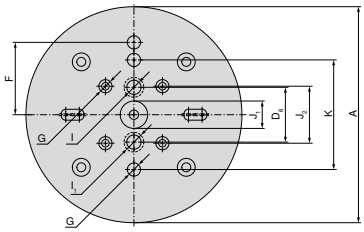


NEW

A mm	B mm	C mm	E mm	H mm	J ±0.015 mm	WT kg	80 915 ... £ Y4	
197	85	122	49	171	52	12	1,920.80	**54000**

Suitable for: ESG 5 – 80 L-130 / ZSG 4 – 80 L-130 / ZSG mini – 70 L-80 / ZSG mini – 70 L-100

Underside dimensions of MNG mini – 4-sided clamping tower



A mm	D_6 mm	F ±0.015 mm	G H7 mm	I H7 mm	I_1 H7 mm	J_1 H7 mm	J_2 ±0.015 mm	K ±0.015 mm
197	50	66	12	13	19	25	52	100

System accessories overview

Protection plugs

- ▲ Protective cover to shield changeover interface
- ▲ Price per piece

MNG mini



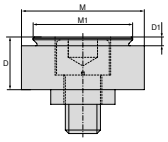
NEW

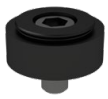
D_1 mm	80 915 ... £ Y4	
16	13.03	**51900**

System jaws overview

Insert jaws, round, grip 3 mm

▲ Price per piece
▲ For adapter jaws **80 914 34000**

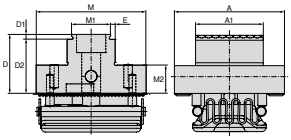


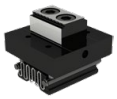


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18	3			42	34		43.12	**80 914 34500**										●	

Indexable jaw, fixed VS, grip 3 mm

▲ Price per piece
▲ VS = Larger clamping range

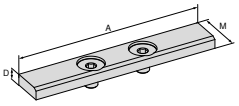




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	65	40	35	3	32	2,6	64	28	17	384.16	**80 914 34400**										●	
90	90		35	3	32	2,6	64	28	17	384.16	**80 914 34300**										●	

Support, hard for milling over

▲ Price per piece





For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		5,4				15			49.00	**80 914 51200**										●	
90	90		5,4				15			54.88	**80 914 51100**										●	

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UP2DATE



Stable roughing with turbo feeds!

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- The **MaxiMill – Tangent** rough milling system compatible with actively vibration-damped shell mill adapters
- The **WTX – Micropilot** drill for extremely demanding machining operations on the smallest components with maximum precision
- Robust side and face milling cutter, the **MaxiMill – Slot-SNHX** for extra-soft cuts

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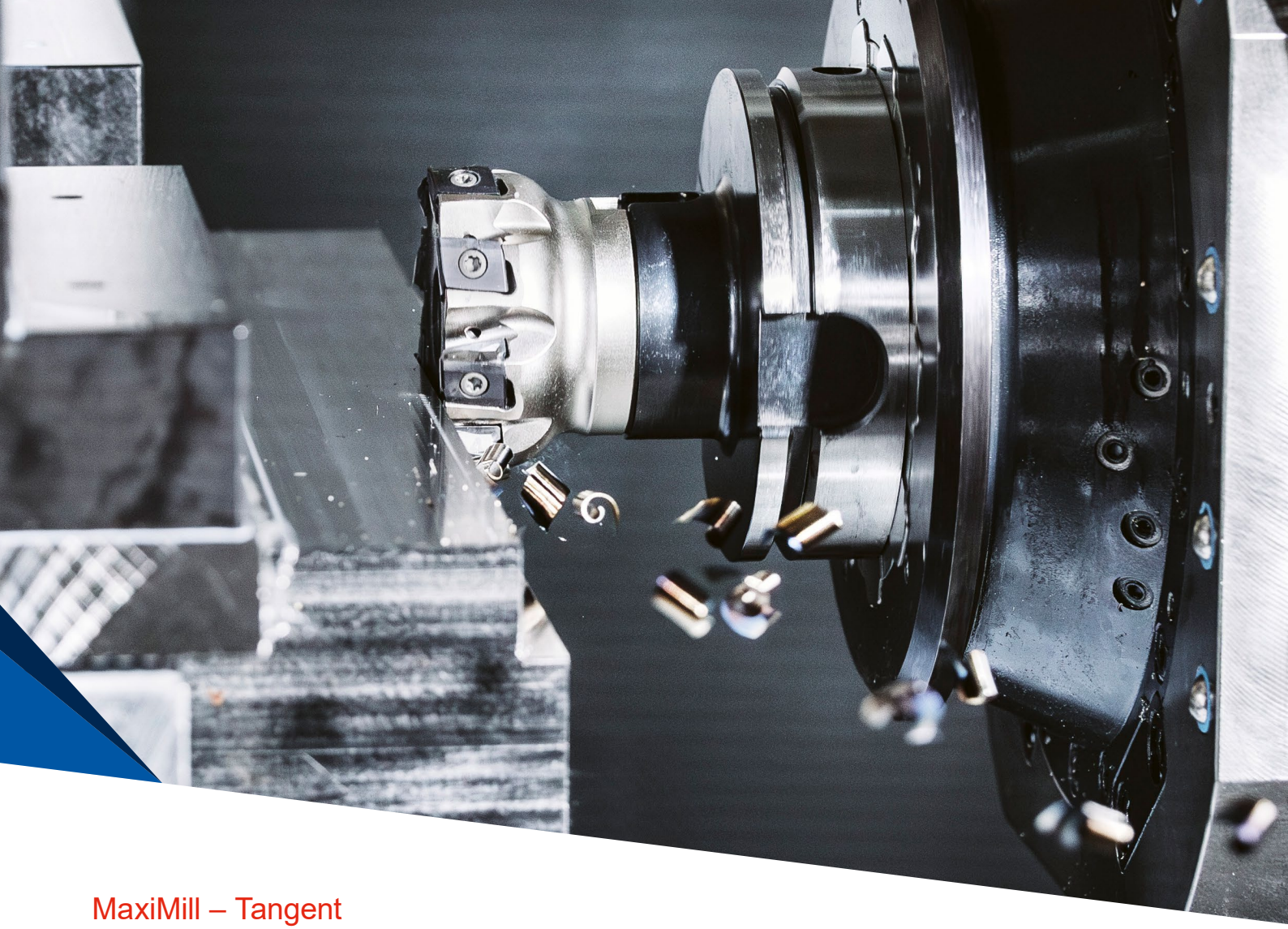


MaxiMill – Tangent

Stable roughing of steel and cast iron

CERATIZIT

Tangential indexable insert milling cutter with maximum tooth utilisation

The MaxiMill – Tangent guarantees the best cutting edge stability for turbo feeds

Do you know that? Do you have to process a component and can't see the process because of all the disruptive contours? Face milling cutters are completely out of the running, especially when long overhang lengths make stable, low-vibration machining impossible.

What might at first glance appear an insoluble dilemma, just needs the right tool – like the new **MaxiMill – Tangent**. This tangential indexable insert cutter shows its true colours when machining steel and cast iron components.

→ **from page 37**
You can find further information on the product here.

cts.ceratizit.com/gb/en/maximill-tangent

The advantages of the MaxiMill – Tangent at a glance

- ▲ stable, soft-cutting system
- ▲ rugged design permits up to 50% greater feed rate per tooth
- ▲ wide variety of tool holders with different connections:
  G (thread) / A (shell mill adapter) / C (cylindrical shank)
- ▲ maximum number of teeth on the milling body thanks to tangential clamping
- ▲ the best axial and concentric run-out properties due to precision-ground inserts
  and tight manufacturing tolerances for the tool holder
- ▲ reduced vibration thanks to irregular tooth pitch
- ▲ better accessibility allows for rapid tool change

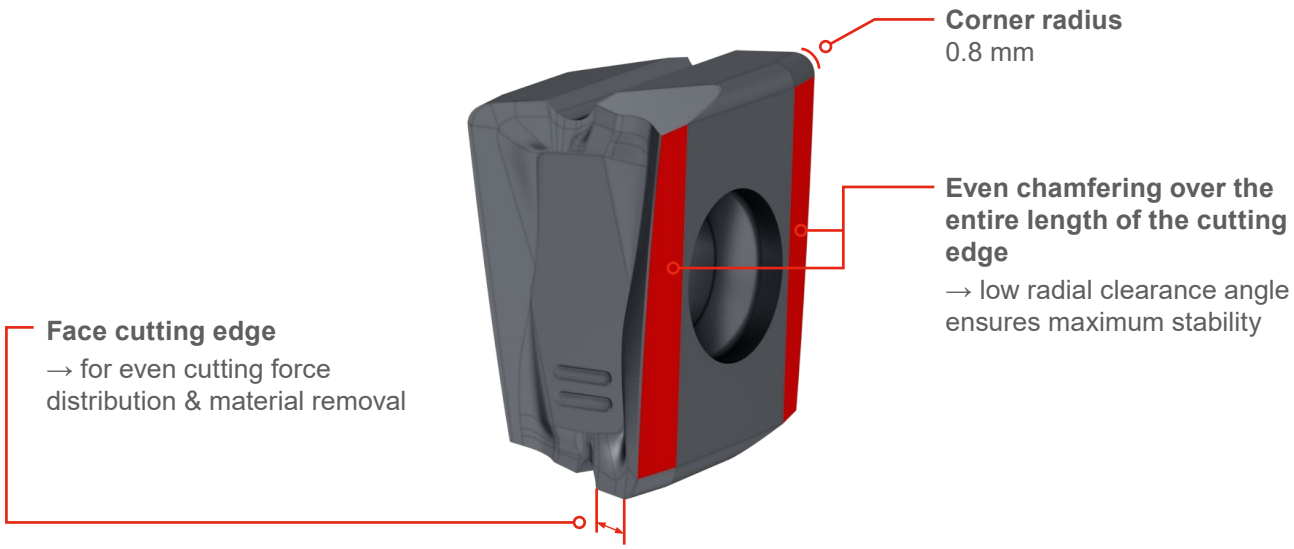
... also compatible with actively vibration-damped adapter

→ for maximum process security including
for difficult-to-access components



Ground indexable insert with extra-stable cutting edges

- ▲ Indexable inserts for diverse applications **P** / **K** / S / M
- ▲ 4 usable cutting edges
- ▲ Chip breakers: -F50 and -M50
- ▲ Precision-ground indexable inserts (size -09 and -13)
- ▲ Max. depth of cut:
  - with insert size -09 > 8 mm
  - with insert size -13 > 12 mm



Maximum cutting edge stability

▼

High feed rates possible

Increased tool life

▼

Increase in performance & productivity



„Thanks to the super-stable design, the powerful, four-edged indexable inserts and tangential clamping by the **MaxiMill – Tangent**, we are now able to machine components with interference contours easily and economically – using the integrated feed turbo.“

Robert Frei, Product Manager Indexable Insert Milling Systems

WTX – Micropilot

Fewer tool changes, time and cost savings – with maximum precision



Our latest development, the WTX – Micropilot, makes the impossible possible. Whereas in the past, spot drilling on angled or curved surfaces would only have been possible with prior spot-facing for each milling cutter, now you only need one tool: the WTX – Micropilot. What if you want to produce a 90° countersink at the hole entrance, say? The WTX – Micropilot lets you do it in a single machining operation. So there is no need to change the tool, saving you time and money.

Perfectly adapted for use with our microdrill, the WTX – Micro (8xD – 30xD), the pilot drill is used up to a hole depth of 2.5xD. Its sophisticated end geometry with 160° point angle allows for clean plunging and avoids wandering by the main drill. The special Dragonskin coating ensures optimum chip evacuation and a longer tool life.

WNT

→ **from page 12**
You can find further information on the product here.

cts.ceratizit.com/gb/en/wtx-micro

The advantages of the WTX – Micropilot:

- State-of-the-art: substrate, geometry, coating
- WTX – Micropilot (pilot drill) and WTX – Micro (deep hole drill) are perfectly attuned to one another
- Extremely tight tolerances ensure the deep hole drill does not wander
- Optimum chip evacuation thanks to sophisticated end geometry and DPX74M Dragonskin coating
- 90° countersink at the hole entrance possible (with flat drilling application)

Maximum productivity and process security thanks to optimised geometry and high-performance coating

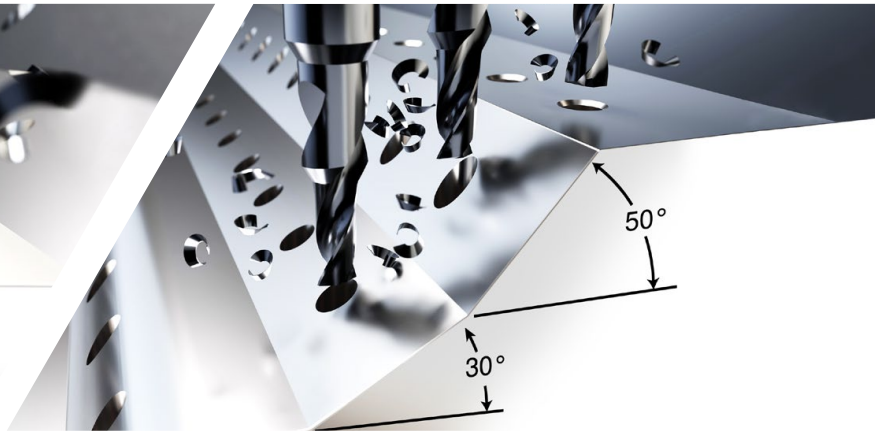
- Direct spot drilling of straight, angled and curved surfaces with an angle of inclination of up to 50°

Significant saving in time and money as there is no need for an additional tool – 2 instead of 3 process steps





Direct spot drilling of convex and concave surfaces possible



Direct spot drilling of angled surfaces up to 50° or 90° countersink with flat drilling application



MaxiMill – Slot-SNHX

Robust side and face milling cutter system for soft cuts

CERATIZIT

MaxiMill – Slot-SNHX: Slot milling like a knife through butter

Fabricators who need to produce slots in steel, stainless steel, cast material or aluminium frequently have to battle with unstable machining processes. The solution to this long-standing problem can be found in soft-cutting side and face milling cutters that are suitable for universal application to meet varied challenges while saving on costs per cut. The **MaxiMill – Slot SNHX system** steps up to the mark here, thanks to its wide-ranging portfolio of tool holders and indexable inserts, effectively covering cutting widths from 6 mm to 16 mm and diameters from 50 mm to 200 mm.

→ **from page 43**
You can find further information on the product here.

cts.ceratizit.com/gb/en/maximill-slot-snhx

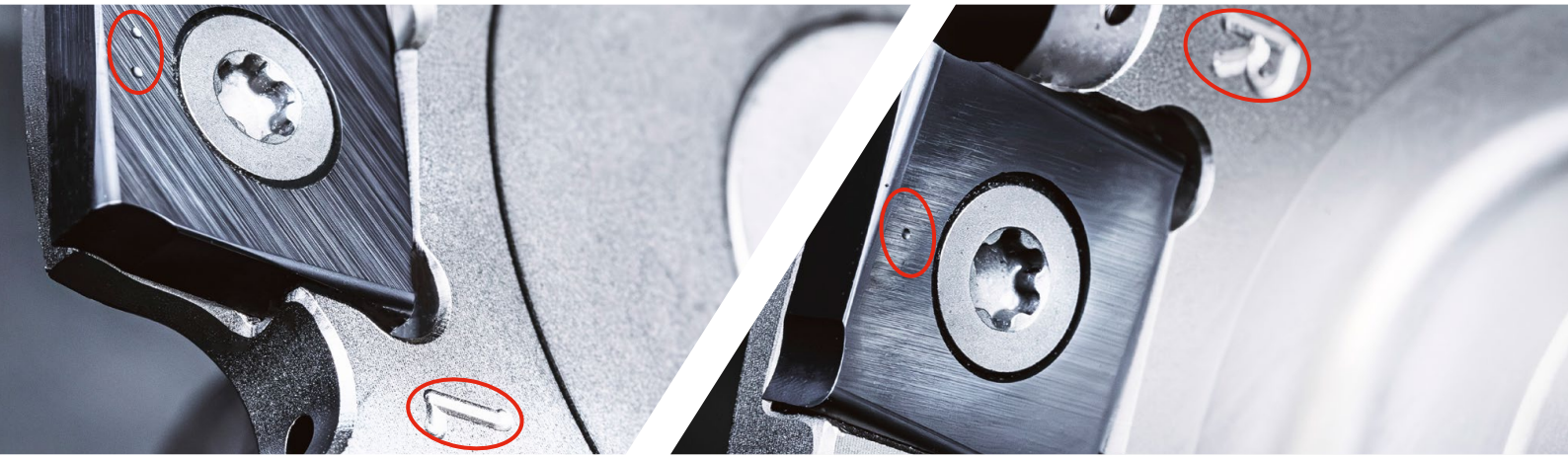
Advantage/benefit

Cutter body

- ▲ Wide variety of tool holders with different connections: G (thread), A (shell mill adapter) and C (cylindrical shank)
- ▲ Cutting widths from 6 mm to 16 mm and diameters from 50 mm to 200 mm
- ▲ Excellent performance and process security via demand-driven thro' coolant
- ▲ Reduced risk of chip jams due to cut distribution
- ▲ No disruptive contours on the face due to tight manufacturing tolerances for the tool holder
- ▲ System easily adapts to special sizes and special tools

Indexable insert

- ▲ Reliable indexable inserts with wide range of applications **P** / **M** / **K** / N
- ▲ The best axial and concentric run-out properties due to precision-ground inserts
- ▲ Flat flute base and good clearance thanks to ground indexable inserts and adapted insert installation position in the tool holder
- ▲ Key feature of inserts and supports → ease of installation



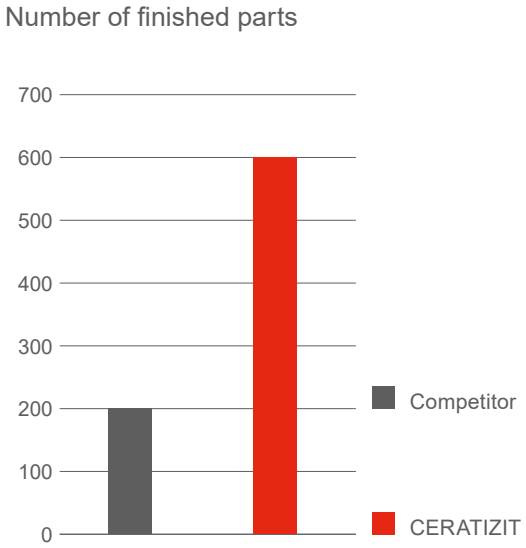
L ●● left-hand insert

R ● right-hand insert

The new MaxiMill – Slot SNHX in tool life test

Application:	Reverse-side machining
Material:	SG-Iron 500 / EN-GJS 500
Tool:	MaxiMill – Slot-SNHX
a_p:	3 mm
a_e:	42 mm
Tool life:	600 pieces

- ▲ Better handling thanks to large indexable insert clamping screw
- ▲ Softer cut than competitors due to ground cutting edge
- ▲ Less time and effort for setting up due to improved service life and fewer indexable inserts



TEST RESULTS

Superior performance, tool life and ease of handling!



Pilot drill

WTX – Micropilot

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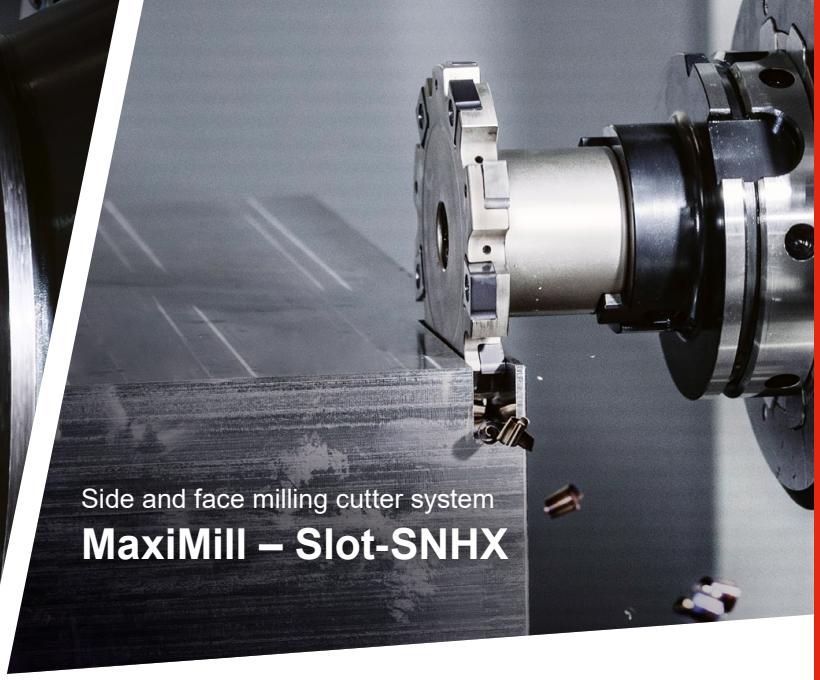


CERATIZIT Milling tools with indexable inserts

34–36 MaxiMill – HFCD

37–42 **MaxiMill – Tangent**

43–47 **MaxiMill – Slot-SNHX**

WNT Adapters and accessories

54–56 **Actively vibration-damped shell mill adapter**

WNT Workpiece clamping

58–60 MNG base plates

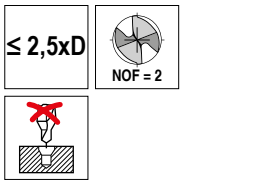
61–65 Addition, MNG Mini

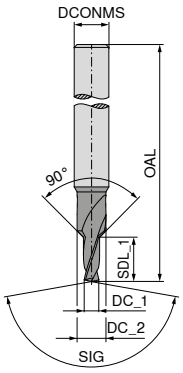


Continue to the product pages

WTX – Pilot drill 90°

- ▲ Specialised pilot drill for WTX – Micro deep hole drill (8xD–30xD)
- ▲ Direct spot drilling of angled and curved surfaces up to 50° angle of inclination possible
- ▲ 90° countersink at hole entrance can be achieved on flat spot drilling surface





NEW

MICRO PILOT

DPX74M

DRAGONSKIN



SIG 160°

Solid carbide

DC_1 m6 mm	DC_2 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	10 692 ... £ T4/9F	
0.8	1.7	4	55	2.00	46.63	**00800**
0.9	1.7	4	55	2.25	46.63	**00900**
1.0	2.0	4	55	2.50	46.63	**01000**
1.1	2.0	4	55	2.75	46.63	**01100**
1.2	2.0	4	55	3.00	46.63	**01200**
1.3	2.5	4	55	3.25	46.63	**01300**
1.4	2.5	4	55	3.50	46.63	**01400**
1.5	3.0	4	55	3.75	46.63	**01500**
1.6	3.0	4	55	4.00	46.63	**01600**
1.7	3.0	4	55	4.25	46.63	**01700**
1.8	3.5	4	55	4.50	46.63	**01800**
1.9	3.5	4	55	4.75	46.63	**01900**
2.0	3.5	6	65	5.00	55.34	**02000**
2.1	3.5	6	65	5.25	55.34	**02100**
2.2	4.5	6	65	5.50	55.34	**02200**
2.3	4.5	6	65	5.75	55.34	**02300**
2.4	4.5	6	65	6.00	55.34	**02400**
2.5	4.5	6	65	6.25	55.34	**02500**
2.6	4.5	6	65	6.50	55.34	**02600**
2.7	5.0	6	65	6.75	55.34	**02700**
2.8	5.0	6	65	7.00	55.34	**02800**
2.9	5.0	6	65	7.25	55.34	**02900**

P	●
M	○
K	●
N	
S	●
H	
O	

→ v_c Page 13
→ Machining information: Page 14+15

Cutting data standard values – WTX – Micropilot

	Material sub-group	Index	Tensile strength N/mm²* / HB / HRC	10 692 ... without through coolant v_c (m/min)	2,5xD ≤ Ø 1 f (mm/rev)	> Ø 1–1,25	> Ø 1,25–1,5	> Ø 1,5–2	> Ø 2–2,5	> Ø 2,5–3
P	Unalloyed steel	P.1.1	420 N/mm² / 125 HB	**70**	0,010	0,013	0,015	0,019	0,022	0,025
		P.1.2	640 N/mm² / 190 HB	**60**	0,010	0,013	0,015	0,019	0,022	0,025
		P.1.3	840 N/mm² / 250 HB	**60**	0,010	0,013	0,015	0,019	0,022	0,025
		P.1.4	910 N/mm² / 270 HB	**60**	0,010	0,013	0,015	0,019	0,022	0,025
		P.1.5	1010 N/mm² / 300 HB	60	0,010	0,013	0,015	0,019	0,022	0,025
	Low-alloy steel	P.2.1	610 N/mm² / 180 HB	**70**	0,010	0,013	0,015	0,019	0,022	0,025
		P.2.2	930 N/mm² / 275 HB	**60**	0,010	0,013	0,015	0,019	0,022	0,025
		P.2.3	1010 N/mm² / 300 HB	60	0,010	0,013	0,015	0,019	0,022	0,025
		P.2.4	1200 N/mm² / 375 HB							
	High-alloy steel and high-alloy tool steel	P.3.1	680 N/mm² / 200 HB	**60**	0,010	0,013	0,015	0,019	0,022	0,025
		P.3.2	1100 N/mm² / 300 HB	50	0,010	0,013	0,015	0,019	0,022	0,025
		P.3.3	1300 N/mm² / 400 HB							
	Stainless steel	P.4.1	680 N/mm² / 200 HB	**50**	0,005	0,006	0,007	0,010	0,013	0,015
		P.4.2	1010 N/mm² / 300 HB	**35**	0,005	0,006	0,007	0,010	0,013	0,015
M	Stainless steel	M.1.1	610 N/mm² / 180 HB	40	0,005	0,006	0,007	0,010	0,013	0,015
		M.2.1	300 HB	40	0,005	0,006	0,007	0,010	0,013	0,015
		M.3.1	780 N/mm² / 230 HB	40	0,005	0,006	0,007	0,010	0,013	0,015
K	Grey cast iron	K.1.1	350 N/mm² / 180 HB	**70**	0,010	0,013	0,015	0,019	0,022	0,025
		K.1.2	500 N/mm² / 260 HB	**70**	0,010	0,013	0,015	0,019	0,022	0,025
	Spherulitic graphite cast iron	K.2.1	540 N/mm² / 160 HB	**70**	0,010	0,013	0,015	0,019	0,022	0,025
		K.2.2	845 N/mm² / 250 HB	**70**	0,010	0,013	0,015	0,019	0,022	0,025
	Malleable iron	K.3.1	440 N/mm² / 130 HB	**70**	0,010	0,013	0,015	0,019	0,022	0,025
		K.3.2	780 N/mm² / 230 HB	**70**	0,010	0,013	0,015	0,019	0,022	0,025
N	Aluminium wrought alloy	N.1.1	60 HB							
		N.1.2	340 N/mm² / 100 HB							
	Cast aluminium alloy	N.2.1	250 N/mm² / 75 HB							
		N.2.2	300 N/mm² / 90 HB							
		N.2.3	440 N/mm² / 130 HB							
	Copper and copper alloys (bronze/brass)	N.3.1	375 N/mm² / 110 HB							
		N.3.2	300 N/mm² / 90 HB							
		N.3.3	340 N/mm² / 100 HB							
	Magnesium alloys	N.4.1	70 HB							
S	Heat-resistant alloys	S.1.1	680 N/mm² / 200 HB	**15**	0,005	0,006	0,007	0,010	0,013	0,015
		S.1.2	950 N/mm² / 280 HB	**15**	0,005	0,006	0,007	0,010	0,013	0,015
		S.2.1	840 N/mm² / 250 HB	10	0,005	0,006	0,007	0,010	0,013	0,015
		S.2.2	1180 N/mm² / 350 HB	10	0,005	0,006	0,007	0,010	0,013	0,015
		S.2.3	1080 N/mm² / 320 HB	10	0,005	0,006	0,007	0,010	0,013	0,015
	Titanium alloys	S.3.1	400 N/mm²	**30**	0,005	0,006	0,007	0,010	0,013	0,015
		S.3.2	1050 N/mm² / 320 HB	**20**	0,005	0,006	0,007	0,010	0,013	0,015
		S.3.3	1400 N/mm² / 410 HB							
H	Hardened steel	H.1.1	46–55 HRC							
		H.1.2	56–60 HRC							
		H.1.3	61–65 HRC							
		H.1.4	66–70 HRC							
	Chilled iron	H.2.1	400 HB							
	Hardened cast iron	H.3.1	55 HRC							
O	Non-metal materials	O.1.1	≤ 150 N/mm²							
		O.1.2	≤ 100 N/mm²							
		O.2.1	≤ 1000 N/mm²							
		O.2.2	≤ 1000 N/mm²							
		O.3.1								

*** Tensile strength**

The cutting data depends extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced according to the application conditions.

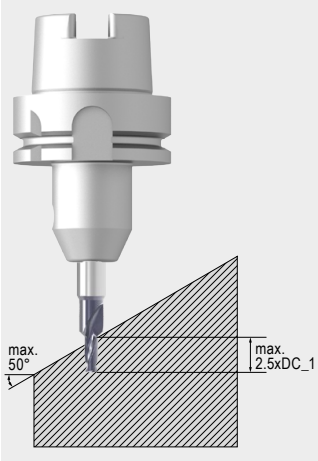
WTX – Micropilot application recommendation

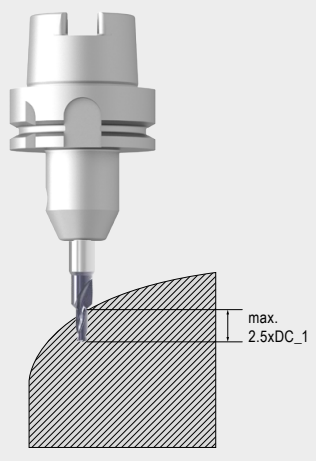
General references

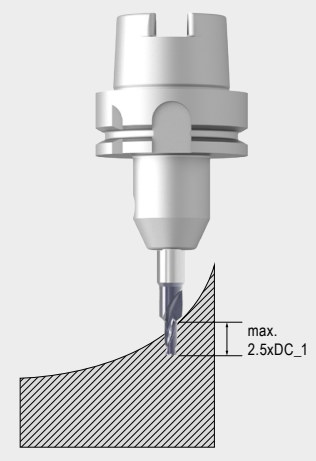
It is advisable to use the tool with external cooling. Be careful to ensure that the coolant is aimed directly at the tool tip. This will ensure that there is adequate cooling and effective chip evacuation.
Apply our cutting data recommendations when using the tool.

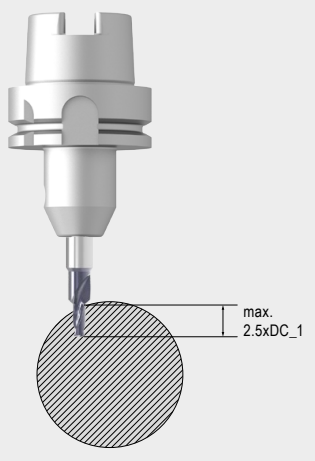
1. Pilot hole in angled or curved surfaces

Produce pilot hole in one go up to a maximum hole depth of 2.5xD. Angled or curved surfaces can be machined up to a max. inclination of 50° without prior spot-facing. Applying a countersink at the hole entrance is not possible on angled or curved surfaces.



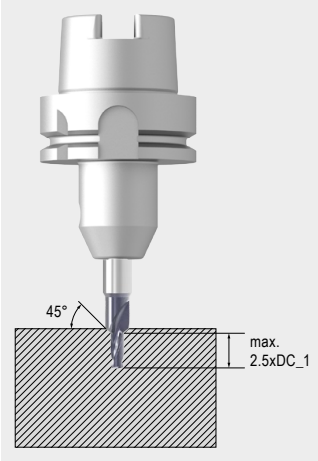






2. Pilot drill with 90° chamfer

Produce pilot hole in a single sweep. If required, a 90° chamfer can additionally be produced at the hole entrance (with flat drilling application) after the 2.5xD hole depth is reached.

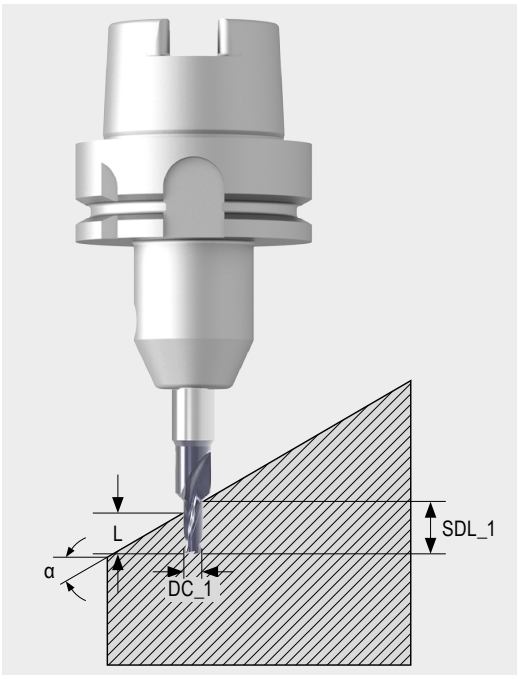


Calculating pilot hole depth with angled drilling application

With an angled drilling application, the remaining depth of the pilot hole will change depending on the angle of inclination. This can be determined using the formula below:

$$L = SDL\_1 - (DC\_1 \times \tan(\alpha))$$

DC_1 = Cutting diameter
SDL_1 = Step length (max. 2.5xDC_1)
α = Component surface angle of inclination (max. 50°)
L = Remaining pilot hole depth

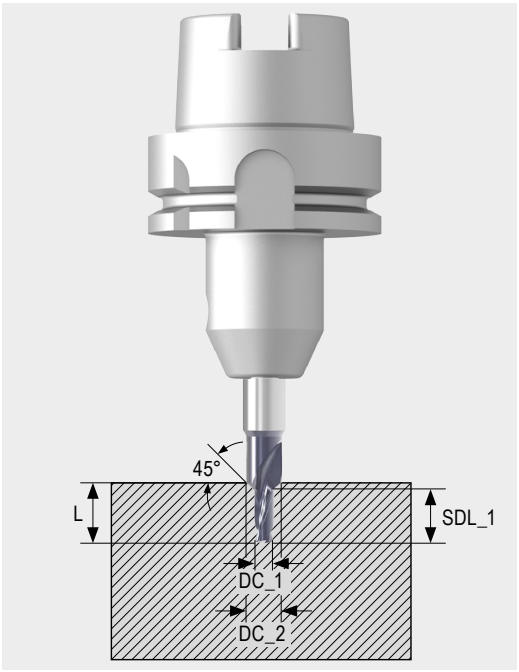


Calculating maximum hole depth with 90° countersink

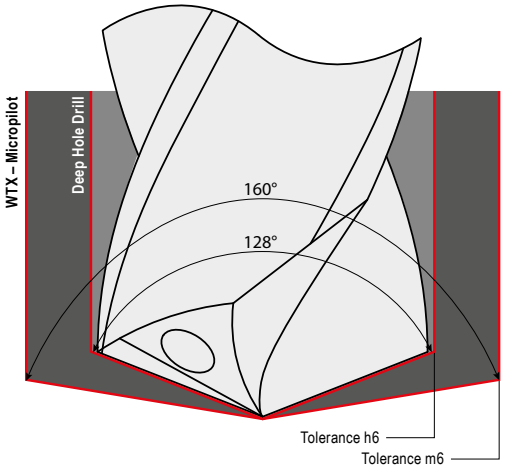
The maximum hole depth incl. 90° countersink can be found using the formula below.

$$L = \left(\frac{DC\_2 - DC\_1}{2}\right) + SDL\_1$$

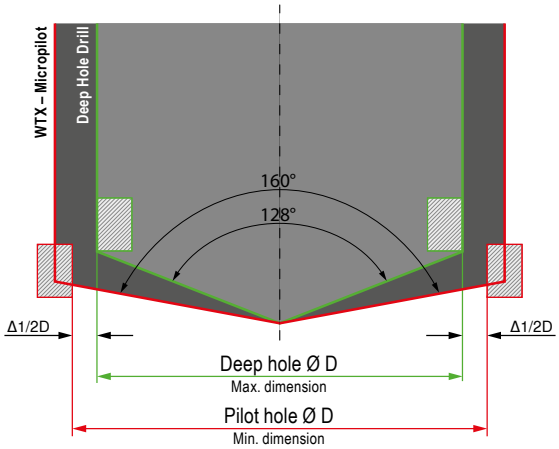
DC_1 = Cutting diameter
DC_2 = Max. countersink diameter
SDL_1 = Step length (max. 2.5xDC_1)
L = Max. hole depth incl. countersink



Tolerances and angles

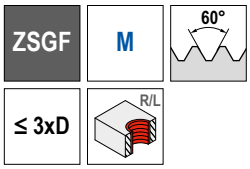


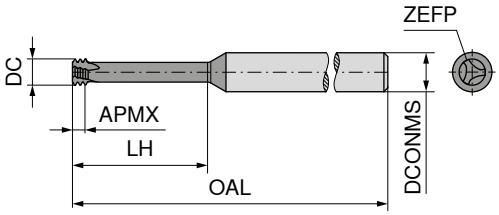
The following must apply to use the pilot and deep hole twist drill consecutively and without collisions:
ΔD = ØD (pilot hole) – ØD (deep hole) > 0



MonoThread – Circular shank thread milling cutter

▲ Profile corrected





NEW

AlTiN





Solid carbide

50 545 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS h6 mm	ZEFP	£ W1/5D	
1.53	M2	0.40	39	0.80	6.0	3	3	96.94	**02000**
2.37	M3	0.50	58	1.35	9.5	6	3	96.94	**03000**
3.10	M4	0.70	58	1.95	12.5	6	3	96.94	**04000**
3.80	M5	0.80	58	2.30	16.0	6	3	96.94	**05000**
4.65	M6	1.00	58	2.70	20.0	6	3	96.94	**06000**
6.00	M8	1.25	58	3.20	24.0	6	3	96.94	**08000**
7.80	M10	1.50	64	3.80	31.5	8	3	120.79	**10000**
9.00	M12	1.75	73	4.55	37.8	10	3	135.78	**12000**



NEW

50 550 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS h6 mm	ZEFP	£ W1/5D	
1.53	M2	0.40	39	1.00	10.4	3	3	109.10	**02000**[1)]
2.37	M3	0.50	39	1.30	12.5	3	3	104.25	**03000**
3.10	M4	0.70	58	1.80	16.7	6	3	104.25	**04000**
4.00	M5	0.80	58	2.10	20.8	6	3	104.25	**05000**
4.80	M6	1.00	58	2.55	25.0	6	3	104.25	**06000**
6.40	M8	1.25	64	3.15	33.5	8	3	129.22	**08000**
8.00	M10	1.50	76	3.85	41.5	8	3	129.22	**10000**

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1) 5xD

→ v_c/f_z Page 21

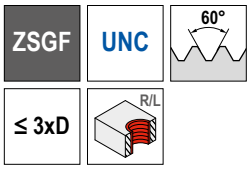


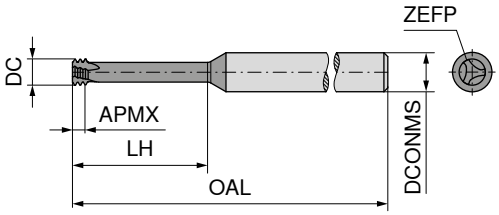
→ **Chapter 7 – Circular and Thread Milling**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used.

MonoThread – Circular shank thread milling cutter

▲ Profile corrected





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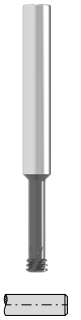
AlTiN



Solid carbide

50 557 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	£ W1/5D	
3.678	UNC No.10-No.12	1,058	58	3.17	15.5	6	3	109.89	**01000**
4.697	UNC 1/4	1,27	58	3.81	19.0	6	3	109.89	**01400**
6.000	UNC 5/16	1,411	58	4.23	23.0	6	3	109.89	**51600**
7.345	UNC 3/8	1,588	64	4.76	30.2	8	3	140.17	**03800**
7.700	UNC 7/16	1,814	64	5.44	35.2	8	3	140.17	**71600**
9.376	UNC 1/2	1,954	73	5.86	40.1	10	3	158.15	**01200**
10.920	UNC 9/16	2,117	105	6.35	45.0	12	3	207.58	**91600**
11.419	UNC 5/8	2,309	105	6.93	50.0	12	3	207.58	**05800**
15.210	UNC 3/4	2,540	105	7.62	59.7	16	4	303.13	**03400**



NEW

50 559 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS $_{h6}$ mm	ZEFP	£ W1/5D	
4.696	UNF 1/4	0,907	58	2.72	19.0	6	3	109.89	**01400**
6.217	UNF 5/16, 3/8	1,058	64	3.17	24.0	8	3	140.17	**51600**
7.994	UNF 7/16	1,270	64	3.81	34.5	8	3	140.17	**71600**
11.993	UNF 5/8	1,411	105	4.23	49.0	12	4	219.99	**05800**

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→ v_c/f_z Page 21

→ Chapter 7 – Circular and Thread Milling

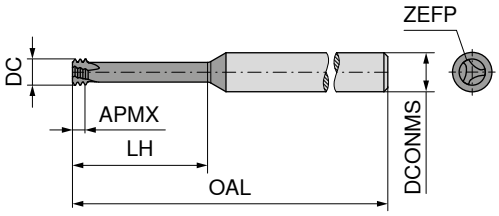
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used.

MonoThread – Circular shank thread milling cutter

▲ Profile corrected

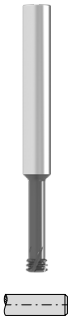
ZSGF | UNC | UNF | 60°

≤ 2xD | R/L



NEW

AlTiN



Solid carbide

50 568 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS h6 mm	ZEFP	£ W1/5D	
1.400	UNC No.1 / UNF No.2	0,397	58	1.19	3.8	6	3	99.77	**01200**
1.646	UNC No.2 / UNF No.3	0,454	58	1.36	4.4	6	3	99.77	**02300**
1.901	UNC No.3 / UNF No.4	0,529	58	1.59	5.2	6	3	99.77	**03400**
2.034	UNC No.4	0,635	58	1.91	6.3	6	3	110.96	**04000**
2.416	UNC No.5 / UNF No.6	0,635	58	1.91	7.0	6	3	110.96	**05600**

≤ 2xD | G | 55°

NEW

50 569 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS h6 mm	ZEFP	£ W1/5D	
7.790	G1/8	0,907	64	2.72	19.5	8	3	123.05	**01800**
10.015	G 1/4-3/8	1,337	73	4.01	30.0	10	4	145.52	**01400**
12.013	G 1/2-G7/8	1,814	84	5.44	37.0	12	4	180.30	**01200**
15.900	G 1-2	2,309	105	6.93	44.0	16	4	236.47	**01000**

P	●
M	○
K	●
N	●
S	●
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O	●

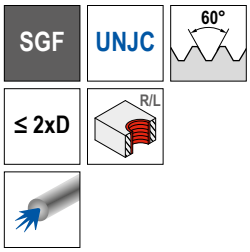
→ v_c/f_z Page 21

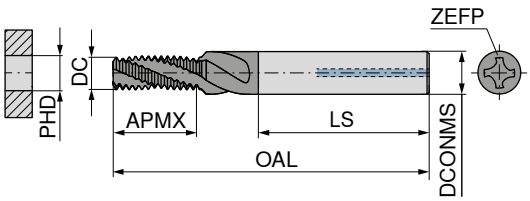
→ Chapter 7 – Circular and Thread Milling

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used.

MonoThread – Thread Milling Cutter

▲ Profile corrected





NEW

AlTiN



Solid carbide

50 524 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	ZEFP	PHD mm	£ W1/5D	
4.70	UNJC 1/4-20	0.907	55	14.27	36	6	4	5.6	184.38	**01400**
6.22	UNJC 5/16-18	1.411	62	16.32	36	8	4	7.0	200.55	**05160**
7.79	UNJC 3/8-16	1.588	74	20.01	40	10	4	8.6	215.04	**03800**
8.57	UNJC 7/16-14	1.814	79	22.87	45	12	4	10.0	271.32	**07160**
9.38	UNJC 1/2-13	1.270	79	26.75	45	12	5	11.5	271.32	**01200**



NEW

50 533 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	ZEFP	PHD mm	£ W1/5D	
2.44	UNJF 6-40	0.635	42	7.42	28	4	3	2.95	163.70	**06000**
3.14	UNJF 8-36	0.706	49	8.91	36	6	3	3.50	179.03	**08000**
3.95	UNJF 10-32	0.794	55	9.97	36	6	3	4.10	179.03	**10000**
4.70	UNJF 1/4-28	0.907	55	14.27	36	6	4	5.60	184.38	**01400**
6.22	UNJF 5/16-24	1.058	62	16.59	36	8	4	7.00	200.55	**05160**
7.79	UNJF 3/8-24	1.058	74	19.77	40	10	4	8.60	215.04	**03800**
9.32	UNJF 7/16-20	1.270	79	22.39	45	12	5	10.00	215.04	**07160**
9.38	UNJF 1/2-20	1.270	79	25.34	45	12	5	11.50	271.32	**01200**
12.90	UNJF 5/8-18	1.411	102	33.59	48	16	5	14.50	326.45	**05800**

P	●
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→ v_c/f_z Page 21

→ **Chapter 7 – Circular and Thread Milling**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used.

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

* Tensile strength

Cutting data standard values

Index	50 545 ..., 50 550 ..., 50 557 ..., 50 559 ..., 50 568 ..., 50 569 ...				50 524 ..., 50 533 ...			
	ZSGF	AlTiN – Performance Solid carbide			SGF	AlTiN – Performance Solid carbide		
		Ø 1,5 – 5,9	Ø 6,0 – 11,9	Ø 12,0 – 20,0		Ø 2,4 – 5,9	Ø 6,0 – 11,9	Ø 12,0 – 20,0
	v_c (m/min)	f_z (mm/tooth)			v_c (m/min)	f_z (mm/tooth)		
P.1.1	60–120	0,04–0,11	0,13–0,17	0,18–0,20	80–150	0,015–0,04	0,04–0,08	0,08–0,15
P.1.2	60–120	0,04–0,11	0,13–0,17	0,18–0,20	80–120	0,015–0,04	0,04–0,08	0,08–0,15
P.1.3	60–120	0,04–0,11	0,13–0,17	0,18–0,20	80–120	0,015–0,04	0,04–0,08	0,08–0,15
P.1.4	60–120	0,04–0,11	0,13–0,17	0,18–0,20	80–120	0,015–0,04	0,04–0,08	0,08–0,15
P.1.5	60–120	0,04–0,11	0,13–0,17	0,18–0,20	60–100	0,01–0,04	0,04–0,06	0,04–0,10
P.2.1	60–90	0,03–0,08	0,09–0,14	0,14–0,18	80–120	0,015–0,04	0,04–0,08	0,08–0,15
P.2.2	60–90	0,03–0,08	0,09–0,14	0,14–0,18	80–100	0,015–0,04	0,04–0,08	0,08–0,15
P.2.3	60–90	0,03–0,08	0,09–0,14	0,14–0,18	80–100	0,010–0,04	0,04–0,08	0,08–0,15
P.2.4	60–90	0,03–0,08	0,09–0,14	0,14–0,18	80–100	0,010–0,04	0,04–0,08	0,08–0,15
P.3.1	50–80	0,03–0,08	0,09–0,14	0,14–0,18	70–90	0,01–0,03	0,03–0,05	0,06–0,12
P.3.2	50–80	0,03–0,08	0,09–0,14	0,14–0,18	60–80	0,006–0,02	0,02–0,04	0,04–0,06
P.3.3	50–80	0,03–0,08	0,09–0,14	0,14–0,18	50–70	0,006–0,02	0,02–0,04	0,04–0,06
P.4.1	50–80	0,03–0,08	0,09–0,14	0,14–0,18	70–90	0,006–0,02	0,02–0,04	0,04–0,06
P.4.2	50–80	0,03–0,08	0,09–0,14	0,14–0,18	60–80	0,006–0,02	0,02–0,04	0,04–0,06
M.1.1	60–90	0,02–0,06	0,06–0,11	0,12–0,13	60–100	0,01–0,04	0,04–0,08	0,08–0,10
M.2.1	60–90	0,02–0,06	0,06–0,11	0,12–0,13	60–100	0,01–0,03	0,03–0,06	0,06–0,10
M.3.1	60–90	0,02–0,06	0,06–0,11	0,12–0,13	60–100	0,01–0,03	0,03–0,06	0,06–0,10
K.1.1	40–80	0,04–0,11	0,13–0,17	0,17–0,18	80–120	0,02–0,06	0,06–0,12	0,10–0,15
K.1.2	40–80	0,04–0,11	0,13–0,17	0,17–0,18	80–120	0,02–0,05	0,05–0,10	0,10–0,12
K.2.1	40–80	0,04–0,11	0,13–0,17	0,17–0,18	80–100	0,02–0,05	0,05–0,10	0,08–0,15
K.2.2	40–80	0,04–0,11	0,13–0,17	0,17–0,18	80–100	0,02–0,05	0,05–0,10	0,08–0,12
K.3.1	40–80	0,04–0,11	0,13–0,17	0,17–0,18	80–100	0,015–0,05	0,05–0,08	0,08–0,12
K.3.2	40–80	0,04–0,11	0,13–0,17	0,17–0,18	80–100	0,015–0,03	0,03–0,08	0,08–0,12
N.1.1	100–200	0,04–0,11	0,13–0,16	0,17–0,18	100–400	0,04–0,09	0,08–0,15	0,12–0,20
N.1.2	100–200	0,04–0,11	0,13–0,16	0,17–0,18	100–400	0,04–0,09	0,08–0,15	0,12–0,20
N.2.1	100–200	0,04–0,1	0,07–0,16	0,17–0,18	100–400	0,04–0,09	0,08–0,15	0,12–0,20
N.2.2	100–200	0,04–0,1	0,07–0,16	0,17–0,18	100–400	0,04–0,09	0,08–0,15	0,12–0,20
N.2.3	60–140	0,04–0,06	0,07–0,11	0,13–0,14	100–250	0,04–0,09	0,08–0,15	0,12–0,20
N.3.1	50–200	0,05–0,16	0,14–0,19	0,19–0,20	100–400	0,04–0,09	0,08–0,15	0,12–0,20
N.3.2	50–200	0,05–0,16	0,14–0,19	0,19–0,20	100–400	0,04–0,09	0,08–0,15	0,12–0,20
N.3.3	50–200	0,05–0,16	0,14–0,19	0,19–0,20	100–400	0,04–0,09	0,08–0,15	0,12–0,20
N.4.1	50–200	0,04–0,11	0,07–0,17	0,17–0,18	100–400	0,04–0,09	0,08–0,15	0,12–0,20
S.1.1	20–40	0,03–0,05	0,06–0,07	0,08	40–100	0,01–0,04	0,04–0,07	0,07–0,12
S.1.2	20–40	0,03–0,05	0,06–0,07	0,08				
S.2.1	20–40	0,03–0,05	0,06–0,07	0,08				
S.2.2	20–40	0,03–0,05	0,06–0,07	0,08				
S.2.3	20–40	0,03–0,05	0,06–0,07	0,08				
S.3.1	20–40	0,03–0,05	0,06–0,07	0,08	40–100	0,01–0,04	0,04–0,07	0,07–0,15
S.3.2	20–40	0,03–0,05	0,06–0,07	0,08				
S.3.3	20–40	0,03–0,05	0,06–0,07	0,08				
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	100–200	0,06–0,16	0,19–0,22	0,22–0,3	100–400	0,03–0,08	0,08–0,15	0,15–0,20
O.1.2	100–200	0,06–0,16	0,19–0,22	0,22–0,3	100–400	0,03–0,08	0,08–0,15	0,15–0,20
O.2.1	100–200	0,06–0,16	0,19–0,22	0,22–0,3	50–80	0,03–0,08	0,08–0,15	0,15–0,20
O.2.2	100–200	0,06–0,16	0,19–0,22	0,22–0,3	50–80	0,03–0,08	0,08–0,15	0,15–0,20
O.3.1	60–140	0,05–0,15	0,14–0,20	0,20–0,25				

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

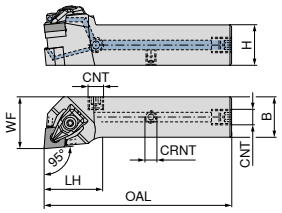
MaxiLock-D – DCLN 95° DC – Toolholder with top clamping

Scope of supply:

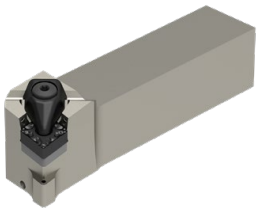
Tool holder with Torx key







Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert	NEW Left-hand 70 510 ... £ 2A/24		NEW Right-hand 70 510 ... £ 2A/24	
	mm	mm	mm	mm	mm			Nm					
DCLN R/L 2020 X09 DC	20	20	94	25	25	M6	G1/8"	2	CN.. 0903	227.77	**52000**	227.77	**52001**
DCLN R/L 2020 X12 DC	20	20	101	32	25	M6	G1/8"	4	CN.. 1204	227.77	**62000**	227.77	**62001**
DCLN R/L 2525 X12 DC	25	25	116	32	32	M6	G1/8"	4	CN.. 1204	227.77	**62500**	227.77	**62501**
DCLN R/L 3225 X12 DC	32	25	132	32	32	M6	G1/8"	4	CN.. 1204	249.93	**63200**	249.93	**63201**
DCLN R/L 2525 X16 DC	25	25	122	38	32	M6	G1/8"	6,5	CN.. 1606	252.24	**72500**	252.24	**72501**
DCLN R/L 3232 X16 DC	32	32	142	42	40	M6	G1/8"	6,5	CN.. 1606	257.48	**73200**	257.48	**73201**
DCLN R/L 3232 X19 DC	32	32	142	42	40	M6	G1/8"	6,5	CN.. 1906	263.97	**83200**	263.97	**83201**
DCLN R/L 4040 X19 DC	40	40	167	42	50	M6	G1/8"	6,5	CN.. 1906	272.10	**94000**	272.10	**94001**



Clamping screw



Carbide type C



Grubscrew

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28			70 950 ... £ 2A/28	
70 510 52000 / 70 510 52001	M3x7 - IP	3.79	**819**	8.61	**848**	M6x6	3.51	**86700**
70 510 62000 / 70 510 62001	M4,5x12 - IP	3.62	**820**	9.56	**810**	M6x6	3.51	**86700**
70 510 62500 / 70 510 62501	M4,5x12 - IP	3.62	**820**	9.56	**810**	M6x6	3.51	**86700**
70 510 63200 / 70 510 63201	M4,5x12 - IP	3.62	**820**	9.56	**810**	M6x6	3.51	**86700**
70 510 72500 / 70 510 72501	M5x14 - IP	5.13	**821**	14.59	**814**	M6x6	3.51	**86700**
70 510 73200 / 70 510 73201	M5x14 - IP	5.13	**821**	14.59	**814**	M6x6	3.51	**86700**
70 510 83200 / 70 510 83201	M5x14 - IP	5.13	**821**	15.64	**816**	M6x6	3.51	**86700**
70 510 94000 / 70 510 94001	M5x14 - IP	5.13	**821**	15.64	**816**	M6x6	3.51	**86700**



XPress type



Key D



Coolant screw plug

Spare parts for Article no.	70 950 ... £ 2A/28			80 950 ... £ Y7			70 950 ... £ 2A/28	
70 510 52000 / 70 510 52001	29.18	**823**	T09 - IP	19.68	**126**	G 1/8"	4.31	**294**
70 510 62000 / 70 510 62001	28.78	**824**	T15 - IP	21.01	**128**	G 1/8"	4.31	**294**
70 510 62500 / 70 510 62501	28.78	**824**	T15 - IP	21.01	**128**	G 1/8"	4.31	**294**
70 510 63200 / 70 510 63201	28.78	**824**	T15 - IP	21.01	**128**	G 1/8"	4.31	**294**
70 510 72500 / 70 510 72501	32.31	**825**	T20 - IP	22.06	**129**	G 1/8"	4.31	**294**
70 510 73200 / 70 510 73201	32.31	**825**	T20 - IP	22.06	**129**	G 1/8"	4.31	**294**
70 510 83200 / 70 510 83201	35.35	**826**	T20 - IP	22.06	**129**	G 1/8"	4.31	**294**
70 510 94000 / 70 510 94001	35.35	**826**	T20 - IP	22.06	**129**	G 1/8"	4.31	**294**

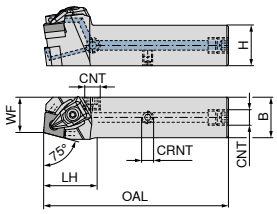
MaxiLock-D – DCBN 75° DC – Toolholder with top clamping

Scope of supply:

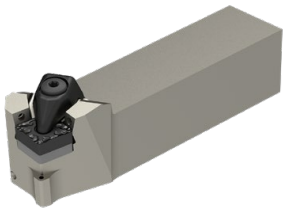
Tool holder with Torx key







Illustrations show right-hand versions



										NEW Left-hand		NEW Right-hand	
										70 507 ...		70 507 ...	
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	£ 2A/24		£ 2A/24	
DCBN R/L 2525 X12 DC	25	25	114	30	22	M6	G1/8"	4	CN.. 1204	227.77	**82500**	227.77	**82501**
DCBN R/L 2525 X16 DC	25	25	120	36	22	M6	G1/8"	6,5	CN.. 1606	252.24	**62500**	252.24	**62501**



Clamping screw



Carbide type C



Grubscrew

										70 950 ...		70 950 ...		70 950 ...	
Spare parts for Article no.										£ 2A/28		£ 2A/28		£ 2A/28	
70 507 82500 / 70 507 82501										M4,5x12 - IP	3.62	**820**	9.56	**810**	M6x6	3.51	**86700**
70 507 62500 / 70 507 62501										M5x14 - IP	5.13	**821**	14.59	**814**	M6x6	3.51	**86700**



XPress type



Key D



Coolant screw plug

										70 950 ...		80 950 ...		70 950 ...	
Spare parts for Article no.										£ 2A/28		£ Y7		£ 2A/28	
70 507 82500 / 70 507 82501										28.78	**824**	T15 - IP	21.01	**128**	G 1/8"	4.31	**294**
70 507 62500 / 70 507 62501										32.31	**825**	T20 - IP	22.06	**129**	G 1/8"	4.31	**294**

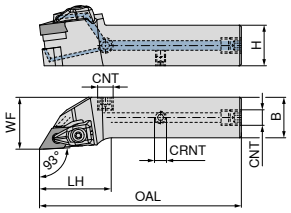
MaxiLock-D – DDJN 93° DC – Toolholder with top clamping

Scope of supply:

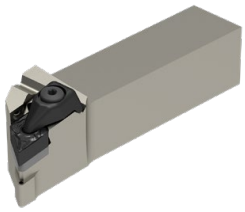
Tool holder with Torx key







Illustrations show right-hand versions



ISO designation	H	B	OAL	LH	WF	CRNT	CNT	torque moment	Insert	NEW Left-hand 70 546 ... £ 2A/24		NEW Right-hand 70 546 ... £ 2A/24	
	mm	mm	mm	mm	mm			Nm					
DDJN R/L 2020 X11 DC	20	20	99	30	25	M6	G1/8"	2	DN.. 1104	227.77	**82000**	227.77	**82001**
DDJN R/L 2525 X11 DC	25	25	114	30	32	M6	G1/8"	2	DN.. 1104	227.77	**82500**	227.77	**82501**
DDJN R/L 2020 X15 DC	20	20	109	40	25	M6	G1/8"	4	DN.. 1504 / 1506	227.77	**72000**	227.77	**72001**
DDJN R/L 2525 X15 DC	25	25	124	40	32	M6	G1/8"	4	DN.. 1504 / 1506	233.79	**72500**	233.79	**72501**
DDJN R/L 3225 X15 DC	32	25	140	40	32	M6	G1/8"	4	DN.. 1504 / 1506	249.93	**73200**	249.93	**73201**

When using DN.. 1504 indexable inserts, use insert seat article no. **70 950 40000**.



Clamping screw



Solid Carbide Seat D



Grubscrew

Spare parts for Article no.	70 950 ...	£ 2A/28		70 950 ...	£ 2A/28		70 950 ...	£ 2A/28	
70 546 82000 / 70 546 82001	M3x7 - IP	3.79	**819**	4.27	**808**	M6x6	3.51	**86700**
70 546 82500 / 70 546 82501	M3x7 - IP	3.79	**819**	4.27	**808**	M6x6	3.51	**86700**
70 546 72000 / 70 546 72001	M4,5x12 - IP	3.62	**820**	9.56	**811**	M6x6	3.51	**86700**
70 546 72500 / 70 546 72501	M4,5x12 - IP	3.62	**820**	9.56	**811**	M6x6	3.51	**86700**
70 546 73200 / 70 546 73201	M4,5x12 - IP	3.62	**820**	9.56	**811**	M6x6	3.51	**86700**



XPress type



Key D



Coolant screw plug

Spare parts for Article no.	70 950 ...	£ 2A/28		80 950 ...	£ Y7		70 950 ...	£ 2A/28	
70 546 82000 / 70 546 82001	34.83	**835**	T09 - IP	19.68	**126**	G 1/8"	4.31	**294**
70 546 82500 / 70 546 82501	34.83	**835**	T09 - IP	19.68	**126**	G 1/8"	4.31	**294**
70 546 72000 / 70 546 72001	28.78	**824**	T15 - IP	21.01	**128**	G 1/8"	4.31	**294**
70 546 72500 / 70 546 72501	28.78	**824**	T15 - IP	21.01	**128**	G 1/8"	4.31	**294**
70 546 73200 / 70 546 73201	28.78	**824**	T15 - IP	21.01	**128**	G 1/8"	4.31	**294**

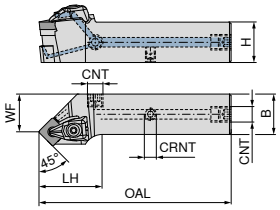
MaxiLock-D – DSSN 45° DC – Toolholder with top clamping

Scope of supply:

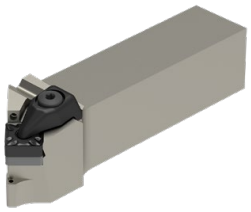
Tool holder with Torx key







Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 517 ... £ 2A/24		NEW Right-hand 70 517 ... £ 2A/24	
DSSN R/L 2020 X12 DC	20	20	104	35	16.7	M6	G1/8"	4	SN.. 1204	227.77	**62000**	227.77	**62001**
DSSN R/L 2525 X12 DC	25	25	119	35	24.2	M6	G1/8"	4	SN.. 1204	227.77	**62500**	227.77	**62501**
DSSN R/L 3225 X12 DC	32	25	135	35	24.2	M6	G1/8"	4	SN.. 1204	249.93	**63200**	249.93	**63201**



Clamping screw



Solid Carbide support S



Grubscrew

Spare parts for Article no.	70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 517 62000 / 70 517 62001	M4,5x12 - IP	3.62 **820**	9.56	**813**	M6x6	3.51 **86700**
70 517 62500 / 70 517 62501	M4,5x12 - IP	3.62 **820**	9.56	**813**	M6x6	3.51 **86700**
70 517 63200 / 70 517 63201	M4,5x12 - IP	3.62 **820**	9.56	**813**	M6x6	3.51 **86700**



XPress type



Key D



Coolant screw plug

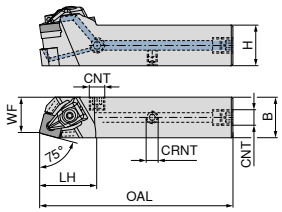
Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 517 62000 / 70 517 62001	28.78 **824**	T15 - IP	21.01	**128**	G 1/8"	4.31 **294**
70 517 62500 / 70 517 62501	28.78 **824**	T15 - IP	21.01	**128**	G 1/8"	4.31 **294**
70 517 63200 / 70 517 63201	28.78 **824**	T15 - IP	21.01	**128**	G 1/8"	4.31 **294**

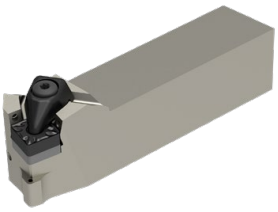
MaxiLock-D – DSBN 75° DC – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key









Illustrations show right-hand versions

NEW
Right-hand

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	70 522 ... £ 2A/24	
DSBN R 2020 X12 DC	20	20	104	35	17.2	M6	G1/8"	4	SN.. 1204	227.77	**62001**
DSBN R 2525 X12 DC	25	25	119	35	22.2	M6	G1/8"	4	SN.. 1204	227.77	**62501**
DSBN R 2525 X15 DC	25	25	127	33	22.3	M6	G1/8"	6,5	SN.. 1506	252.24	**72501**
DSBN R 3232 X15 DC	32	32	142	42	26.1	M6	G1/8"	6,5	SN.. 1506	249.93	**73201**
DSBN R 3232 X19 DC	32	32	148	48	27.3	M6	G1/8"	6,5	SN.. 1906	249.93	**83201**
DSBN R 4040 X19 DC	40	40	173	48	35.3	M6	G1/8"	6,5	SN.. 1906	272.10	**84001**


Clamping screw


Solid Carbide support S


Grubscrew

Spare parts for Article no.	70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 522 62001	M4,5x12 - IP	3.62 **820**	9.56	**813**	M6x6	3.51 **86700**
70 522 62501	M4,5x12 - IP	3.62 **820**	9.56	**813**	M6x6	3.51 **86700**
70 522 72501	M5x14 - IP	5.13 **821**	14.59	**833**	M6x6	3.51 **86700**
70 522 73201	M5x14 - IP	5.13 **821**	14.59	**833**	M6x6	3.51 **86700**
70 522 83201	M5x14 - IP	5.13 **821**	15.64	**817**	M6x6	3.51 **86700**
70 522 84001	M5x14 - IP	5.13 **821**	15.64	**817**	M6x6	3.51 **86700**


XPress type


Key D


Coolant screw plug

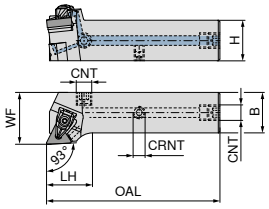
Spare parts for Article no.	70 950 ... £ 2A/28		80 950 ... £ Y7		70 950 ... £ 2A/28	
70 522 62001	28.78 **824**	T15 - IP	21.01	**128**	G 1/8"	4.31 **294**
70 522 62501	28.78 **824**	T15 - IP	21.01	**128**	G 1/8"	4.31 **294**
70 522 72501	32.31 **825**	T20 - IP	22.06	**129**	G 1/8"	4.31 **294**
70 522 73201	32.31 **825**	T20 - IP	22.06	**129**	G 1/8"	4.31 **294**
70 522 83201	35.35 **826**	T20 - IP	22.06	**129**	G 1/8"	4.31 **294**
70 522 84001	35.35 **826**	T20 - IP	22.06	**129**	G 1/8"	4.31 **294**

MaxiLock-D – DTJN 93° DC – Toolholder with top clamping

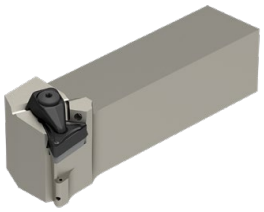
Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions



										NEW Left-hand		NEW Right-hand	
										70 601 ...		**70 601 ...**	
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	£ 2A/24		£ 2A/24	
DTJN R/L 2020 X16 DC	20	20	92	23	25	M6	G1/8"	2	TNM. 1604	227.77	**82000**	227.77	**82001**
DTJN R/L 2525 X16 DC	25	25	107	23	32	M6	G1/8"	2	TNM. 1604	227.77	**82500**	227.77	**82501**



Clamping screw



Solid Carbide Seat T



Grubscrew

		70 950 ...		**70 950 ...**			**70 950 ...**	
Spare parts for Article no.		£ 2A/28		£ 2A/28			£ 2A/28	
70 601 82000 / 70 601 82001	M3x7 - IP	3.79	**819**	8.41	**847**	M6x6	3.51	**86700**
70 601 82500 / 70 601 82501	M3x7 - IP	3.79	**819**	8.41	**847**	M6x6	3.51	**86700**



XPress type

Key D



Coolant screw plug

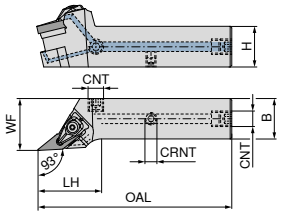
		70 950 ...			**80 950 ...**			**70 950 ...**
Spare parts for Article no.		£ 2A/28			£ Y7			£ 2A/28	
70 601 82000 / 70 601 82001	29.18	**823**	T09 - IP	19.68	**126**	G 1/8"	4.31	**294**
70 601 82500 / 70 601 82501	29.18	**823**	T09 - IP	19.68	**126**	G 1/8"	4.31	**294**

MaxiLock-D – DVJN 93° DC – Toolholder with top clamping

Scope of supply:
Tool holder with Torx key







Illustrations show right-hand versions



										NEW Left-hand		NEW Right-hand	
										70 511 ...		70 511 ...	
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	£ 2A/24		£ 2A/24	
DVJN R/L 2020 X16 DC	20	20	104	35	25	M6	G1/8"	2	VN.. 1604	248.27	**62000**	248.27	**62001**
DVJN R/L 2525 X16 DC	25	25	119	35	32	M6	G1/8"	2	VN.. 1604	261.00	**62500**	261.00	**62501**


Clamping screw


Solid Carbide Seat V


Grubscrew

		70 950 ...		70 950 ...			70 950 ...	
Spare parts for Article no.		£ 2A/28		£ 2A/28			£ 2A/28	
70 511 62000 / 70 511 62001	M3x7 - IP	3.79	**819**	6.77	**806**	M6x6	3.51	**86700**
70 511 62500 / 70 511 62501	M3x7 - IP	3.79	**819**	6.77	**806**	M6x6	3.51	**86700**


XPress type


Key D


Coolant screw plug

		70 950 ...		80 950 ...			70 950 ...	
Spare parts for Article no.		£ 2A/28		£ Y7			£ 2A/28	
70 511 62000 / 70 511 62001		34.83	**835**	T09 - IP	19.68	**126**	G 1/8"	4.31	**294**
70 511 62500 / 70 511 62501		34.83	**835**	T09 - IP	19.68	**126**	G 1/8"	4.31	**294**

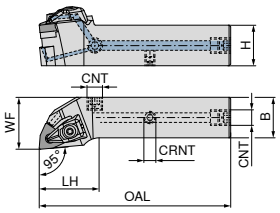
MaxiLock-D – DWLN 95° DC – Toolholder with top clamping

Scope of supply:

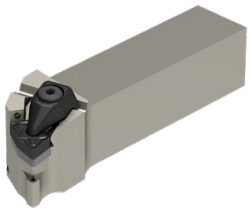
Tool holder with Torx key







Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	CRNT	CNT	torque moment Nm	Insert	NEW Left-hand 70 547 ... £ 2A/24		NEW Right-hand 70 547 ... £ 2A/24	
DWLN R/L 2020 X06 DC	20	20	94	25	25	M6	G1/8"	2	WN.. 0604	227.77	**62000**	227.77	**62001**
DWLN R/L 2525 X06 DC	25	25	109	25	32	M6	G1/8"	2	WN.. 0604	227.77	**62500**	227.77	**62501**
DWLN R/L 2020 X08 DC	20	20	100	31	25	M6	G1/8"	4	WN.. 0804	227.77	**72000**	227.77	**72001**
DWLN R/L 2525 X08 DC	25	25	118	34	32	M6	G1/8"	4	WN.. 0804	227.77	**72500**	227.77	**72501**



Clamping screw



Solid Carbide Seat W



Grubscrew

Spare parts for Article no.		70 950 ... £ 2A/28		70 950 ... £ 2A/28		70 950 ... £ 2A/28	
70 547 62000 / 70 547 62001	M3x7 - IP	3.79	**819**	4.11	**807**	M6x6	3.51 **86700**
70 547 62500 / 70 547 62501	M3x7 - IP	3.79	**819**	4.11	**807**	M6x6	3.51 **86700**
70 547 72000 / 70 547 72001	M4,5x12 - IP	3.62	**820**	12.02	**812**	M6x6	3.51 **86700**
70 547 72500 / 70 547 72501	M4,5x12 - IP	3.62	**820**	12.02	**812**	M6x6	3.51 **86700**



XPress type

Key D

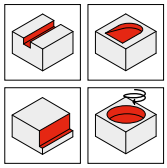


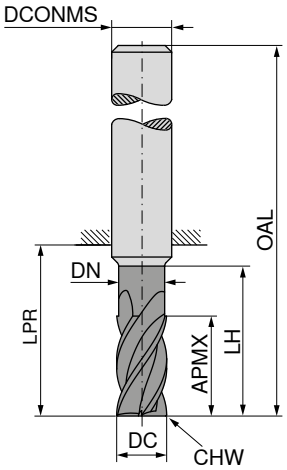
Coolant screw plug

Spare parts for Article no.		70 950 ... £ 2A/28			80 950 ... £ Y7			70 950 ... £ 2A/28	
70 547 62000 / 70 547 62001	29.18	**823**	T09 - IP	19.68	**126**	G 1/8"	4.31	**294**
70 547 62500 / 70 547 62501	29.18	**823**	T09 - IP	19.68	**126**	G 1/8"	4.31	**294**
70 547 72000 / 70 547 72001	28.78	**824**	T15 - IP	21.01	**128**	G 1/8"	4.31	**294**
70 547 72500 / 70 547 72501	28.78	**824**	T15 - IP	21.01	**128**	G 1/8"	4.31	**294**

End milling cutter

N | λ_s 35° | γ_s 38° | γ_s 9° | HPC





NEW

Ti1000





≈DIN 6527



54 071 ...

DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	£ V3/5C	
6	13	5.8	21	21	57	6	0.1	4	20.30	**06300**
8	21	7.7	27	27	63	8	0.2	4	25.38	**08300**
10	22	9.7	32	32	72	10	0.2	4	34.25	**10300**
12	26	11.6	38	38	83	12	0.3	4	53.28	**12300**
14	26	11.6	38	38	83	14	0.3	4	73.36	**14300**
16	36	15.5	44	44	92	16	0.3	4	82.46	**16300**
18	36	17.5	44	44	92	18	0.3	4	110.09	**18300**
20	41	19.5	54	54	104	20	0.3	4	124.33	**20300**

P	●
M	●
K	●
N	○
S	○
H	
O	

→ v_c/f_z Page 32+33

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values – End mill

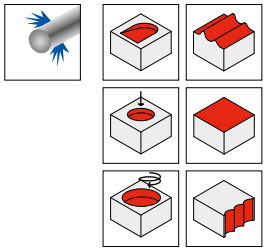
Index	Type short / long		54 071 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
	v_c (m/min)	$a_{p\,max.}$ x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
			f_z (mm)															
P.1.1	210	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.1.2	200	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.1.3	200	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.1.4	190	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.1.5	190	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.2.1	200	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.2.2	190	1,0	0,022	0,018	0,011	0,030	0,024	0,015	0,038	0,030	0,019	0,046	0,037	0,023	0,062	0,050	0,031	
P.2.3	180	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.2.4	170	1,0	0,022	0,018	0,011	0,030	0,024	0,015	0,038	0,030	0,019	0,046	0,037	0,023	0,062	0,050	0,031	
P.3.1	180	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.3.2	170	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.3.3	140	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
P.4.1	100	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
P.4.2	80	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
M.1.1	100	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
M.2.1	100	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
M.3.1	100	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
K.1.1	200	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
K.1.2	180	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
K.2.1	190	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
K.2.2	170	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
K.3.1	180	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
K.3.2	160	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	350	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
N.3.2	350	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
N.3.3	280	1,0	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	
N.4.1																		
S.1.1	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.1.2	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.2.1	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.2.2	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.2.3	30	1,0	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	
S.3.1	90	1,0	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	
S.3.2	50	1,0	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

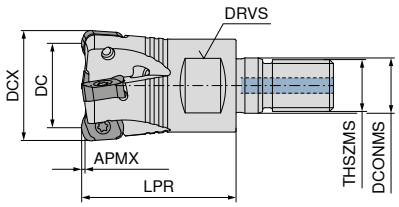
Plunging angle for ramping and helical milling: 3°

Index	54 071 ...												● 1st choice ○ suitable		
	Ø DC (mm) =														
	10			12			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MQL
	f_z (mm)														
P.1.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.1.2	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.1.3	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.1.4	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.1.5	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.2.2	0,078	0,062	0,039	0,094	0,075	0,047	0,118	0,094	0,059	0,134	0,107	0,067	●	○	○
P.2.3	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.2.4	0,078	0,062	0,039	0,094	0,075	0,047	0,118	0,094	0,059	0,134	0,107	0,067	●	○	○
P.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.3.2	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.3.3	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
P.4.1	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
P.4.2	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.1.1	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.2.1	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
M.3.1	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
K.1.1	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.1.2	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●	○	○
K.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
K.2.2	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
K.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
K.3.2	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●	○	○
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●		
N.3.2	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●		
N.3.3	0,116	0,093	0,058	0,140	0,112	0,070	0,173	0,138	0,087	0,196	0,157	0,098	●		
N.4.1															
S.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.1.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.2	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.2.3	0,050	0,040	0,025	0,060	0,048	0,030	0,075	0,060	0,038	0,084	0,067	0,042	●		
S.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,150	0,120	0,075	0,170	0,136	0,085	●		
S.3.2	0,066	0,053	0,033	0,080	0,064	0,040	0,101	0,081	0,051	0,115	0,092	0,058	●		
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

MaxiMill – HFCD high-feed screw-in cutter

▲ Programmed radius r3D = 2.0 mm





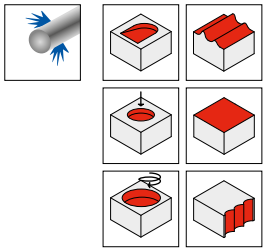


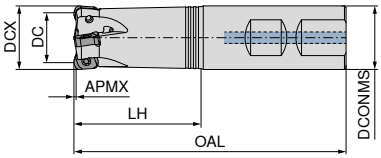
NEW

Designation	DC mm	DCX mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 357 ... £ 2B/40	
GHFCD.16.R.02-06	10	16	2	0.8	27	8.5	M8	10	23500	1,2	XNEU 06T3..	286.16	**01602**
GHFCD.20.R.03-06	14	20	3	0.8	33	10.5	M10	15	20200	1,2	XNEU 06T3..	324.38	**02003**
GHFCD.25.R.04-06	19	25	4	0.8	35	12.5	M12	17	18100	1,2	XNEU 06T3..	363.58	**02504**
GHFCD.32.R.05-06	26	32	5	0.8	35	17.0	M16	24	17300	1,2	XNEU 06T3..	401.80	**03205**
GHFCD.35.R.06-06	29	35	6	0.8	35	17.0	M16	24	16100	1,2	XNEU 06T3..	425.32	**03506**
GHFCD.42.R.06-06	36	42	6	0.8	35	17.0	M16	24	14100	1,2	XNEU 06T3..	441.98	**04206**

MaxiMill – HFCD high-feed end mill

▲ Programmed radius r3D = 2.0 mm









NEW NEW

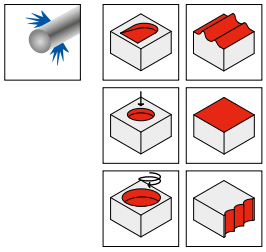


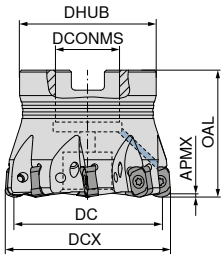


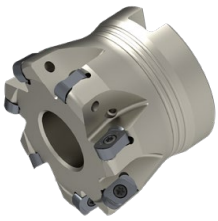
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS $_{h6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 356 ... £ 2B/40		50 356 ... £ 2B/40	
CHFCD.16.R.02-06-B-40	10	16	2	0.8	89	40	16	21700	1,2	XNEU 06T3..			286.16	**11602**
CHFCD.16.R.02-06-A-40	10	16	2	0.8	89	40	16	21700	1,2	XNEU 06T3..	286.16	**01602**		
CHFCD.16.R.02-06-A-40-200	10	16	2	0.8	200	40	16	12300	1,2	XNEU 06T3..	286.16	**21602**		
CHFCD.20.R.03-06-B-50	14	20	3	0.8	101	50	20	17000	1,2	XNEU 06T3..			324.38	**12003**
CHFCD.20.R.03-06-A-50	14	20	3	0.8	101	50	20	17000	1,2	XNEU 06T3..	324.38	**02003**		
CHFCD.20.R.03-06-A-50-225	14	20	3	0.8	225	50	20	8700	1,2	XNEU 06T3..	324.38	**22003**		
CHFCD.25.R.04-06-B-50	19	25	4	0.8	107	50	25	15400	1,2	XNEU 06T3..			363.58	**12504**
CHFCD.25.R.04-06-A-50	19	25	4	0.8	107	50	25	15400	1,2	XNEU 06T3..	363.58	**02504**		
CHFCD.25.R.04-06-A-50-225	19	25	4	0.8	225	50	25	7100	1,2	XNEU 06T3..	363.58	**22504**		
CHFCD.32.R.05-06-B25-50	26	32	5	0.8	107	50	25	14400	1,2	XNEU 06T3..			401.80	**13205**
CHFCD.32.R.05-06-A25-50	26	32	5	0.8	107	50	25	14400	1,2	XNEU 06T3..	401.80	**03205**		
CHFCD.32.R.05-06-A25-50-225	26	32	5	0.8	225	50	25	6400	1,2	XNEU 06T3..	401.80	**23205**		

MaxiMill – HFCD high-feed face mill

▲ Programmed radius r3D = 2.0 mm







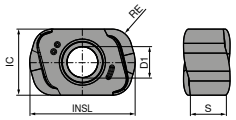
NEW

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS $_{H6}$ mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 358 ... £ 2B/40	
AHFCD.32.R.05-06	26	32	5	0.8	40	16	38	17300	1,2	XNEU 06T3..	401.80	**03205**
AHFCD.35.R.05-06	29	35	5	0.8	40	16	38	16100	1,2	XNEU 06T3..	425.32	**03505**
AHFCD.40.R.06-06	34	40	6	0.8	40	16	38	14600	1,2	XNEU 06T3..	441.98	**04006**
AHFCD.42.R.06-06	36	42	6	0.8	40	16	38	14100	1,2	XNEU 06T3..	441.98	**04206**
AHFCD.50.R.07-06	44	50	7	0.8	40	22	43	12500	1,2	XNEU 06T3..	491.96	**05007**
AHFCD.52.R.08-06	46	52	8	0.8	40	22	43	12200	1,2	XNEU 06T3..	516.46	**05208**
AHFCD.63.R.09-06	57	63	9	0.8	40	22	48	10800	1,2	XNEU 06T3..	565.46	**06309**
AHFCD.66.R.10-06	60	66	10	0.8	40	22	48	10500	1,2	XNEU 06T3..	589.96	**06610**

	TORX® blade	 Key D	 Molykote	 Clamping screw	 Torque screwdriver
	80 950 ...	**80 950 ...**	**70 950 ...**	**70 950 ...**	**80 950 ...**
Spare parts	£	£	£	£	£
Insert	Y7	Y7	2A/28	2A/28	Y7
XNEU 06T3..	8.91 **033**	13.73 **110**	5.31 **303**	2.86 **13800**	205.52 **192**

XNEU

Designation	IC	D1	INSL	r3D	S
	mm	mm	mm	mm	mm
XNEU 06T3..	6.05	2.8	9.65	2	3.0



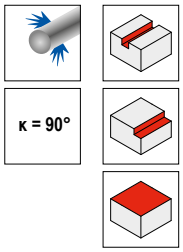
XNEU

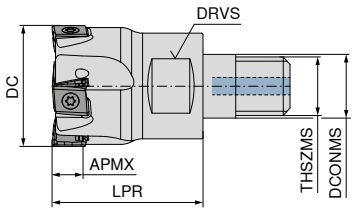
		NEW	NEW	NEW	NEW	NEW
		-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XNEU	XNEU	XNEU	XNEU	XNEU
		51 261 ...	51 261 ...	51 260 ...	51 261 ...	51 260 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17
06T318SER	1.8	17.84 01800	17.84 11800	17.84 41800	17.84 41800	21.66 41801
P		●	●	○	○	●
M			○	●	●	●
K		○	○			
N						
S						
H						
O						

XNEU

		NEW	NEW	NEW	NEW	NEW
		-F50 CTCM245	-R50 CTCK215	-R50 CTPK220	-F40 CTC5240	-F40 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XNEU	XNEU	XNEU	XNEU	XNEU
		51 260 ...	51 262 ...	51 262 ...	51 259 ...	51 259 ...
ISO	RE mm	£ 1H/17	£ 1B/61	£ 1B/61	£ 1H/17	£ 1H/17
06T318ER	1.8				21.66 11801	21.66 51801
06T318SER	1.8	21.66 91801	17.84 51800	17.84 61800		
P		●				
M		●				
K			●	●		
N						
S		○			●	●
H						
O						

MaxiMill – Tangent-09 screw-in cutter





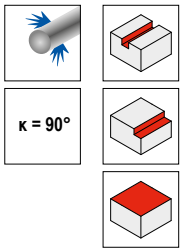


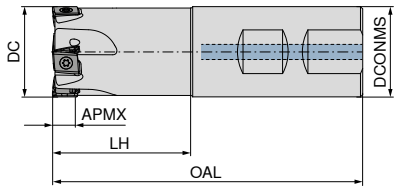
NEW

50 355 ...

Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
GTANG.25.R.03-09-M12	25	3	8	35	12.5	M12	17	39600	2,2	LN.U 0904	355.74	**02503**
GTANG.25.R.04-09-M12	25	4	8	35	12.5	M12	17	39600	2,2	LN.U 0904	397.88	**02504**
GTANG.32.R.04-09-M16	32	4	8	40	17.0	M16	24	35000	2,2	LN.U 0904	428.26	**03204**
GTANG.32.R.05-09-M16	32	5	8	40	17.0	M16	24	35000	2,2	LN.U 0904	480.20	**03205**

MaxiMill – Tangent-09 end mill







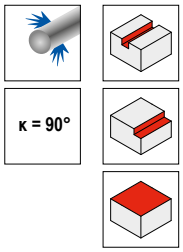
NEW

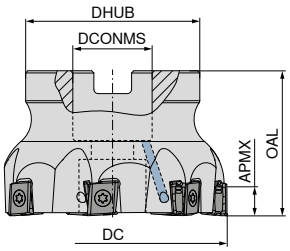


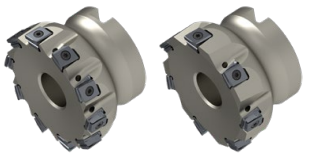
50 354 ...

Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
CTANG.25.R.03-09-B-43-100	25	3	8	100	43	25	39600	2,2	LN.U 0904	355.74	**02503**
CTANG.25.R.04-09-B-43-100	25	4	8	100	43	25	39600	2,2	LN.U 0904	397.88	**02504**
CTANG.32.R.04-09-B-49-110	32	4	8	110	49	32	35000	2,2	LN.U 0904	428.26	**03204**
CTANG.32.R.05-09-B-49-110	32	5	8	110	49	32	35000	2,2	LN.U 0904	480.20	**03205**
CTANG.40.R.04-09-B32-49-110	40	4	8	110	49	32	31300	2,2	LN.U 0904	444.92	**04004**
CTANG.40.R.06-09-B32-49-110	40	6	8	110	49	32	31300	2,2	LN.U 0904	562.52	**04006**

MaxiMill – Tangent-09 face mill







										NEW		NEW		
										50 353 ...		**50 353 ...**		
Designation	DC	ZNF	APMX	OAL	DHUB	DCONMS $_{H6}$	RPMX	torque moment	Insert	£		£		
	mm		mm	mm	mm	mm	1/min.	Nm		2B/40		2B/40		
ATANG.40.R.04-09-A16	40	4	8	40	38	16	31300	2,2	LN.U 0904			444.92	**04004**	
ATANG.40.R.06-09-A16	40	6	8	40	38	16	31300	2,2	LN.U 0904	562.52	**04006**			
ATANG.50.R.05-09-A22	50	5	8	40	43	22	28000	2,2	LN.U 0904			490.00	**05005**	
ATANG.50.R.07-09-A22	50	7	8	40	43	22	28000	2,2	LN.U 0904	607.60	**05007**			
ATANG.63.R.07-09-A22	63	7	8	40	48	22	25000	2,2	LN.U 0904			579.18	**06307**	
ATANG.63.R.10-09-A22	63	10	8	40	48	22	25000	2,2	LN.U 0904	775.18	**06310**			
ATANG.80.R.08-09-A27	80	8	8	50	58	27	21000	2,2	LN.U 0904			668.36	**08008**	
ATANG.80.R.11-09-A27	80	11	8	50	58	27	21000	2,2	LN.U 0904	957.46	**08011**			


Key D


Molykote

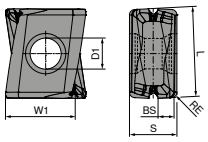

Clamping screw


Torque screwdriver

	80 950 ...		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Spare parts	£		£		£		£	
Insert	Y7		2A/28		2A/28		Y7	
LN.U 0904	15.63	**119**	5.31	**303**	3.74	**710**	244.07	**193**

LNHU

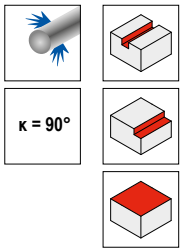
Designation	D1 mm	L mm	BS mm	S mm	W1 mm
LNHU 0904..	3.45	9.3	1	4.8	8

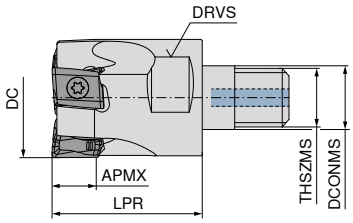


LNHU

		NEW	NEW	NEW	NEW	NEW	NEW	NEW
		-M50 CTCP230	-M50 CTPP235	-M50 CTPM240	-M50 CTCM245	-M50 CTCK215	-M50 CTPK220	-F40 CTC5240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		LNHU	LNHU	LNHU	LNHU	LNHU	LNHU	LNHU
		51 257 ...	51 257 ...	51 257 ...	51 257 ...	51 257 ...	51 257 ...	51 258 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1B/61	£ 1B/61	£ 1H/17
090404	0.4	21.36 **00400**	21.36 **10400**	21.36 **40400**	27.15 **40401**	21.36 **50400**	21.36 **60400**	27.15 **10401**
P		●	●	○	●			
M			○	●	●			
K		○	○			●	●	
N								
S					○			●
H								
O								

MaxiMill – Tangent-13 screw-in cutter





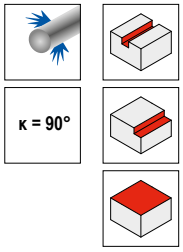


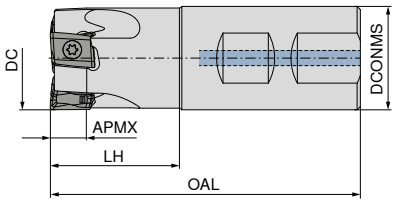
NEW

50 352 ...

Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
GTANG.32.R.03-13-M16	32	3	12	35	17	M16	24	25000	5,0	LN.U 1306	241.08	**03203**
GTANG.40.R.04-13-M16	40	4	12	40	17	M16	27	22500	5,0	LN.U 1306	444.92	**04004**

MaxiMill – Tangent-13 end mill







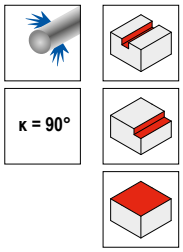
NEW

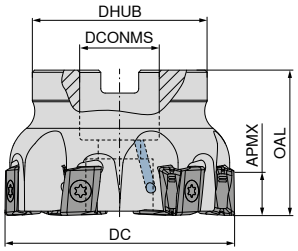


50 351 ...

Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	£ 2B/40	
CTANG.32.R.03-13-B32-40	32	3	12	96	40	32	25000	5,0	LN.U 1306	241.08	**03203**
CTANG.40.R.04-13-B32-50	40	4	12	110	50	32	22500	5,0	LN.U 1306	444.92	**04004**

MaxiMill – Tangent-13 face mill







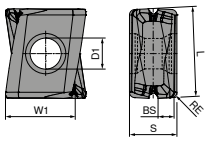
NEW NEW

Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	RPMX 1/min.	torque moment Nm	Insert	50 350 ... £ 2B/40		50 350 ... £ 2B/40	
ATANG.40.R.04-13-A16	40	4	12	40	38	16	22500	5,0	LN.U 1306			444.92	**04004**
ATANG.40.R.05-13-A16	40	5	12	40	38	16	22500	5,0	LN.U 1306	523.32	**04005**		
ATANG.40.R.05-13-A22	40	5	12	40	38	22	22500	5,0	LN.U 1306	523.32	**14005**		
ATANG.50.R.05-13-A22	50	5	12	40	43	22	20200	5,0	LN.U 1306			490.00	**05005**
ATANG.50.R.06-13-A22	50	6	12	40	43	22	20200	5,0	LN.U 1306	569.38	**05006**		
ATANG.50.R.06-13-A27	50	6	12	45	48	27	20200	5,0	LN.U 1306	569.38	**15006**		
ATANG.63.R.06-13-A22	63	6	12	40	48	22	18000	5,0	LN.U 1306			579.18	**06306**
ATANG.63.R.08-13-A22	63	8	12	40	48	22	18000	5,0	LN.U 1306	694.82	**06308**		
ATANG.63.R.08-13-A27	63	8	12	45	48	27	18000	5,0	LN.U 1306	694.82	**16308**		
ATANG.80.R.07-13-A27	80	7	12	50	58	27	15900	5,0	LN.U 1306			668.36	**08007**
ATANG.80.R.10-13-A27	80	10	12	50	58	27	15900	5,0	LN.U 1306	897.68	**08010**		
ATANG.100.R.09-13-A32	100	9	12	50	78	32	14200	5,0	LN.U 1306			848.68	**10009**
ATANG.100.R.13-13-A32	100	13	12	50	78	32	14200	5,0	LN.U 1306	1,087.80	**10013**		
ATANG.125.R.11-13-A40	125	11	12	63	88	40	12700	5,0	LN.U 1306			948.64	**12511**
ATANG.125.R.16-13-A40	125	16	12	63	88	40	12700	5,0	LN.U 1306	1,323.00	**12516**		

Spare parts	TORX® blade		Key D		 Molykote		 Clamping screw		Torque screwdriver	
	80 950 ...		**80 950 ...**		**70 950 ...**		**70 950 ...**		**80 950 ...**	
Insert	£ Y7		£ Y7		£ 2A/28		£ 2A/28		£ Y7	
LN.U 1306	8.91	**054**	16.05	**120**	5.31	**303**	4.40	**134**	244.07	**193**

LNHU

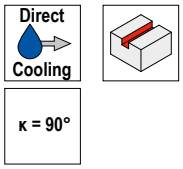
Designation	D1 mm	L mm	BS mm	S mm	W1 mm
LNHU 1306..	4.5	13.3	1.5	7.0	10.2

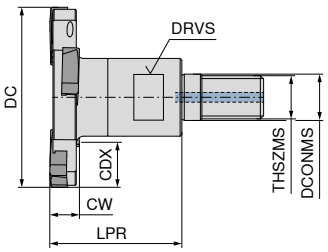


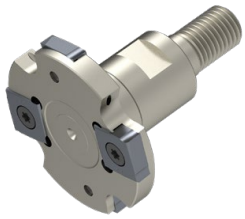
LNHU

		NEW	NEW	NEW	NEW	NEW	NEW	NEW
		-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-F50 CTCM245	-M50 CTCK215	-M50 CTPK220	-F50 CTC5240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		LNHU	LNHU	LNHU	LNHU	LNHU	LNHU	LNHU
		51 255 ...	51 255 ...	51 256 ...	51 256 ...	51 255 ...	51 255 ...	51 256 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1H/17	£ 1B/61	£ 1B/61	£ 1H/17
130608	0.8	26.07 **00800**	26.07 **10800**	26.07 **40800**	32.54 **40801**	26.07 **50800**	26.07 **60800**	32.54 **10801**
P		●	●	○	●			
M			○	●	●			
K		○	○			●	●	
N								
S					○			●
H								
O								

MaxiMill – Slot-SNHX screw-in multipurpose milling cutter







NEW

Designation	DC mm	CW mm	CDX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	ZNF	Insert	50 373 ... £ 2B/40	
GSLOT.50.R.04-SN13-06-DC-M12	50	6	13	35	12.5	M12	17	4	SNHX 1303..	445.90	**05006**
GSLOT.63.R.06-SN13-06-DC-M12	63	6	18	35	12.5	M12	17	6	SNHX 1303..	591.92	**06306**
GSLOT.80.R.08-SN13-06-DC-M16	80	6	21	35	17.0	M16	24	8	SNHX 1303..	739.90	**08006**
GSLOT.50.R.04-SN13-08-DC-M12	50	8	13	35	12.5	M12	17	4	SNHX 1304..	445.90	**05008**
GSLOT.63.R.06-SN13-08-DC-M12	63	8	18	35	12.5	M12	17	6	SNHX 1304..	591.92	**06308**
GSLOT.80.R.08-SN13-08-DC-M16	80	8	21	35	17.0	M16	24	8	SNHX 1304..	739.90	**08008**



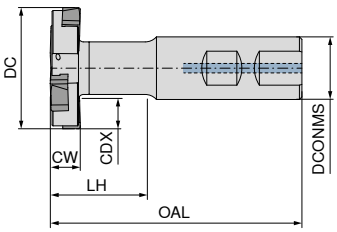
Clamping screw

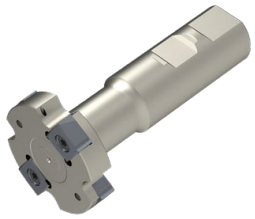
Spare parts for Article no.	50 950 ... £ 2A/28	
50 373 05006 / 50 373 06306	6.27	**00500**
50 373 05008 / 50 373 06308	6.27	**00600**
50 373 08006	6.27	**00500**
50 373 08008	6.27	**00600**

MaxiMill – Slot-SNHX cylindrical shank saw

Direct Cooling

κ = 90°





NEW

Designation	DC mm	CW mm	CDX mm	OAL mm	LH mm	DCONMS mm	ZNF	Insert	50 372 ... £ 2B/40	
CSLOT.50.R.04-SN13-06-DC-B20-42	50	6	13	95	42	20	4	SNHX 1303..	450.80	05006
CSLOT.63.R.06-SN13-06-DC-B25-41	63	6	18	100	41	25	6	SNHX 1303..	602.70	06306
CSLOT.80.R.08-SN13-06-DC-B32-48	80	6	22	110	48	32	8	SNHX 1303..	754.60	08006
CSLOT.100.R.10-SN13-06-DC-B40-52	100	6	29	125	52	40	10	SNHX 1303..	901.60	10006
CSLOT.50.R.04-SN13-08-DC-B20-42	50	8	13	95	42	20	4	SNHX 1304..	450.80	05008
CSLOT.63.R.06-SN13-08-DC-B25-41	63	8	18	100	41	25	6	SNHX 1304..	602.70	06308
CSLOT.80.R.08-SN13-08-DC-B32-48	80	8	22	110	48	32	8	SNHX 1304..	754.60	08008
CSLOT.100.R.10-SN13-08-DC-B40-52	100	8	29	125	52	40	10	SNHX 1304..	901.60	10008
CSLOT.50.R.04-SN13-10-DC-B20-42	50	10	13	95	42	20	4	SNHX 1305..	450.80	05010
CSLOT.63.R.06-SN13-10-DC-B25-41	63	10	18	100	41	25	6	SNHX 1305..	602.70	06310
CSLOT.80.R.08-SN13-10-DC-B32-48	80	10	22	110	48	32	8	SNHX 1305..	754.60	08010
CSLOT.100.R.10-SN13-10-DC-B40-52	100	10	29	125	52	40	10	SNHX 1305..	901.60	10010
CSLOT.50.R.04-SN13-12-DC-B20-42	50	12	13	95	42	20	4	SNHX 1307..	450.80	05012
CSLOT.63.R.06-SN13-12-DC-B25-41	63	12	18	100	41	25	6	SNHX 1307..	602.70	06312
CSLOT.80.R.08-SN13-12-DC-B32-48	80	12	22	110	48	32	8	SNHX 1307..	754.60	08012
CSLOT.100.R.10-SN13-12-DC-B40-52	100	12	29	125	52	40	10	SNHX 1307..	901.60	10012



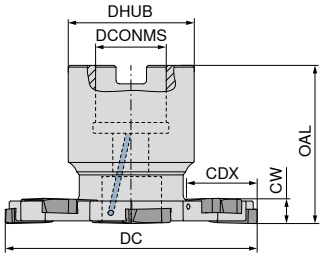
Clamping screw

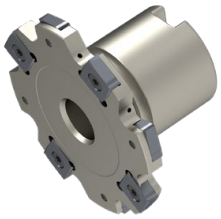
Spare parts for Article no.	50 950 ... £ 2A/28	
50 372 05006 / 50 372 06306	6.27	00500
50 372 05008 / 50 372 06308	6.27	00600
50 372 05010 / 50 372 06310	6.27	00700
50 372 05012 / 50 372 06312	6.27	00800
50 372 08006 / 50 372 10006	6.27	00500
50 372 08008 / 50 372 10008	6.27	00600
50 372 08010 / 50 372 10010	6.27	00700
50 372 08012 / 50 372 10012	6.27	00800

MaxiMill – Slot-SNHX slot milling and parting off cutter

Direct Cooling

κ = 90°





NEW

Designation	DC mm	CW mm	CDX mm	OAL mm	DCONMS mm	DHUB mm	ZNF	Insert	50 374 ... £ 2B/40	
ASLOT.80.R.08-SN13-06-DC-A22	80	6	22.0	50	22	40	8	SNHX 1303..	739.90	08006
ASLOT.100.R.10-SN13-06-DC-A27	100	6	25.0	50	27	48	10	SNHX 1303..	882.98	10006
ASLOT.125.R.12-SN13-06-DC-A32	125	6	31.5	50	32	58	12	SNHX 1303..	1,038.80	12506
ASLOT.160.R.16-SN13-06-DC-A40	160	6	41.5	50	40	70	16	SNHX 1303..	1,184.82	16006
ASLOT.200.R.18-SN13-06-DC-A40	200	6	52.0	50	40	88	18	SNHX 1303..	1,332.80	20006
ASLOT.80.R.08-SN13-08-DC-A22	80	8	22.0	50	22	40	8	SNHX 1304..	739.90	08008
ASLOT.100.R.10-SN13-08-DC-A27	100	8	25.0	50	27	48	10	SNHX 1304..	882.98	10008
ASLOT.125.R.12-SN13-08-DC-A32	125	8	31.5	50	32	58	12	SNHX 1304..	1,038.80	12508
ASLOT.160.R.16-SN13-08-DC-A40	160	8	41.5	50	40	70	16	SNHX 1304..	1,184.82	16008
ASLOT.200.R.18-SN13-08-DC-A40	200	8	52.0	50	40	88	18	SNHX 1304..	1,332.80	20008
ASLOT.80.R.08-SN13-10-DC-A22	80	10	22.0	50	22	40	8	SNHX 1305..	739.90	08010
ASLOT.100.R.10-SN13-10-DC-A27	100	10	25.0	50	27	48	10	SNHX 1305..	882.98	10010
ASLOT.125.R.12-SN13-10-DC-A32	125	10	31.5	50	32	58	12	SNHX 1305..	1,038.80	12510
ASLOT.160.R.16-SN13-10-DC-A40	160	10	41.5	50	40	70	16	SNHX 1305..	1,184.82	16010
ASLOT.200.R.18-SN13-10-DC-A40	200	10	52.0	50	40	88	18	SNHX 1305..	1,332.80	20010
ASLOT.80.R.08-SN13-12-DC-A22	80	12	22.0	50	22	40	8	SNHX 1307..	739.90	08012
ASLOT.100.R.10-SN13-12-DC-A27	100	12	25.0	50	27	48	10	SNHX 1307..	882.98	10012
ASLOT.125.R.12-SN13-12-DC-A32	125	12	31.5	50	32	58	12	SNHX 1307..	1,038.80	12512
ASLOT.160.R.16-SN13-12-DC-A40	160	12	41.5	50	40	70	16	SNHX 1307..	1,184.82	16012
ASLOT.200.R.18-SN13-12-DC-A40	200	12	52.0	50	40	88	18	SNHX 1307..	1,332.80	20012
ASLOT.80.R.08-SN13-14-DC-A22	80	14	22.0	50	22	40	8	SNHX 1309..	739.90	08014
ASLOT.100.R.10-SN13-14-DC-A27	100	14	25.0	50	27	48	10	SNHX 1309..	882.98	10014
ASLOT.125.R.12-SN13-14-DC-A32	125	14	31.5	50	32	58	12	SNHX 1309..	1,038.80	12514
ASLOT.160.R.16-SN13-14-DC-A40	160	14	41.5	50	40	70	16	SNHX 1309..	1,184.82	16014
ASLOT.200.R.18-SN13-14-DC-A40	200	14	52.0	50	40	88	18	SNHX 1309..	1,332.80	20014
ASLOT.80.R.08-SN13-16-DC-A22	80	16	22.0	50	22	40	8	SNHX 1309..	739.90	08016
ASLOT.100.R.10-SN13-16-DC-A27	100	16	25.0	50	27	48	10	SNHX 1309..	882.98	10016
ASLOT.125.R.12-SN13-16-DC-A32	125	16	31.5	50	32	58	12	SNHX 1309..	1,038.80	12516
ASLOT.160.R.16-SN13-16-DC-A40	160	16	41.5	50	40	70	16	SNHX 1309..	1,184.82	16016
ASLOT.200.R.18-SN13-16-DC-A40	200	16	52.0	50	40	88	18	SNHX 1309..	1,332.80	20016



Clamping screw

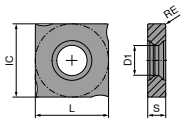


Clamping screw

Spare parts for Article no.	50 950 ... £ 2A/28		50 950 ... £ 2A/28	
50 374 08006	3.23	01000	6.27	00500
50 374 08008	3.23	01000	6.27	00600
50 374 08010	3.23	01000	6.27	00700
50 374 08012	3.23	01000	6.27	00800
50 374 08014 / 50 374 08016	3.23	01000	6.27	00900
50 374 10006	6.27	01100	6.27	00500
50 374 10008	6.27	01100	6.27	00600
50 374 10010	6.27	01100	6.27	00700
50 374 10012	6.27	01100	6.27	00800
50 374 10014 / 50 374 10016	6.27	01100	6.27	00900
50 374 12506	7.74	01200	6.27	00500
50 374 12508	7.74	01200	6.27	00600
50 374 12510	7.74	01200	6.27	00700
50 374 12512	7.74	01200	6.27	00800
50 374 12514 / 50 374 12516	7.74	01200	6.27	00900
50 374 16006 / 50 374 20006	7.35	01300	6.27	00500
50 374 16008 / 50 374 20008	7.35	01300	6.27	00600
50 374 16010 / 50 374 20010	7.35	01300	6.27	00700
50 374 16012 / 50 374 20012	7.35	01300	6.27	00800
50 374 16014 / 50 374 16016	7.35	01300	6.27	00900
50 374 20014 / 50 374 20016	7.35	01300	6.27	00900

SNHX

Designation	IC mm	D1 mm	L mm	S mm
SNHX 1303..	13	5.3	13	3.2
SNHX 1304..	13	5.3	13	4.5
SNHX 1305..	13	5.3	13	5.4
SNHX 1307..	13	5.3	13	7.0
SNHX 1309..	13	5.3	13	9.0



SNHX

		NEW	NEW	NEW	NEW	NEW
		CTPP235	CTPP235	CTPP235	CTPP235	CTPP235
						
		SNHX	SNHX	SNHX	SNHX	SNHX
		51 263 ...	51 264 ...	51 265 ...	51 266 ...	51 267 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
130308EL	0.8	17.93 10800				
130308ER	0.8	17.93 11800				
130408EL	0.8		18.52 10800			
130408ER	0.8		18.52 11800			
130508EL	0.8			18.91 10800		
130508ER	0.8			18.91 11800		
130708EL	0.8				19.99 10800	
130708ER	0.8				19.99 11800	
130908EL	0.8					20.48 10800
130908ER	0.8					20.48 11800
P		●	●	●	●	●
M		○	○	○	○	○
K		○	○	○	○	○
N						
S						
H						
O						

SNHX

		NEW	NEW	NEW	NEW	NEW
		CTPM240	CTPM240	CTPM240	CTPM240	CTPM240
						
		SNHX	SNHX	SNHX	SNHX	SNHX
		51 263 ...	51 264 ...	51 265 ...	51 266 ...	51 267 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
130308EL	0.8	17.93 40800				
130308ER	0.8	17.93 41800				
130408EL	0.8		18.52 40800			
130408ER	0.8		18.52 41800			
130508EL	0.8			18.91 40800		
130508ER	0.8			18.91 41800		
130708EL	0.8				19.99 40800	
130708ER	0.8				19.99 41800	
130908EL	0.8					20.48 40800
130908ER	0.8					20.48 41800
P		○	○	○	○	○
M		●	●	●	●	●
K						
N						
S						
H						
O						

SNHX

		NEW	NEW	NEW	NEW	NEW
		CTPK220	CTPK220	CTPK220	CTPK220	CTPK220
						
		SNHX	SNHX	SNHX	SNHX	SNHX
		51 263 ...	51 264 ...	51 265 ...	51 266 ...	51 267 ...
ISO	RE mm	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61	£ 1B/61
130308EL	0.8	17.93 60800				
130308ER	0.8	17.93 61800				
130408EL	0.8		18.52 60800			
130408ER	0.8		18.52 61800			
130508EL	0.8			18.91 60800		
130508ER	0.8			18.91 61800		
130708EL	0.8				19.99 60800	
130708ER	0.8				19.99 61800	
130908EL	0.8					20.48 60800
130908ER	0.8					20.48 61800
P						
M						
K		●	●	●	●	●
N						
S						
H						
O						

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

*** Tensile strength**

Cutting data standard values for MaxiMill – Slot-SNHX

Index	CTPP235		CTPM240		CTPK220	
	DRAGONSKIN					
	Cutting Material **hard** (v_c↑) → **tough** (v_c↓)					
	v_c (m/min)					
P.1.1	**246**	**137**	226	141		
P.1.2	**208**	**121**	188	126		
P.1.3	**172**	**106**	152	112		
P.1.4	**160**	**101**	140	107		
P.1.5	**143**	**94**	123	100		
P.2.1	**214**	**123**	194	128		
P.2.2	**157**	**100**	137	106		
P.2.3	**143**	**94**	123	100		
P.2.4	**98**	**76**	78	83		
P.3.1	**121**	**97**	126	105		
P.3.2	**108**	**83**	112	95		
P.3.3	**96**	**69**	98	85		
P.4.1	**121**	**97**	126	105		
P.4.2	**114**	**90**	119	100		
M.1.1	121	97	**126**	**105**		
M.2.1	108	83	**112**	**95**		
M.3.1	117	93	**121**	**102**		
K.1.1	160	110			**320**	**190**
K.1.2	150	110			**170**	**100**
K.2.1	150	110			**210**	**130**
K.2.2	150	110			**140**	**90**
K.3.1					**200**	**120**
K.3.2					**170**	**100**
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

average chip thickness

h_m in mm

$$h_m = \frac{f_z}{2} \sqrt{\frac{a_e}{DC}}$$

Feed per tooth

f_z in mm

$$f_z = h_m \sqrt{\frac{DC}{a_e}}$$

Feed rate

v_f in mm/min

$$v_f = f_z \times ZNF \times n$$

DC = Ø of the disc cutters

ZNF = Number of teeth of the cutter

Reference tool 50 374 12506 – ASLOT.125.R.12-SN13-06-DC-A32

	a_e	10	20	30
	h_m	f_z in mm		
P	**0,11**	0,39	0,28	0,22
M	**0,08**	0,28	0,20	0,16
K	**0,13**	0,46	0,33	0,27
N				
S				
H				
O				

ASLOT.125.R.12-SN13-06-DC-A32

Tool tooth count (Z)	**12**
Effective tooth count (Z/2)	**6**

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

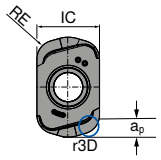
Index	CTCP230		CTPP235		CTPM240		CTPM245		CTCM245		CTCK215		CTC5240		CTCS245	
	DRAGONSKIN															
	Cutting Material **hard** (v_c↑) → **tough** (v_c↓)															
	v_c (m/min)															
P.1.1	**286**	**150**	**246**	**137**	226	141	244	139	279	134						
P.1.2	**242**	**133**	**208**	**121**	188	126	207	124	242	119						
P.1.3	**202**	**118**	**172**	**106**	152	112	173	109	208	104						
P.1.4	**189**	**112**	**160**	**101**	140	107	161	104	196	99						
P.1.5	**169**	**105**	**143**	**94**	123	100	144	97	179	92						
P.2.1	**249**	**136**	**214**	**123**	194	128	212	126	247	121						
P.2.2	**185**	**111**	**157**	**100**	137	106	158	103	193	98						
P.2.3	**169**	**105**	**143**	**94**	123	100	144	97	179	92						
P.2.4	**118**	**85**	**98**	**76**	78	83	101	78	136	73						
P.3.1	**140**	**87**	**121**	**97**	126	105	155	107	175	122						
P.3.2	**90**	**55**	**108**	**83**	112	95	143	93	163	108						
P.3.3	**40**	**22**	**96**	**69**	98	85	131	79	151	94						
P.4.1	**140**	**87**	**121**	**97**	126	105	155	107	175	122						
P.4.2	**115**	**71**	**114**	**90**	119	100	149	100	169	115						
M.1.1			121	97	**126**	**105**	**155**	**107**	**175**	**122**						
M.2.1			108	83	**112**	**95**	**143**	**93**	**163**	**108**						
M.3.1			117	93	**121**	**102**	**152**	**103**	**172**	**118**						
K.1.1	310	190	160	110							**360**	**210**				
K.1.2	160	100	150	110							**220**	**130**				
K.2.1	200	120	150	110							**230**	**140**				
K.2.2	130	80	150	110							**160**	**100**				
K.3.1	190	115									**250**	**150**				
K.3.2	160	100									**210**	**130**				
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1										80				**80**		**64**
S.1.2										70				**70**		**56**
S.2.1										35				**35**		**28**
S.2.2										25				**25**		**20**
S.2.3										30				**30**		**24**
S.3.1										80				**80**		**64**
S.3.2										50				**50**		**40**
S.3.3										40				**40**		**32**
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

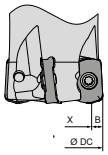
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

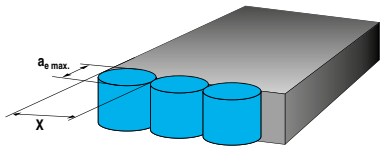
MaxiMill HFCD-06 system

Machining strategy

Programmed radius r3D = 2.0 mm







Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\ max.}$ in mm	DCX in mm	X in mm	B in mm	$a_{e\ max.}$ in mm	f_z in mm			X
							initial	min.	max.	
6,05	1,8	0,8	16–66	DCX–(2 x B)	4,3	5,3	0,10	0,08	0,15	<0,7 x DCX



	circular		
	Helical plunging (helical plunging into solid material)		
DCX mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\ max.}$ °
16	29	31	1,2°
20	36	39	1°
25	45	49	0,9°
32	59	63	0,65°
35	64	69	0,6°
40	74	79	0,5°
42	78	83	0,45°
50	94	99	0,35°
52	98	103	0,35°
63	120	125	0,3°
66	126	131	0,25°



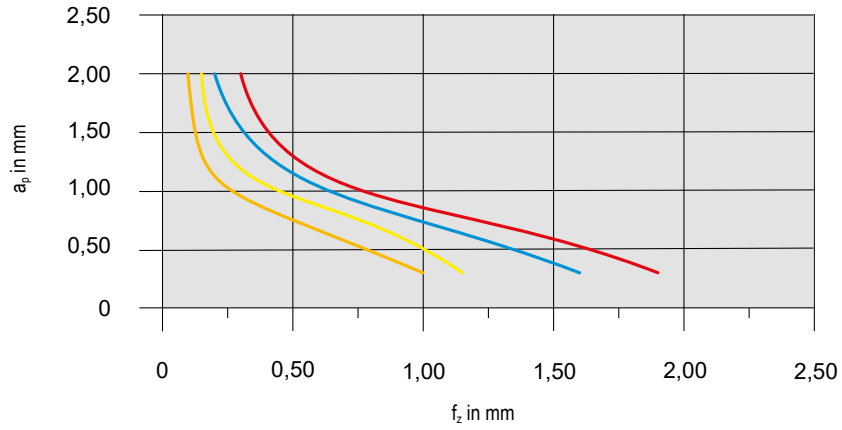


	axial	Angled
	Plunging	
DCX mm	$X_{max.}$ mm	$\alpha_{R\ max.}$ °
16	0,2	1,5°
20		1,4°
25	0,25	1,1°
32		0,9°
35		0,7°
40		0,65°
42		0,6°
50		0,5°
52		0,45°
63		0,4°
66		0,35°

Starting Parameter



XNEU 06



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**XNEU 06T318SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XNEU 06T318SR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XNEU 06T318SR-R50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XNEU 06T318ER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 49+50

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill – Tangent-09

Machining strategy

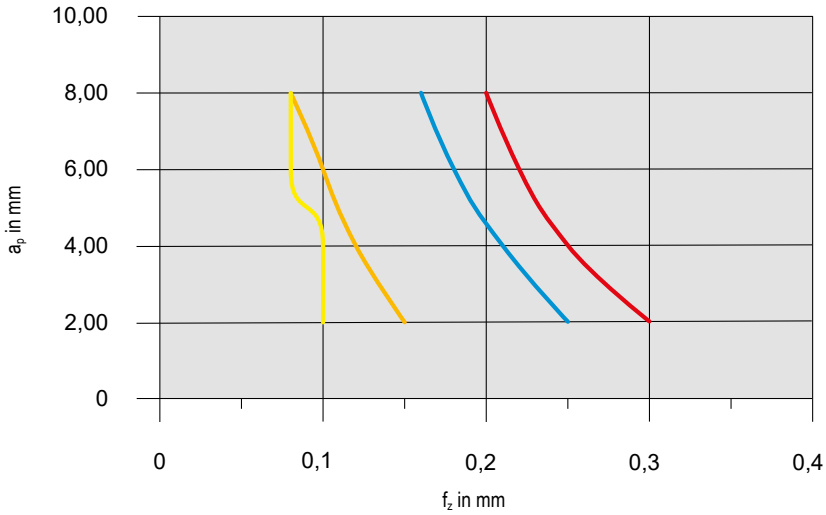
LNHU 09 – DC/a_e Ratio (Dry machining at $a_{p\ max.}$)

DC	ZNF	5 %	10 %	15 %	20 %	25 %	30 %	35 %	40 %	45 %	50 %	55 %	60 %	65 %	70 %	75 %	80 %	85 %	90 %	95 %	100 %
25	3	P																			
		M																			
		K																			
	4	P																			
		M																			
		K																			
32	4	P																			
		M																			
		K																			
	5	P																			
		M																			
		K																			
40	4	P																			
		M																			
		K																			
	6	P																			
		M																			
		K																			
50	5	P																			
		M																			
		K																			
	7	P																			
		M																			
		K																			
63	7	P																			
		M																			
		K																			
	10	P																			
		M																			
		K																			
80	8	P																			
		M																			
		K																			
	11	P																			
		M																			
		K																			

Starting Parameter



LNHU 09



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**LNHU 090404-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**LNHU 090404-M50**	**CTPM240**	120	Emulsion
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**LNHU 090404-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**LNHU 090404-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 49+50

From v_c > 400 m/min, the tool must be balanced!

System MaxiMill – Tangent-13

Machining strategy

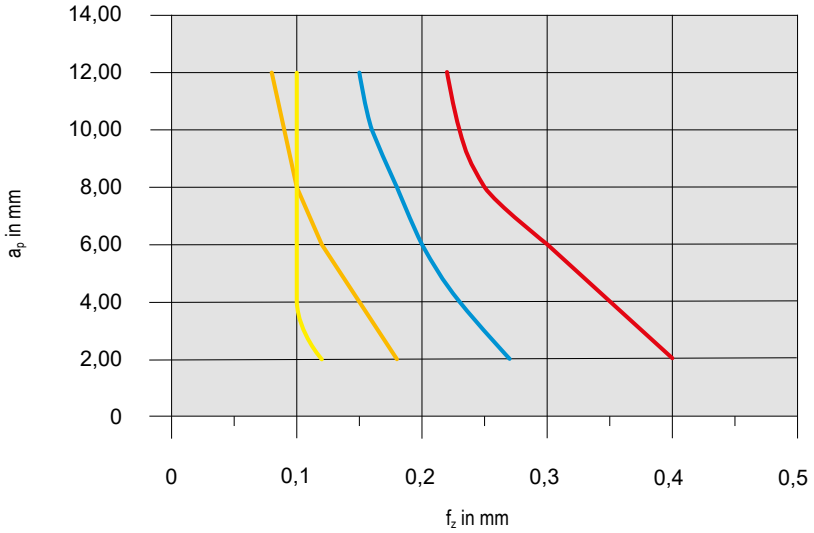
LNHU 13 – DC/a_e Ratio (Dry machining at $a_{p\ max.}$)

DC	ZNF	5 %	10 %	15 %	20 %	25 %	30 %	35 %	40 %	45 %	50 %	55 %	60 %	65 %	70 %	75 %	80 %	85 %	90 %	95 %	100 %
32	3	P																			
		M																			
		K																			
40	4	P																			
		M																			
		K																			
	5	P																			
		M																			
		K																			
50	5	P																			
		M																			
		K																			
	6	P																			
		M																			
		K																			
63	6	P																			
		M																			
		K																			
	8	P																			
		M																			
		K																			
80	7	P																			
		M																			
		K																			
	10	P																			
		M																			
		K																			
100	9	P																			
		M																			
		K																			
	13	P																			
		M																			
		K																			
125	11	P																			
		M																			
		K																			
	16	P																			
		M																			
		K																			

Starting Parameter



LNHU 13



Material			Inserts		v_c in m/min	Cooling
Steel	**P.2.2**	40CrMnMoS 8-6	**LNHU 130608-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**LNHU 130608-F50**	**CTPM240**	120	Emulsion
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**LNHU 130608-M50**	**CTCK215**	250	Dry
Heat-resistant	**S.2.2**	Inconel 718	**LNHU 130608-F50**	**CTC5240**	35	Emulsion

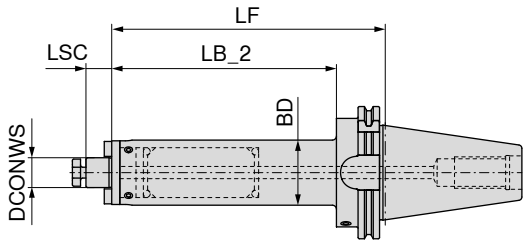
Detailed information on cutting speed for each grade can be found on → page 49+50

From v_c > 400 m/min, the tool must be balanced!

Actively vibration-damped shell mill adapter

- ▲ The specially mounted damping core enables perfect machining results even with longer tool overhangs
- ▲ Reduction in machining times due to optimum machining parameters
- ▲ Damped machining and therefore perfect surface qualities
- ▲ Protection of the machine spindle and increased tool service life
- ▲ Screwed drive dogs
- ▲ Also available with Balluff chip **on request**

Scope of supply:
Base body with retaining screw and drive dog





NEW



AD
G 2,5 n_{max} 25000

84 752 ...

Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	£ Y8/3K	
SK 40	16	180.9	200	39	17	6,587.15	**51679**
SK 40	22	180.9	200	48	19	7,915.19	**52279**
SK 50	16	180.9	200	39	17	6,652.81	**51678**
SK 50	22	180.9	200	48	19	8,863.12	**52278**
SK 50	27	180.9	200	58	21	8,897.67	**52778**


Screw for drivers


Driver


Cross screw


clamping screw

Spare parts DCONWS		83 950 ... £ Y8/3B			83 950 ... £ Y8/3B			83 367 ... £ Y8			83 950 ... £ Y8/3B	
16	M3x8	1.29	**296**	8x9x17,5	18.20	**120**	M8	7.10	**016**	M8x25	7.53	**113**
22	M4x12	1.69	**297**	10x11x20,5	18.79	**121**	M10	7.90	**022**	M10x25	8.50	**124**
27	M5x12	1.74	**136**	12x13x24,3	20.72	**122**	M12	10.10	**027**	M12x30	9.39	**125**

Accessories


→ 58, 60
Pull stud

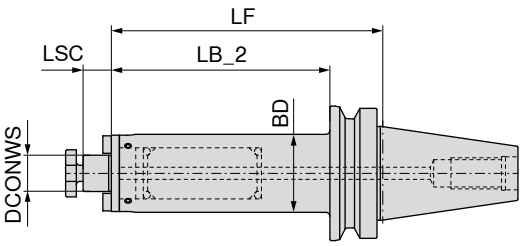

→ 284
Others

Accessories can be found in the clamping technology catalogue
→ **Chapter 16, Adapters and accessories**

Actively vibration-damped shell mill adapter

- ▲ The specially mounted damping core enables perfect machining results even with longer tool overhangs
- ▲ Reduction in machining times due to optimum machining parameters
- ▲ Damped machining and therefore perfect surface qualities
- ▲ Protection of the machine spindle and increased tool service life
- ▲ Screwed drive dogs
- ▲ Also available with Balluff chip **on request**

Scope of supply:
Base body with retaining screw and drive dog





NEW



AD
G 2,5 n_{max} 25000

84 752 ...

Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	£ Y8/3K	
BT 40	16	173.0	200	39	17	6,580.24	**51669**
BT 40	22	173.0	200	48	19	7,909.43	**52269**
BT 50	16	162.5	200	39	17	6,652.81	**51668**
BT 50	22	162.0	200	48	19	8,863.12	**52268**
BT 50	27	162.0	200	58	21	8,897.67	**52768**


Screw for drivers


Driver


Cross screw


clamping screw

Spare parts DCONWS		83 950 ... £ Y8/3B			83 950 ... £ Y8/3B			83 367 ... £ Y8			83 950 ... £ Y8/3B	
16	M3x8	1.29	**296**	8x9x17,5	18.20	**120**	M8	7.10	**016**	M8x25	7.53	**113**
22	M4x12	1.69	**297**	10x11x20,5	18.79	**121**	M10	7.90	**022**	M10x25	8.50	**124**
27	M5x12	1.74	**136**	12x13x24,3	20.72	**122**	M12	10.10	**027**	M12x30	9.39	**125**

Accessories


→ 110+111
Pull stud

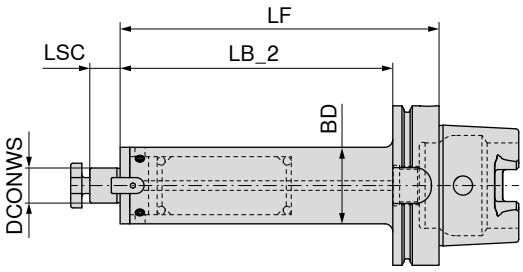

→ 284
Others

Accessories can be found in the clamping technology catalogue
→ **Chapter 16, Adapters and accessories**

Actively vibration-damped shell mill adapter

- ▲ The specially mounted damping core enables perfect machining results even with longer tool overhangs
- ▲ Reduction in machining times due to optimum machining parameters
- ▲ Damped machining and therefore perfect surface qualities
- ▲ Protection of the machine spindle and increased tool service life
- ▲ Screwed drive dogs
- ▲ Also available with Balluff chip **on request**

Scope of supply:
Base body with retaining screw and drive dog





NEW



AD
G 2,5 n_{max} 25000

Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	84 752 ... £ Y8/3K	
HSK-A 63	16	174	200	39	17	6,642.45	**51657**
HSK-A 63	22	174	200	48	19	7,975.07	**52257**
HSK-A 100	16	171	200	39	17	6,689.66	**51655**
HSK-A 100	22	171	200	48	19	8,897.67	**52255**
HSK-A 100	27	171	200	58	21	8,937.98	**52755**


Screw for drivers


Driver


Cross screw


clamping screw

Spare parts DCONWS	83 950 ... £ Y8/3B		83 950 ... £ Y8/3B		83 367 ... £ Y8		83 950 ... £ Y8/3B	
16	1.29	**296**	18.20	**120**	7.10	**016**	7.53	**113**
22	1.69	**297**	18.79	**121**	7.90	**022**	8.50	**124**
27	1.74	**136**	20.72	**122**	10.10	**027**	9.39	**125**

Accessories


→ 156
Pull stud


→ 284
Others

Accessories can be found in the clamping technology catalogue
→ **Chapter 16, Adapters and accessories**

Sustainability is not a goal, it’s a mission.

We have an ambitious sustainability mission that will affect and change the entire supply chain. But we can only achieve true sustainability together. That's why our mission goes beyond our own scope:

We want to enable our customers to produce more sustainably with our products and services. With our ambitious mission, we want to make an important contribution to tackling the climate crisis.



Mission #1:
Climate neutral by 2025

Mission #2:
Minimise the use of virgin raw materials

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Together for Sustainability

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CERATIZIT is a high-technology engineering group specialised in cutting tools and hard material solutions.

Tooling a Sustainable Future

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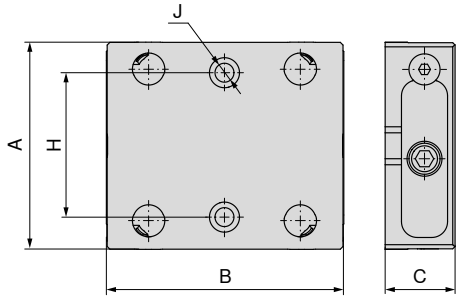
MNG mini – Base plate, rectangular, 52 x 52 mm

▲ Order mounting bolts separately

MNG mini | **52 x 52**





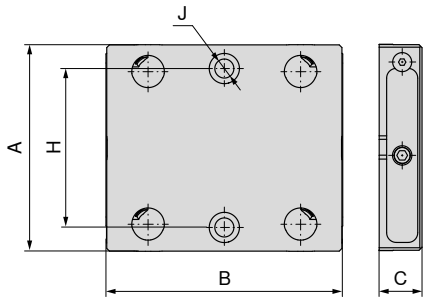
NEW

Size	A mm	B mm	C ±0,005 mm	H ±0,01 mm	J F7 mm	WT kg	80 915 ... £ Y4	
52 x 52	80	100	27	50	12	1.36	399.00	**75200**

MNG mini – Base plate, rectangular, 96 x 96 mm

▲ Order mounting bolts separately

MNG mini | **96 x 96**





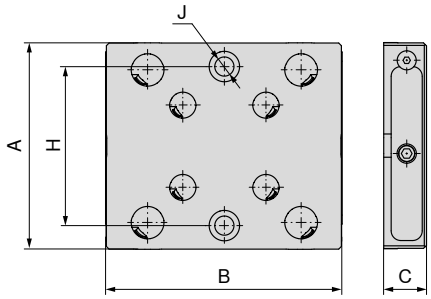
NEW

Size	A mm	B mm	C ±0,005 mm	H ±0,01 mm	J F7 mm	WT kg	80 915 ... £ Y4	
96 x 96	130	148	27	100	12	3.59	598.50	**79600**

MNG mini – combi-insert, 52 x 52 mm and 96 x 96 mm

▲ Order mounting bolts separately

MNG mini | **52 x 52** | **96 x 96**





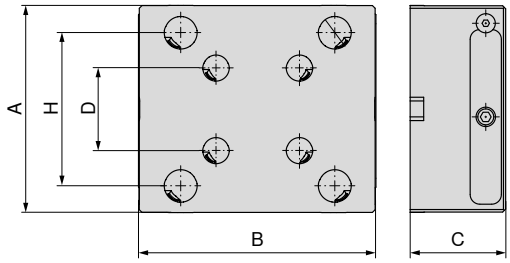
NEW

Size	A mm	B mm	C ±0,005 mm	H ±0,01 mm	J F7 mm	WT kg	80 915 ... £ Y4	
52 x 52 / 96 x 96	130	148	27	100	12	3.43	698.25	**75900**

MNG mini – combi-5-axis-increase, 52 x 52 mm and 96 x 96 mm

▲ Order mounting bolts separately

MNG mini | **52 x 52** | **96 x 96**

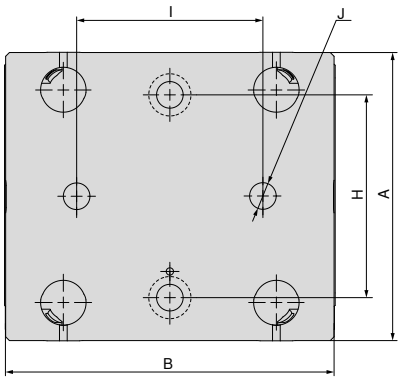




NEW

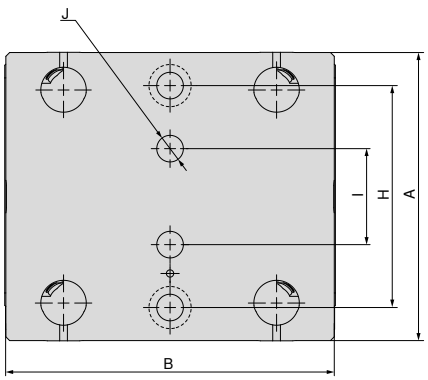
A mm	B mm	C mm	D mm	H mm	80 915 ... £ Y4	
130	148	60	52	96	1,092.00	**56000**
130	148	100	52	96	1,197.00	**51000**

MNG mini underside dimensions



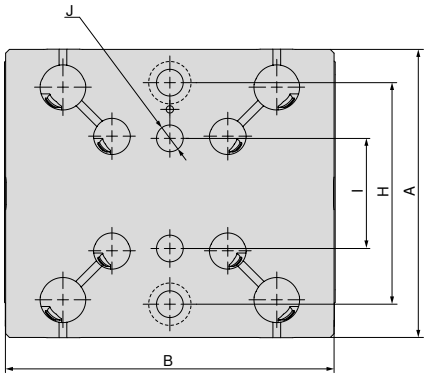
Base plate, rectangular, 52 x 52 mm

A mm	B mm	H mm	$I_{\pm 0,01}$ mm	J_{H7} mm
80	100	50	40	12



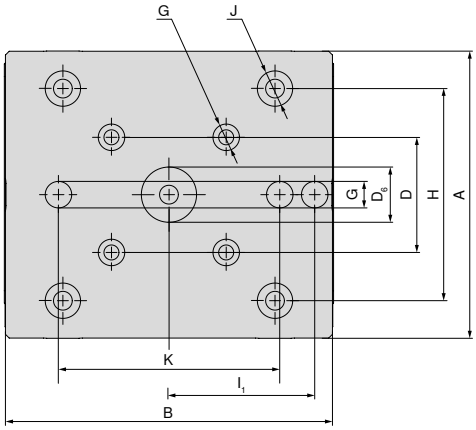
Base plate, rectangular, 96 x 96 mm

A mm	B mm	H mm	$I_{\pm 0,01}$ mm	J_{H7} mm
130	148	100	50	12



Combi-insert 1-sided, 52 x 52 mm and 96 x 96 mm

A mm	B mm	H mm	$I_{\pm 0,01}$ mm	J_{H7} mm
130	148	100	50	12



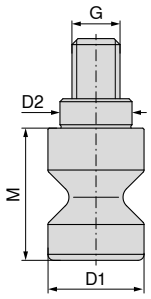
Combi-5-axis-increase, 52 x 52 mm and 96 x 96 mm

A mm	B mm	D mm	$D_{6\,H7}$ mm	G_{H7} mm	H mm	$I_{1\,\pm 0,01}$ mm	J_{H7} mm	K mm
130	148	52	25	12	96	66	16	100

MNG mini mounting bolt set

Scope of supply:
Set contains four mounting bolts

MNG mini | **96 x 96**





NEW

$D_{1\ h6}$ mm	$D_{2\ h6}$ mm	M mm	G mm	TQX Nm	Clamping force kN	for	80 915 ... £ Y4	
20	16	22	M10	18	15	96 x 96	42.00	**51100**

Expansion aid

MNG mini



NEW

D_1 mm	M mm	80 915 ... £ Y4	
15	40	47.25	**51300**

Clamping Screw Set for T-slot for MNG mini

Scope of supply:
Clamping screw and T-Nuts

MNG mini



NEW

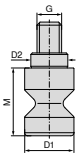
for slot width mm	G	80 915 ... £ Y4	
14	M12	30.45	**62400**
16	M12	30.45	**62600**
18	M12	30.45	**62800**

Mounting bolt set – LANG / HWR

Scope of supply:

Set contains four mounting bolts

MNG mini





NEW

TQX Nm	Clamping force kN	$D_{1\ h6}$ mm	$D_{2\ h6}$ mm	M mm	for	80 915 ... £ Y4	
18	15	15	12	22	52 x 52	37.80	**51500**
18	15	19	16	22	96 x 96	42.00	**51400**

Alignment/centering set for T-slots

▲ A = groove spacing

Scope of supply:

1 Terminal block, 2 T-nuts, 2 screws, 2 washers for width 12 mm, without clamping strip!

MNG mini



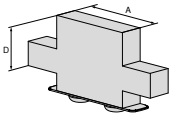
NEW

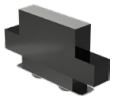
for slot width mm	A mm	G	80 915 ... £ Y4	
12	35	M10	95.24	**82200**
14	35	M10	95.24	**82400**
16	35	M10	95.24	**82600**
18	40	M10	95.24	**82800**

Workpiece supports overview – Verso

Workpiece supports, offset

▲ Price for 2 pieces

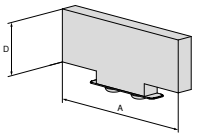


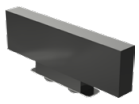


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X6G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		22							85.65	**80 914 70300**										●	

Workpiece supports, offset

▲ Price for 2 pieces



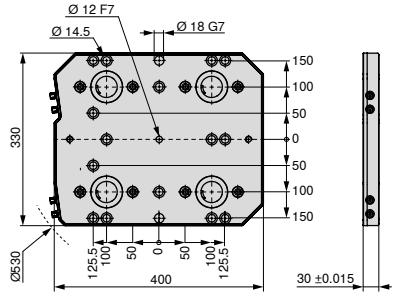


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	£	NEW Y4	NCG	H5G / -S / -Z	X6G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	90		22							85.65	**80 914 72500**										●	

MNG – base plate 4-sided with indexing, 330 x 400 mm

- ▲ MNG – Mechanical zero point clamping system
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force 20 kN on each clamping bolt
- ▲ 15 x M12 mounting holes for T-slot spacing 50, 63, 100, 125 mm
- ▲ 2 x locating holes Ø18 G7 for positioning
- ▲ 1 x locating hole Ø12 F7 for positioning

MNG





NEW

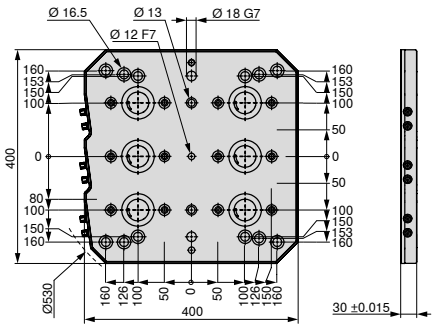
Size	WT kg	80 899 ... £ Y4	
330x400 mm	28	3,159.59	**64200**[1)]

1) Not ex-stock

MNG – base plate 6-sided with indexing, 400 x 400 mm

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force 20 kN on the clamping bolt
- ▲ 14 x mounting holes for M16, for T-slot spacing 63, 80, 100, 125 mm
- ▲ 2 x mounting holes for M12
- ▲ 2 x mating holes Ø18 G7 for positioning
- ▲ 1 x mating holes Ø12 F7 for positioning

MNG





NEW

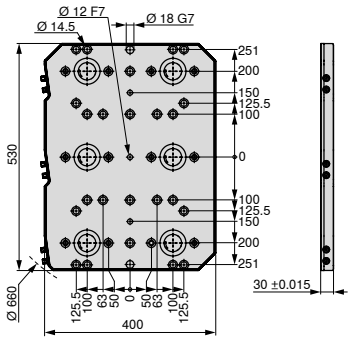
Size	WT kg	80 899 ... £ Y4	
400x400 mm	33	3,946.34	**64300**[1)]

1) Not ex-stock

MNG – base plate 6-sided with indexing, 400 x 530 mm

- ▲ MNG – Mechanical zero point clamping system
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force 20 kN on each clamping bolt
- ▲ 24 x M12 mounting holes for T-slot spacing 63, 100, 125 mm
- ▲ 2 x locating holes Ø18 G7 for positioning
- ▲ 1 x locating hole Ø12 F7 for positioning

MNG





NEW

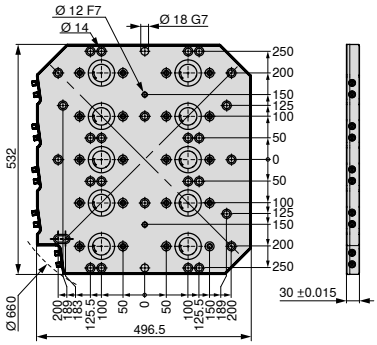
Size	WT kg	80 899 ... £ Y4	
400x530 mm	45	4,694.28	**64400**[1)]

1) Not ex-stock

MNG – base plate 10-sided with indexing, 496.5 x 532 mm

- ▲ MNG – Mechanical Zero-point Clamping System
- ▲ Stainless and vacuum-hardened
- ▲ Insertion force 20 kN on the clamping bolt
- ▲ 27 x mounting holes M12 for T-slot spacing 50, 63, 100, 125 mm and star slots 45°
- ▲ 2 x mating holes Ø18 G7 for positioning
- ▲ 1 x mating holes Ø12 F7 for positioning

MNG





NEW

Size	WT kg	80 899 ... £ Y4	
496,5x532 mm	54	6,667.44	**64500**[1)]

1) Not ex-stock

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CERATIZIT GROUP

02/2025 – 99 022 00265

NEW

NEW PRODUCTS FOR MACHINING



Powerful milling – with built in sustainability!

Significant increase in performance with the new S-Cut Series from CERATIZIT, made from 99% reprocessed raw materials

CERATIZIT is a high-technology engineering group specialised in cutting tools and hard material solutions.

Tooling a Sustainable Future

ceratizit.com

CERATIZIT GROUP



Noticeably increase productivity with reduced raw material usage from the new power cutters

A milling cutter which is extremely powerful, universally applicable and at the same time manufactured in a resource-efficient manner: sounds unlikely? With the S-Cut UNI and S-Cut UNImax from CERATIZIT, a tool series is now available that steps up to this challenge. It's all thanks to the latest geometry and coating technologies combined with sustainable carbide grade CT-GS20Y.

- ▲ **Universal** → suitable for a wide range of different materials
- ▲ **Sustainable** → made from 99% reprocessed carbide substrate with a specific Product Carbon Footprint (PCF)
- ▲ **Powerful** → new coating technology and geometry optimisation for unbeatable tool performance
- ▲ **Efficient** → suitable for a variety of machining processes

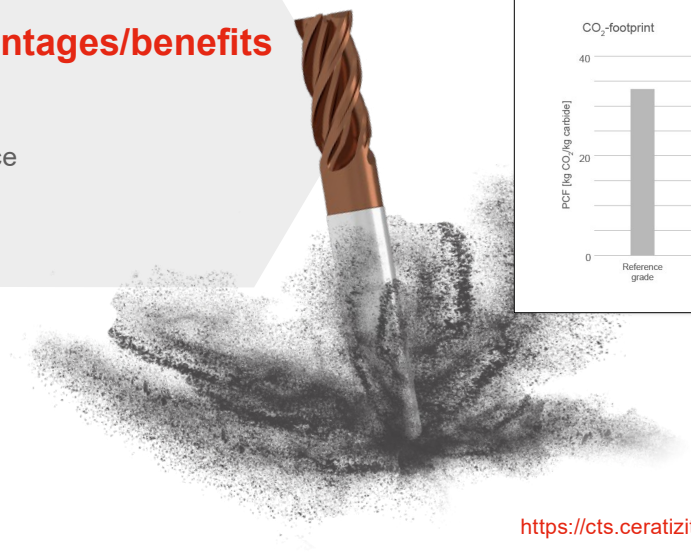
→ **From page 8**
You can find further information on the product here.

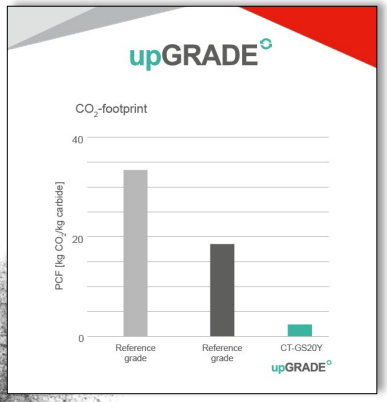
Sustainable carbide grade produced from 99% reprocessed raw materials

The new upGRADE grade CT-GS20Y is a 10% binder ultra-fine grain carbide with a set tungsten carbide grain size of 0.5 to 0.8 µm. This grade is the preferred choice for drilling and milling tools made of solid carbide and is therefore the ideal option when it comes to a wide range of applications. What's so special about CT-GS20Y? We use 99 % reprocessed cutting tools as a raw material. Compared to carbides from conventional production, this innovative material is manufactured in a production process that boasts a significantly lower carbon footprint. Not only that, when producing CT-GS20Y we are also very eco-conscious when it comes to energy use, resource efficiency and optimised logistics.

upGRADE carbide: Advantages/benefits

- Reduce your carbon footprint
- Outstanding product performance
- Greater reliability of supply

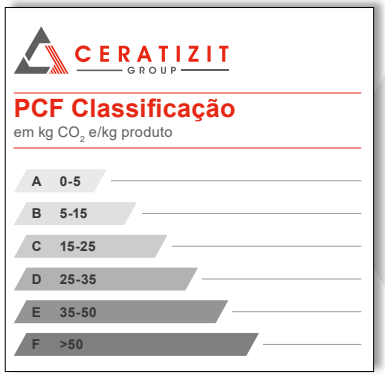




https://cts.ceratizit.com/gb/en/gs20y

Product Carbon Footprint (PCF) as a CO_2 emissions index

"Our goal is to establish a common market standard for calculating and classifying the carbon footprint of cutting tools. The Product Carbon Footprint classification. In this way, we can offer our customers the transparency they want in regard to carbon footprint."



PCF classification: Advantages/benefits

- Greater transparency regarding carbon footprint
- Classification provides clear-cut information at a glance
- Option of an additional PCF certificate to calculate your own carbon footprint

https://cts.ceratizit.com/gb/en/pcf

Large product portfolio for a wide range of applications in different materials

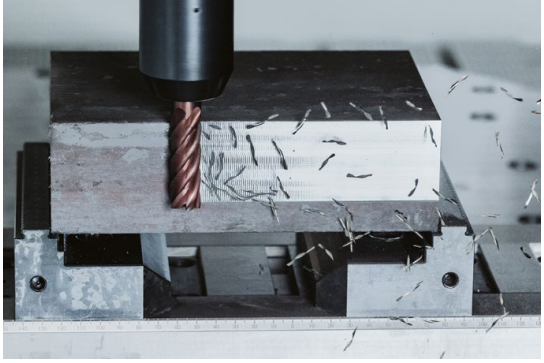
Machining a wide variety of materials means constantly adapting to new challenges. The solution takes the form of universal milling cutters that can cope with steels, stainless steels and cast materials in equal measure. Alongside the targeted process efficiency, the aspect of sustainability is increasingly growing in importance. These two objectives are reconciled in the S-Cut solid carbide milling cutter series utilizing upGRADE from CERATIZIT.

Advantages of the S-Cut summed up:

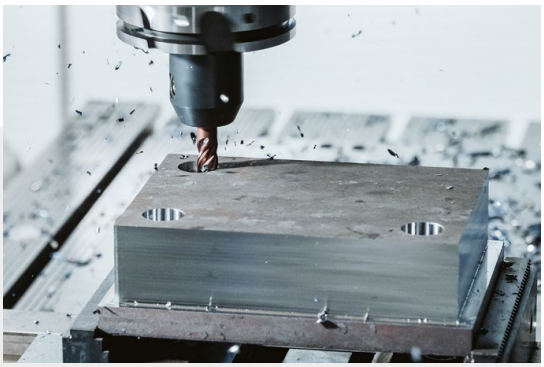
- ▲ Carbide CT-GS20Y with verifiably lowest product carbon footprint in its class
- ▲ Option of an additional PCF certificate to calculate your own carbon footprint
- ▲ Variable helix pitch for extremely quiet running and optimum chip removal
- ▲ HB shank for optimum power transmission (HA/HB shank on S-Cut UNImax)
- ▲ The S-Cut UNImax boasts a special cutting edge geometry, designed for high-volume cutting
- ▲ Reinforced tool core for even force distribution
- ▲ Radial clearance face for unbeatable cutting edge stability
- ▲ Face finishing chamfer for top surface quality
- ▲ Irregular pitch of cutting edges specifically suppresses vibrations
- ▲ Laser-applied Data Matrix Code (DMC) for unambiguous tool tracking



https://cts.ceratizit.com/gb/en/s-cut



Side profiling



Helical milling



End milling



Trochoidal milling



Ramping milling

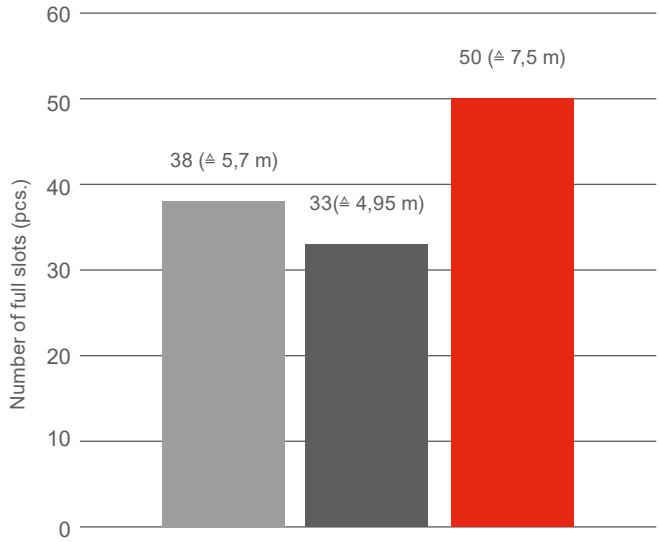


Full slot milling

Test report

Tool life with full slot milling (150 mm = 1 full slot) 1.2379

+ 30 %



Technical data

v_c	120 m/min
f_z	0.04 mm/Z
a_p	15 mm
a_e	10 mm
Milling form	Full slot 1.5xD
Cooling	Outside air

Comparable reference tool 1

Comparable reference tool 2

S-Cut UNI

S-Cut UNI milling cutter delivers up to **30% higher performance** compared to other universal tools.
The newly developed coating, which brings with it additional performance and tool life reserves, further contributes to this.

DMC code contains the complete value chain

Tool data, tracking and search

The S-Cut UNI and S-Cut UNImax bear a laser-applied Data Matrix Code (DMC), which can be used to call up the data of the “digital twin”. “This DMC contains all the information needed – once scanned, the tool can be correctly identified and its relevant technical data displayed. The customer can also see whether the tool is new or reconditioned, and how often it has already been sent to us for regrinding. And there is of course also a link to the online shop to make reordering quick and easy.”



CERAsmart
ToolCycle

The laser-applied Data Matrix Code (DMC) provides a wealth of information about the tool.

DMC code: Advantages/benefits

- ▲ Unambiguous tool identification
- ▲ Tool life cycle is fully traceable
- ▲ Direct link to the product in the online shop
- ▲ Basic information including cutting data, dimensions and recommended uses
- ▲ Regrinding cycles
- ▲ Tool status



Scan the QR code and simply download and install the app:

Download on the App Store

GET IT ON Google Play

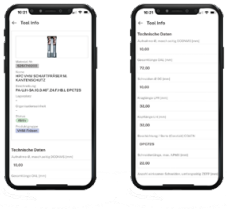
The CERAsmart ToolCycle function is available in our CERATIZIT app.
The CERATIZIT app can be downloaded free of charge from the Apple Store or Google Play Store.



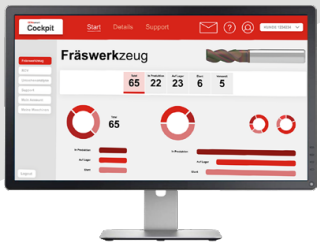
Tool with serial code



Scan the DMC code with our CERATIZIT app



App view



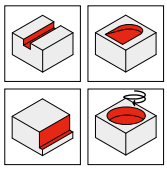
Screen view via

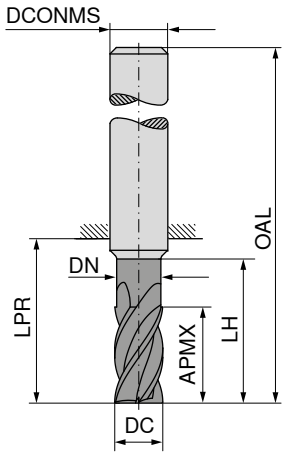
CERAsmart Cockpit

S-Cut – End milling cutter

The more sustainable high-performance milling cutter for universal machining

UNI | λ_s var. | λ_s=40° γ_s=10° | HPC





NEW

DPC72S

upGRADE

DRAGONSKIN





≈DIN 6527



52 515 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0	
3	8	2.8	15.0	21	57	6	4	78.80	**03200**
4	11	3.8	16.5	21	57	6	4	78.80	**04200**
5	13	4.8	18.5	21	57	6	4	78.80	**05200**
6	13	5.5	21.0	21	57	6	4	78.80	**06200**
8	19	7.5	27.0	27	63	8	4	105.80	**08200**
10	22	9.5	32.0	32	72	10	4	150.10	**10200**
12	26	11.5	38.0	38	83	12	4	208.90	**12200**
16	36	15.5	44.0	44	92	16	4	338.30	**16200**
20	38	19.5	54.0	54	104	20	4	520.50	**20200**

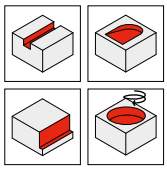
P	●
M	●
K	●
N	○
S	○
H	
O	

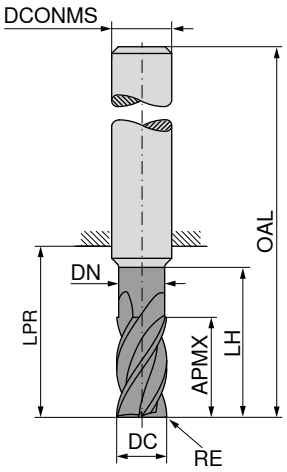
→ v_c/f_z Page 14+15

S-Cut – End milling cutter

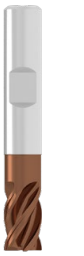
The more sustainable high-performance milling cutter for universal machining

UNI | λ_s var. | λ_s=40° γ_s=10° | HPC





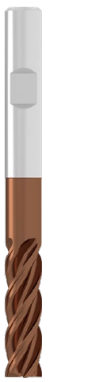
NEW DPC72S upGRADE DRAGONSKIN



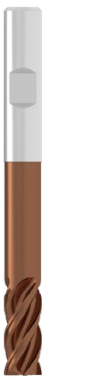
NEW DPC72S upGRADE DRAGONSKIN



NEW DPC72S upGRADE DRAGONSKIN



NEW DPC72S upGRADE DRAGONSKIN





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DC f8	RE	APMX	DN	LH	LPR	OAL	DCONMS h6	ZEFP	52 516 ... £ V0		52 517 ... £ V0		52 518 ... £ V0		52 519 ... £ V0	
mm	mm	mm	mm	mm	mm	mm	mm									
3	0.10	6	2.8	12.0	18	54	6	4	65.10	03100						
3	0.10	8	2.8	15.0	21	57	6	4			78.80	03200				
4	0.13	8	3.8	13.5	18	54	6	4	65.10	04100						
4	0.13	11	3.8	16.5	21	57	6	4			78.80	04200				
5	0.18	9	4.8	15.5	18	54	6	4	65.10	05100						
5	0.18	13	4.8	18.5	21	57	6	4			78.80	05200				
5	0.18	22	4.8	24.5	27	63	6	4					96.00	05300		
6	0.20	10	5.5	18.0	18	54	6	4	65.10	06100						
6	0.20	13	5.5	21.0	21	57	6	4			78.80	06200				
6	0.20	13	5.5	42.0	44	80	6	4							120.60	06400
6	0.20	22	5.5	27.0	27	63	6	4					96.00	06300		
8	0.20	12	7.5	22.0	22	58	8	4	88.40	08100						
8	0.20	19	7.5	27.0	27	63	8	4			105.80	08200				
8	0.20	21	7.5	62.0	64	100	8	4							142.70	08400
8	0.20	28	7.5	36.0	44	80	8	4					118.00	08300		
10	0.30	14	9.5	26.0	26	66	10	4	120.60	10100						
10	0.30	22	9.5	32.0	32	72	10	4			150.10	10200				
10	0.30	22	9.5	58.0	60	100	10	4							177.20	10400
10	0.30	33	9.5	54.0	60	100	10	4					152.50	10300		
12	0.30	16	11.5	28.0	28	73	12	4	179.50	12100						
12	0.30	26	11.5	38.0	38	83	12	4			208.90	12200				
12	0.30	26	11.5	73.0	75	120	12	4							220.80	12400
12	0.30	42	11.5	54.0	55	100	12	4					197.00	12300		
14	0.30	18	13.5	30.0	30	75	14	4	229.20	14100						
14	0.30	26	13.5	38.0	38	83	14	4			269.70	14200				
14	0.30	48	13.5	54.0	55	100	14	4					220.80	14300		
16	0.40	22	15.5	34.0	34	82	16	4	287.30	16100						
16	0.40	36	15.5	44.0	44	92	16	4			338.30	16200				
16	0.40	36	15.5	100.0	102	150	16	4							385.40	16400
16	0.40	53	15.5	84.0	102	150	16	4					362.00	16300		
20	0.50	26	19.5	42.0	42	92	20	4	447.80	20100						
20	0.50	38	19.5	54.0	54	104	20	4			520.50	20200				
20	0.50	38	19.5	100.0	100	150	20	4							546.40	20400
20	0.50	68	19.5	84.0	100	150	20	4					520.50	20300		

P	●	●	●	●
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S	○	○	○	○
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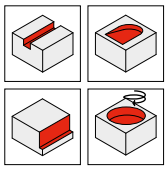
O				

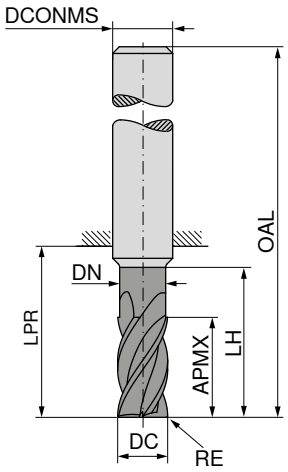
→ v_c/f_z Page 14–19

S-Cut – End milling cutter with corner radius

The more sustainable high-performance milling cutter for universal machining

UNI | λ_s var. | λ_s=40° γ_s=10° | HPC





NEW

DPC72S

upGRADE

DRAGONSKIN





≈DIN 6527



52 520 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0	
3	0.25	8	2.8	15.0	21	57	6	4	78.80	03203
3	0.50	8	2.8	15.0	21	57	6	4	78.80	03205
3	1.00	8	2.8	15.0	21	57	6	4	78.80	03210
4	0.25	11	3.8	16.5	21	57	6	4	78.80	04203
4	0.50	11	3.8	16.5	21	57	6	4	78.80	04205
4	1.00	11	3.8	16.5	21	57	6	4	78.80	04210
5	0.50	13	4.8	18.5	21	57	6	4	78.80	05205
5	1.00	13	4.8	18.5	21	57	6	4	78.80	05210
5	1.50	13	4.8	18.5	21	57	6	4	78.80	05215
6	0.50	13	5.5	21.0	21	57	6	4	78.80	06205
6	0.80	13	5.5	21.0	21	57	6	4	78.80	06208
6	1.00	13	5.5	21.0	21	57	6	4	78.80	06210
6	1.50	13	5.5	21.0	21	57	6	4	78.80	06215
6	2.00	13	5.5	21.0	21	57	6	4	78.80	06220
8	0.50	19	7.5	27.0	27	63	8	4	105.80	08205
8	0.80	19	7.5	27.0	27	63	8	4	105.80	08208
8	1.00	19	7.5	27.0	27	63	8	4	105.80	08210
8	1.50	19	7.5	27.0	27	63	8	4	105.80	08215
8	2.00	19	7.5	27.0	27	63	8	4	105.80	08220
10	0.50	22	9.5	32.0	32	72	10	4	150.10	10205
10	1.00	22	9.5	32.0	32	72	10	4	150.10	10210
10	1.50	22	9.5	32.0	32	72	10	4	150.10	10215
10	1.60	22	9.5	32.0	32	72	10	4	150.10	10216
10	2.00	22	9.5	32.0	32	72	10	4	150.10	10220
12	0.50	26	11.5	38.0	38	83	12	4	208.90	12205
12	1.00	26	11.5	38.0	38	83	12	4	208.90	12210
12	1.50	26	11.5	38.0	38	83	12	4	208.90	12215
12	1.60	26	11.5	38.0	38	83	12	4	208.90	12216
12	2.00	26	11.5	38.0	38	83	12	4	208.90	12220
12	3.00	26	11.5	38.0	38	83	12	4	208.90	12230
16	1.00	36	15.5	44.0	44	92	16	4	338.30	16210
16	1.50	36	15.5	44.0	44	92	16	4	338.30	16215
16	1.60	36	15.5	44.0	44	92	16	4	338.30	16216
16	2.00	36	15.5	44.0	44	92	16	4	338.30	16220
16	2.50	36	15.5	44.0	44	92	16	4	338.30	16225
16	3.00	36	15.5	44.0	44	92	16	4	338.30	16230
20	1.00	38	19.5	54.0	54	104	20	4	520.50	20210
20	1.50	38	19.5	54.0	54	104	20	4	520.50	20215
20	2.00	38	19.5	54.0	54	104	20	4	520.50	20220
20	2.50	38	19.5	54.0	54	104	20	4	520.50	20225
20	3.00	38	19.5	54.0	54	104	20	4	520.50	20230
20	4.00	38	19.5	54.0	54	104	20	4	520.50	20240

P	●
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S	○
H	
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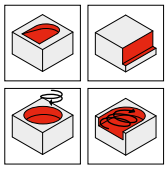
→ v_c/f_z Page 14+15

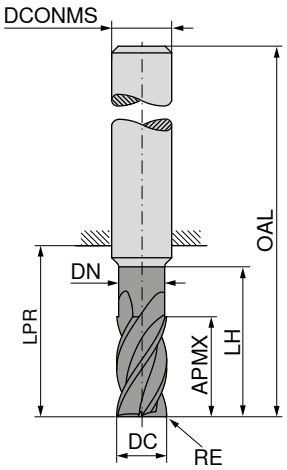
S-Cut – End milling cutter

The more sustainable high-performance milling cutter for universal machining

- ▲ suitable for trochoidal milling
- ▲ with chip breaker
- ▲ Cutting depth: 3 x DC

UNI | λ_s var. | λ_s=40° γ_s=10° | HPC





NEW

DPC72S

upGRADE

DRAGONSKIN





≈DIN 6527



52 521 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	£ V0	
6	0.12	18	5.5	25	26	62	6	5	117.00	**06200**
8	0.16	24	7.5	30	32	68	8	5	154.80	**08200**
10	0.20	30	9.5	35	40	80	10	5	197.00	**10200**
12	0.24	36	11.5	45	48	93	12	5	259.20	**12200**
14	0.28	42	13.5	52	56	100	14	5	344.60	**14200**
16	0.32	48	15.5	55	60	108	16	5	443.30	**16200**
18	0.36	54	17.5	67	72	120	18	5	595.70	**18200**
20	0.40	60	19.5	70	76	126	20	5	698.40	**20200**

P	●
M	●
K	●
N	○
S	○
H	
O	

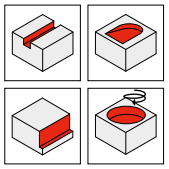
→ v_c/f_z Page 20+21

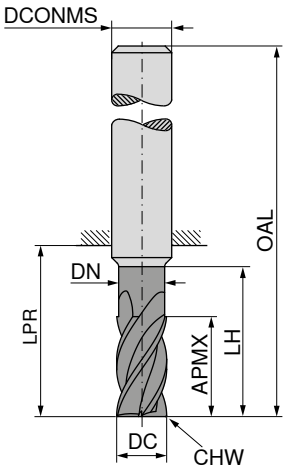
S-Cut – End milling cutter

The more sustainable high-performance milling cutter for universal machining

▲ Specially designed for high-volume machining

UNImax | λ_s var. | λ_s=17°-45° γ_s=15° | HPC





NEW DPC72S upGRADE DRAGONSKIN

NEW DPC72S upGRADE DRAGONSKIN









DIN 6527 | DIN 6527





DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 522 ... £ V0/5A		52 523 ... £ V0/5A	
3	8	2.8	13	21	57	6	0.1	4	59.44	03200	59.44	03200
4	11	3.8	17	21	57	6	0.1	4	59.44	04200	59.44	04200
5	13	4.8	19	21	57	6	0.1	4	59.44	05200	59.44	05200
6	13	5.8	19	21	57	6	0.1	4	59.44	06200	59.44	06200
8	21	7.7	25	27	63	8	0.2	4	80.13	08200	80.13	08200
10	22	9.7	30	32	72	10	0.2	4	117.28	10200	117.28	10200
12	26	11.6	36	38	83	12	0.3	4	149.88	12200	149.88	12200
14	26	13.6	36	38	83	14	0.3	4	207.13	14200	207.13	14200
16	36	15.5	42	44	92	16	0.3	4	338.12	16200	338.12	16200
18	36	17.5	42	44	92	18	0.3	4	443.54	18200	443.54	18200
20	41	19.5	52	54	104	20	0.3	4	461.06	20200	461.06	20200
P									●		●	
M									●		●	
K									●		●	
N									○		○	
S												
H												
O												

→ v_c/f_z Page 22+23

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB	1.0401	C15	1.1141	Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB	1.1191	C45E	1.0718	9SMnPb28
		P.1.3		Tempered	840 N/mm² / 250 HB	1.1191	C45E	1.0535	C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB	1.1223	C60R	1.0535	C55
		P.1.5		Tempered	1010 N/mm² / 300 HB	1.1223	C60R	1.0727	45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.2		Tempered	930 N/mm² / 275 HB	1.7131	16MnCr5	1.6587	17CrNiMo6
		P.2.3		Tempered	1010 N/mm² / 300 HB	1.7225	42CrMo4	1.3505	100Cr6
		P.2.4		Tempered	1200 N/mm² / 375 HB	1.7225	42CrMo4	1.3505	100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB	1.4021	X20Cr13	1.4034	X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB	1.2343	X38CrMoV5-1	1.4034	X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB	1.4016	X6Cr17	1.2316	X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB	1.4112	X90CrMoV18	1.2316	X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB	1.4301	X5CrNi18-10	1.4571	X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539	X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501	X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB	0.6010	GG-10	0.6025	GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB	0.6030	GG-30	0.6045	GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB	0.7040	GGG-40	0.7060	GGG-60
		K.2.2	Pearlitic		845 N/mm² / 250 HB	0.7070	GGG-70	0.7080	GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB	0.8035	GTW-35-04	0.8045	GTW-45
		K.3.2	Pearlitic		780 N/mm² / 230 HB	0.8165	GTS-65-02	0.8170	GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315	AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB	3.1355	AlCuMg2	3.2315	AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB	3.2581	G-AlSi12	3.2163	G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373	G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB		G-AlSi17Cu4Mg		G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410	CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB	2.0331	CuZn15	2.4070	CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB	2.0060	E-Cu57	2.0590	CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312	MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865	G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876	X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856	NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955	NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm² / 320 HB	2.4765	CoCr20W15Ni	1.3401	G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²	3.7025	Ti99,8	3.7034	Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB	3.7165	TiAl6V4	Ti-6246	Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410	Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC				
		H.1.2		Hardened and tempered	56–60 HRC				
		H.1.3		Hardened and tempered	61–65 HRC				
		H.1.4		Hardened and tempered	66–70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²				
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²				
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²				
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²				
		O.3.1	Graphite						

* Tensile strength

Cutting data standard values – S-Cut UNI – End mill

Index	Type short		Type long		52 515…, 52 516…, 52 517…, 52 520…															
					Ø DC (mm) =															
					3			4			5			6			8		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1	220	1,0	220	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
P.1.2	210	1,0	210	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
P.1.3	210	1,0	210	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
P.1.4	200	1,0	200	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
P.1.5	200	1,0	200	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
P.2.1	210	1,0	210	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
P.2.2	200	1,0	200	1,5	0,025	0,021	0,015	0,035	0,029	0,020	0,046	0,038	0,027	0,056	0,047	0,033	0,076	0,063	0,044
P.2.3	190	1,0	190	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
P.2.4	180	1,0	180	1,5	0,025	0,021	0,015	0,035	0,029	0,020	0,046	0,038	0,027	0,056	0,047	0,033	0,076	0,063	0,044
P.3.1	190	1,0	190	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
P.3.2	180	1,0	180	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
P.3.3	150	1,0	150	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
P.4.1	100	1,0	100	1,5	0,016	0,013	0,009	0,022	0,018	0,013	0,029	0,024	0,017	0,035	0,029	0,020	0,049	0,041	0,029
P.4.2	95	1,0	95	1,5	0,016	0,013	0,009	0,022	0,018	0,013	0,029	0,024	0,017	0,035	0,029	0,020	0,049	0,041	0,029
M.1.1	100	1,0	100	1,5	0,016	0,013	0,009	0,022	0,018	0,013	0,029	0,024	0,017	0,035	0,029	0,020	0,049	0,041	0,029
M.2.1	90	1,0	90	1,5	0,016	0,013	0,009	0,022	0,018	0,013	0,029	0,024	0,017	0,035	0,029	0,020	0,049	0,041	0,029
M.3.1	85	1,0	85	1,5	0,016	0,013	0,009	0,022	0,018	0,013	0,029	0,024	0,017	0,035	0,029	0,020	0,049	0,041	0,029
K.1.1	230	1,0	230	1,5	0,042	0,035	0,025	0,058	0,048	0,034	0,072	0,060	0,042	0,088	0,073	0,051	1,176	0,980	0,686
K.1.2	210	1,0	210	1,5	0,042	0,035	0,025	0,058	0,048	0,034	0,072	0,060	0,042	0,088	0,073	0,051	1,176	0,980	0,686
K.2.1	220	1,0	220	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
K.2.2	200	1,0	200	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
K.3.1	210	1,0	210	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
K.3.2	190	1,0	190	1,5	0,034	0,028	0,020	0,043	0,036	0,025	0,055	0,046	0,032	0,065	0,054	0,038	0,088	0,073	0,051
N.1.1																			
N.1.2																			
N.2.1	500	1,0	500	1,5	0,046	0,038	0,027	0,061	0,051	0,036	0,076	0,063	0,044	0,091	0,076	0,053	0,120	0,100	0,070
N.2.2	480	1,0	480	1,5	0,044	0,037	0,026	0,060	0,050	0,035	0,074	0,062	0,043	0,090	0,075	0,053	1,188	0,990	0,693
N.2.3	420	1,0	420	1,5	0,044	0,037	0,026	0,060	0,050	0,035	0,074	0,062	0,043	0,090	0,075	0,053	1,188	0,990	0,693
N.3.1	340	1,0	340	1,5	0,042	0,035	0,025	0,058	0,048	0,034	0,072	0,060	0,042	0,088	0,073	0,051	1,176	0,980	0,686
N.3.2	340	1,0	340	1,5	0,042	0,035	0,025	0,058	0,048	0,034	0,072	0,060	0,042	0,088	0,073	0,051	1,176	0,980	0,686
N.3.3	270	1,0	270	1,5	0,042	0,035	0,025	0,058	0,048	0,034	0,072	0,060	0,042	0,088	0,073	0,051	1,176	0,980	0,686
N.4.1																			
S.1.1	30	1,0	30	1,5	0,013	0,011	0,008	0,018	0,015	0,011	0,023	0,019	0,013	0,028	0,023	0,016	0,037	0,031	0,022
S.1.2	30	1,0	30	1,5	0,013	0,011	0,008	0,018	0,015	0,011	0,023	0,019	0,013	0,028	0,023	0,016	0,037	0,031	0,022
S.2.1	30	1,0	30	1,5	0,013	0,011	0,008	0,018	0,015	0,011	0,023	0,019	0,013	0,028	0,023	0,016	0,037	0,031	0,022
S.2.2	30	1,0	30	1,5	0,013	0,011	0,008	0,018	0,015	0,011	0,023	0,019	0,013	0,028	0,023	0,016	0,037	0,031	0,022
S.2.3	30	1,0	30	1,5	0,013	0,011	0,008	0,018	0,015	0,011	0,023	0,019	0,013	0,028	0,023	0,016	0,037	0,031	0,022
S.3.1	80	1,0	80	1,5	0,025	0,021	0,015	0,035	0,029	0,020	0,046	0,038	0,027	0,056	0,047	0,033	0,076	0,063	0,044
S.3.2	50	1,0	50	1,5	0,016	0,013	0,009	0,022	0,018	0,013	0,029	0,024	0,017	0,035	0,029	0,020	0,049	0,041	0,029
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

Plunging angle for ramping and helical milling:

Ø 3 =	2°	Ø 10 =	5°
Ø 4 =	2°	Ø 12 =	8°
Ø 5 =	2,5°	Ø 14 =	8°
Ø 6 =	3°	Ø 16 =	10°
Ø 8 =	4°	Ø 20 =	15°

Index	52 515..., 52 516..., 52 517..., 52 520...															● 1st choice ○ suitable		
	Ø DC (mm) =																	
	10			12			14			16			20					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MQL
	f_z (mm)																	
P.1.1	0,109	0,091	0,064	0,132	0,110	0,077	0,144	0,120	0,084	0,154	0,128	0,090	0,168	0,140	0,098	●	●	○
P.1.2	0,109	0,091	0,064	0,132	0,110	0,077	0,144	0,120	0,084	0,154	0,128	0,090	0,168	0,140	0,098	●	●	○
P.1.3	0,109	0,091	0,064	0,132	0,110	0,077	0,144	0,120	0,084	0,154	0,128	0,090	0,168	0,140	0,098	●	●	○
P.1.4	0,109	0,091	0,064	0,132	0,110	0,077	0,144	0,120	0,084	0,154	0,128	0,090	0,168	0,140	0,098	●	●	○
P.1.5	0,109	0,091	0,064	0,132	0,110	0,077	0,144	0,120	0,084	0,154	0,128	0,090	0,168	0,140	0,098	●	●	○
P.2.1	0,109	0,091	0,064	0,132	0,110	0,077	0,144	0,120	0,084	0,154	0,128	0,090	0,168	0,140	0,098	●	●	○
P.2.2	0,095	0,079	0,055	0,114	0,095	0,067	0,120	0,100	0,070	0,130	0,108	0,076	0,144	0,120	0,084	●	●	○
P.2.3	0,109	0,091	0,064	0,132	0,110	0,077	0,144	0,120	0,084	0,154	0,128	0,090	0,168	0,140	0,098	●	●	○
P.2.4	0,095	0,079	0,055	0,114	0,095	0,067	0,120	0,100	0,070	0,130	0,108	0,076	0,144	0,120	0,084	●	●	○
P.3.1	0,109	0,091	0,064	0,132	0,110	0,077	0,144	0,120	0,084	0,154	0,128	0,090	0,168	0,140	0,098	●	●	○
P.3.2	0,109	0,091	0,064	0,132	0,110	0,077	0,144	0,120	0,084	0,154	0,128	0,090	0,168	0,140	0,098	●	●	○
P.3.3	0,109	0,091	0,064	0,132	0,110	0,077	0,144	0,120	0,084	0,154	0,128	0,090	0,168	0,140	0,098	●	●	○
P.4.1	0,062	0,052	0,036	0,076	0,063	0,044	0,084	0,070	0,049	0,096	0,080	0,056	0,108	0,090	0,063	●	○	
P.4.2	0,062	0,052	0,036	0,076	0,063	0,044	0,084	0,070	0,049	0,096	0,080	0,056	0,108	0,090	0,063	●	○	
M.1.1	0,062	0,052	0,036	0,076	0,063	0,044	0,084	0,070	0,049	0,096	0,080	0,056	0,108	0,090	0,063	●	○	
M.2.1	0,062	0,052	0,036	0,076	0,063	0,044	0,084	0,070	0,049	0,096	0,080	0,056	0,108	0,090	0,063	●	○	
M.3.1	0,062	0,052	0,036	0,076	0,063	0,044	0,084	0,070	0,049	0,096	0,080	0,056	0,108	0,090	0,063	●	○	
K.1.1	0,148	0,123	0,086	0,180	0,150	0,105	0,204	0,170	0,119	0,216	0,180	0,126	0,240	0,200	0,140	●	●	●
K.1.2	0,148	0,123	0,086	0,180	0,150	0,105	0,204	0,170	0,119	0,216	0,180	0,126	0,240	0,200	0,140	●	●	●
K.2.1	0,108	0,090	0,063	0,132	0,110	0,077	0,156	0,130	0,091	0,168	0,140	0,098	0,192	0,160	0,112	●	●	●
K.2.2	0,108	0,090	0,063	0,132	0,110	0,077	0,156	0,130	0,091	0,168	0,140	0,098	0,192	0,160	0,112	●	●	●
K.3.1	0,108	0,090	0,063	0,132	0,110	0,077	0,156	0,130	0,091	0,168	0,140	0,098	0,192	0,160	0,112	●	●	●
K.3.2	0,108	0,090	0,063	0,132	0,110	0,077	0,156	0,130	0,091	0,168	0,140	0,098	0,192	0,160	0,112	●	●	●
N.1.1																		
N.1.2																		
N.2.1	0,162	0,135	0,095	0,186	0,155	0,109	0,216	0,180	0,126	0,228	0,190	0,133	0,240	0,200	0,140	●	●	
N.2.2	0,156	0,130	0,091	0,180	0,150	0,105	0,210	0,175	0,123	0,222	0,185	0,130	0,234	0,195	0,137	●	●	
N.2.3	0,156	0,130	0,091	0,180	0,150	0,105	0,210	0,175	0,123	0,222	0,185	0,130	0,234	0,195	0,137	●	●	
N.3.1	0,144	0,120	0,084	0,174	0,145	0,102	0,204	0,170	0,119	0,216	0,180	0,126	0,228	0,190	0,133	●	●	
N.3.2	0,144	0,120	0,084	0,174	0,145	0,102	0,204	0,170	0,119	0,216	0,180	0,126	0,228	0,190	0,133	●	●	
N.3.3	0,144	0,120	0,084	0,174	0,145	0,102	0,204	0,170	0,119	0,216	0,180	0,126	0,228	0,190	0,133	●	●	
N.4.1																		
S.1.1	0,047	0,039	0,027	0,056	0,047	0,033	0,066	0,055	0,039	0,071	0,059	0,041	0,079	0,066	0,046	●		
S.1.2	0,047	0,039	0,027	0,056	0,047	0,033	0,066	0,055	0,039	0,071	0,059	0,041	0,079	0,066	0,046	●		
S.2.1	0,047	0,039	0,027	0,056	0,047	0,033	0,066	0,055	0,039	0,071	0,059	0,041	0,079	0,066	0,046	●		
S.2.2	0,047	0,039	0,027	0,056	0,047	0,033	0,066	0,055	0,039	0,071	0,059	0,041	0,079	0,066	0,046	●		
S.2.3	0,047	0,039	0,027	0,056	0,047	0,033	0,066	0,055	0,039	0,071	0,059	0,041	0,079	0,066	0,046	●		
S.3.1	0,095	0,079	0,055	0,114	0,095	0,067	0,132	0,110	0,077	0,137	0,114	0,080	0,144	0,120	0,084	●		
S.3.2	0,062	0,052	0,036	0,076	0,063	0,044	0,089	0,074	0,052	0,094	0,078	0,055	0,106	0,088	0,062	●		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – S-Cut UNI – End mill

Index	Medium-length version		52 518 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1	210	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
P.1.2	200	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
P.1.3	200	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
P.1.4	190	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
P.1.5	190	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
P.2.1	200	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
P.2.2	190	1,5	0,022	0,018	0,013	0,031	0,026	0,018	0,042	0,035	0,025	0,053	0,044	0,031	0,072	0,060	0,042	
P.2.3	180	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
P.2.4	170	1,5	0,022	0,018	0,013	0,031	0,026	0,018	0,042	0,035	0,025	0,053	0,044	0,031	0,072	0,060	0,042	
P.3.1	180	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
P.3.2	170	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
P.3.3	140	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
P.4.1	95	1,5	0,012	0,010	0,007	0,018	0,015	0,011	0,025	0,021	0,015	0,031	0,026	0,018	0,046	0,038	0,027	
P.4.2	90	1,5	0,012	0,010	0,007	0,018	0,015	0,011	0,025	0,021	0,015	0,031	0,026	0,018	0,046	0,038	0,027	
M.1.1	95	1,5	0,012	0,010	0,007	0,018	0,015	0,011	0,025	0,021	0,015	0,031	0,026	0,018	0,046	0,038	0,027	
M.2.1	85	1,5	0,012	0,010	0,007	0,018	0,015	0,011	0,025	0,021	0,015	0,031	0,026	0,018	0,046	0,038	0,027	
M.3.1	80	1,5	0,012	0,010	0,007	0,018	0,015	0,011	0,025	0,021	0,015	0,031	0,026	0,018	0,046	0,038	0,027	
K.1.1	220	1,5	0,038	0,032	0,022	0,054	0,045	0,032	0,068	0,057	0,040	0,084	0,070	0,049	0,114	0,095	0,067	
K.1.2	200	1,5	0,038	0,032	0,022	0,054	0,045	0,032	0,068	0,057	0,040	0,084	0,070	0,049	0,114	0,095	0,067	
K.2.1	210	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
K.2.2	190	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
K.3.1	200	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
K.3.2	180	1,5	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	0,084	0,070	0,049	
N.1.1																		
N.1.2																		
N.2.1	480	1,5	0,042	0,035	0,025	0,058	0,048	0,034	0,072	0,060	0,042	0,088	0,073	0,051	0,116	0,097	0,068	
N.2.2	460	1,5	0,041	0,034	0,024	0,056	0,047	0,033	0,071	0,059	0,041	0,086	0,072	0,050	0,115	0,096	0,067	
N.2.3	400	1,5	0,041	0,034	0,024	0,056	0,047	0,033	0,071	0,059	0,041	0,086	0,072	0,050	0,115	0,096	0,067	
N.3.1	320	1,5	0,038	0,032	0,022	0,054	0,045	0,032	0,068	0,057	0,040	0,084	0,070	0,049	0,114	0,095	0,067	
N.3.2	320	1,5	0,038	0,032	0,022	0,054	0,045	0,032	0,068	0,057	0,040	0,084	0,070	0,049	0,114	0,095	0,067	
N.3.3	250	1,5	0,038	0,032	0,022	0,054	0,045	0,032	0,068	0,057	0,040	0,084	0,070	0,049	0,114	0,095	0,067	
N.4.1																		
S.1.1	25	1,5	0,011	0,009	0,006	0,016	0,013	0,009	0,020	0,017	0,012	0,025	0,021	0,015	0,035	0,029	0,020	
S.1.2	25	1,5	0,011	0,009	0,006	0,016	0,013	0,009	0,020	0,017	0,012	0,025	0,021	0,015	0,035	0,029	0,020	
S.2.1	25	1,5	0,011	0,009	0,006	0,016	0,013	0,009	0,020	0,017	0,012	0,025	0,021	0,015	0,035	0,029	0,020	
S.2.2	25	1,5	0,011	0,009	0,006	0,016	0,013	0,009	0,020	0,017	0,012	0,025	0,021	0,015	0,035	0,029	0,020	
S.2.3	25	1,5	0,011	0,009	0,006	0,016	0,013	0,009	0,020	0,017	0,012	0,025	0,021	0,015	0,035	0,029	0,020	
S.3.1	75	1,5	0,023	0,019	0,013	0,032	0,027	0,019	0,043	0,036	0,025	0,054	0,045	0,032	0,073	0,061	0,043	
S.3.2	45	1,5	0,013	0,011	0,008	0,019	0,016	0,011	0,026	0,022	0,015	0,032	0,027	0,019	0,047	0,039	0,027	
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling:

Ø 3 =	1°	Ø 10 =	4°
Ø 4 =	1°	Ø 12 =	6°
Ø 5 =	1,5°	Ø 14 =	6°
Ø 6 =	2°	Ø 16 =	8°
Ø 8 =	3°	Ø 20 =	10°

Index	52 518 ...																● 1st choice ○ suitable		
	Ø DC (mm) =																		
	10			12			14			16			20						
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MQL
	f_z (mm)																		
P.1.1	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	0,156	0,130	0,091	●	●	○
P.1.2	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	0,156	0,130	0,091	●	●	○
P.1.3	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	0,156	0,130	0,091	●	●	○
P.1.4	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	0,156	0,130	0,091	●	●	○
P.1.5	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	0,156	0,130	0,091	●	●	○
P.2.1	0,106	0,088	0,062	0,120	0,100	0,070	0,013	0,011	0,008	0,144	0,120	0,084	0,156	0,130	0,091	●	●	○
P.2.2	0,091	0,076	0,053	0,102	0,085	0,060	0,108	0,090	0,063	0,120	0,100	0,070	0,132	0,110	0,077	●	●	○
P.2.3	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	0,156	0,130	0,091	●	●	○
P.2.4	0,091	0,076	0,053	0,102	0,085	0,060	0,108	0,090	0,063	0,120	0,100	0,070	0,132	0,110	0,077	●	●	○
P.3.1	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	0,156	0,130	0,091	●	●	○
P.3.2	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	0,156	0,130	0,091	●	●	○
P.3.3	0,106	0,088	0,062	0,012	0,010	0,007	0,013	0,011	0,008	0,144	0,120	0,084	0,156	0,130	0,091	●	●	○
P.4.1	0,059	0,049	0,034	0,066	0,055	0,039	0,072	0,060	0,042	0,084	0,070	0,049	0,096	0,080	0,056	●	○	
P.4.2	0,059	0,049	0,034	0,066	0,055	0,039	0,072	0,060	0,042	0,084	0,070	0,049	0,096	0,080	0,056	●	○	
M.1.1	0,059	0,049	0,034	0,066	0,055	0,039	0,072	0,060	0,042	0,084	0,070	0,049	0,096	0,080	0,056	●	○	
M.2.1	0,059	0,049	0,034	0,066	0,055	0,039	0,072	0,060	0,042	0,084	0,070	0,049	0,096	0,080	0,056	●	○	
M.3.1	0,059	0,049	0,034	0,066	0,055	0,039	0,072	0,060	0,042	0,084	0,070	0,049	0,096	0,080	0,056	●	○	
K.1.1	0,144	0,120	0,084	0,168	0,140	0,098	0,192	0,160	0,112	0,204	0,170	0,119	0,228	0,190	0,133	●	●	●
K.1.2	0,144	0,120	0,084	0,168	0,140	0,098	0,192	0,160	0,112	0,204	0,170	0,119	0,228	0,190	0,133	●	●	●
K.2.1	0,104	0,087	0,061	0,120	0,100	0,070	0,144	0,120	0,084	0,156	0,130	0,091	0,180	0,150	0,105	●	●	●
K.2.2	0,104	0,087	0,061	0,120	0,100	0,070	0,144	0,120	0,084	0,156	0,130	0,091	0,180	0,150	0,105	●	●	●
K.3.1	0,104	0,087	0,061	0,120	0,100	0,070	0,144	0,120	0,084	0,156	0,130	0,091	0,180	0,150	0,105	●	●	●
K.3.2	0,104	0,087	0,061	0,120	0,100	0,070	0,144	0,120	0,084	0,156	0,130	0,091	0,180	0,150	0,105	●	●	●
N.1.1																		
N.1.2																		
N.2.1	0,158	0,132	0,092	0,174	0,145	0,102	0,204	0,170	0,119	0,216	0,180	0,126	0,228	0,190	0,133	●	●	
N.2.2	0,152	0,127	0,089	0,168	0,140	0,098	0,198	0,165	0,116	0,210	0,175	0,123	0,222	0,185	0,130	●	●	
N.2.3	0,152	0,127	0,089	0,017	0,014	0,010	0,198	0,165	0,116	0,210	0,175	0,123	0,222	0,185	0,130	●	●	
N.3.1	0,140	0,117	0,082	0,162	0,135	0,095	0,192	0,160	0,112	0,204	0,170	0,119	0,216	0,180	0,126	●	●	
N.3.2	0,140	0,117	0,082	0,162	0,135	0,095	0,192	0,160	0,112	0,204	0,170	0,119	0,216	0,180	0,126	●	●	
N.3.3	0,140	0,117	0,082	0,162	0,135	0,095	0,192	0,160	0,112	0,204	0,170	0,119	0,216	0,180	0,126	●	●	
N.4.1																		
S.1.1	0,044	0,037	0,026	0,054	0,045	0,032	0,064	0,053	0,037	0,068	0,057	0,040	0,077	0,064	0,045	●		
S.1.2	0,044	0,037	0,026	0,054	0,045	0,032	0,064	0,053	0,037	0,068	0,057	0,040	0,077	0,064	0,045	●		
S.2.1	0,044	0,037	0,026	0,054	0,045	0,032	0,064	0,053	0,037	0,068	0,057	0,040	0,077	0,064	0,045	●		
S.2.2	0,044	0,037	0,026	0,054	0,045	0,032	0,064	0,053	0,037	0,068	0,057	0,040	0,077	0,064	0,045	●		
S.2.3	0,044	0,037	0,026	0,054	0,045	0,032	0,064	0,053	0,037	0,068	0,057	0,040	0,077	0,064	0,045	●		
S.3.1	0,092	0,077	0,054	0,110	0,092	0,064	0,120	0,100	0,070	0,134	0,112	0,078	0,142	0,118	0,083	●		
S.3.2	0,060	0,050	0,035	0,072	0,060	0,042	0,086	0,072	0,050	0,091	0,076	0,053	0,103	0,086	0,060	●		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – S-Cut UNI – End mill

Index	Type extra long		52 519 ...															
			Ø DC (mm) =															
			3			4			5			6			8			
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1	150	1,0	0,022	0,018	0,013	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
P.1.2	130	1,0	0,022	0,018	0,013	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
P.1.3	125	1,0	0,022	0,018	0,013	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
P.1.4	125	1,0	0,022	0,018	0,013	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
P.1.5	120	1,0	0,022	0,018	0,013	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
P.2.1	130	1,0	0,022	0,018	0,013	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
P.2.2	125	1,0	0,014	0,012	0,008	0,022	0,018	0,013	0,031	0,026	0,018	0,042	0,035	0,025	0,053	0,044	0,031	
P.2.3	115	1,0	0,022	0,018	0,013	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
P.2.4	110	1,0	0,014	0,012	0,008	0,022	0,018	0,013	0,031	0,026	0,018	0,042	0,035	0,025	0,053	0,044	0,031	
P.3.1	130	1,0	0,022	0,018	0,013	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
P.3.2	80	1,0	0,022	0,018	0,013	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
P.3.3	85	1,0	0,022	0,018	0,013	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
P.4.1	90	1,0	0,012	0,010	0,007	0,017	0,014	0,010	0,023	0,019	0,013	0,029	0,024	0,017	0,037	0,031	0,022	
P.4.2	85	1,0	0,012	0,010	0,007	0,017	0,014	0,010	0,023	0,019	0,013	0,029	0,024	0,017	0,037	0,031	0,022	
M.1.1	80	1,0	0,012	0,010	0,007	0,017	0,014	0,010	0,023	0,019	0,013	0,029	0,024	0,017	0,037	0,031	0,022	
M.2.1	75	1,0	0,012	0,010	0,007	0,017	0,014	0,010	0,023	0,019	0,013	0,029	0,024	0,017	0,037	0,031	0,022	
M.3.1	70	1,0	0,012	0,010	0,007	0,017	0,014	0,010	0,023	0,019	0,013	0,029	0,024	0,017	0,037	0,031	0,022	
K.1.1	140	1,0	0,032	0,027	0,019	0,038	0,032	0,022	0,054	0,045	0,032	0,068	0,057	0,040	0,084	0,070	0,049	
K.1.2	130	1,0	0,032	0,027	0,019	0,038	0,032	0,022	0,054	0,045	0,032	0,068	0,057	0,040	0,084	0,070	0,049	
K.2.1	140	1,0	0,025	0,021	0,015	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
K.2.2	130	1,0	0,025	0,021	0,015	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
K.3.1	135	1,0	0,025	0,021	0,015	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
K.3.2	125	1,0	0,025	0,021	0,015	0,030	0,025	0,018	0,040	0,033	0,023	0,052	0,043	0,030	0,061	0,051	0,036	
N.1.1																		
N.1.2																		
N.2.1	350	1,0	0,035	0,029	0,020	0,042	0,035	0,025	0,058	0,048	0,034	0,072	0,060	0,042	0,088	0,073	0,051	
N.2.2	340	1,0	0,034	0,028	0,020	0,041	0,034	0,024	0,056	0,047	0,033	0,071	0,059	0,041	0,086	0,072	0,050	
N.2.3	300	1,0	0,034	0,028	0,020	0,041	0,034	0,024	0,056	0,047	0,033	0,071	0,059	0,041	0,086	0,072	0,050	
N.3.1	230	1,0	0,031	0,026	0,018	0,038	0,032	0,022	0,054	0,045	0,032	0,068	0,057	0,040	0,084	0,070	0,049	
N.3.2	240	1,0	0,031	0,026	0,018	0,038	0,032	0,022	0,054	0,045	0,032	0,068	0,057	0,040	0,084	0,070	0,049	
N.3.3	190	1,0	0,031	0,026	0,018	0,038	0,032	0,022	0,054	0,045	0,032	0,068	0,057	0,040	0,084	0,070	0,049	
N.4.1																		
S.1.1	25	1,0	0,008	0,007	0,005	0,011	0,009	0,006	0,016	0,013	0,009	0,020	0,017	0,012	0,025	0,021	0,015	
S.1.2	25	1,0	0,008	0,007	0,005	0,011	0,009	0,006	0,016	0,013	0,009	0,020	0,017	0,012	0,025	0,021	0,015	
S.2.1	25	1,0	0,008	0,007	0,005	0,011	0,009	0,006	0,016	0,013	0,009	0,020	0,017	0,012	0,025	0,021	0,015	
S.2.2	25	1,0	0,008	0,007	0,005	0,011	0,009	0,006	0,016	0,013	0,009	0,020	0,017	0,012	0,025	0,021	0,015	
S.2.3	25	1,0	0,008	0,007	0,005	0,011	0,009	0,006	0,016	0,013	0,009	0,020	0,017	0,012	0,025	0,021	0,015	
S.3.1	75	1,0	0,002	0,002	0,001	0,023	0,019	0,013	0,032	0,027	0,019	0,043	0,036	0,025	0,054	0,045	0,032	
S.3.2	45	1,0	0,011	0,009	0,006	0,013	0,011	0,008	0,019	0,016	0,011	0,026	0,022	0,015	0,032	0,027	0,019	
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling:

Ø 3 =	1°	Ø 10 =	4°
Ø 4 =	1°	Ø 12 =	6°
Ø 5 =	1,5°	Ø 14 =	6°
Ø 6 =	2°	Ø 16 =	8°
Ø 8 =	3°	Ø 20 =	10°

Index	52 519 ...																● 1st choice ○ suitable		
	Ø DC (mm) =																		
	10			12			14			16			20						
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MQL
	f_z (mm)																		
P.1.1	0,084	0,070	0,049	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	●	●	○
P.1.2	0,084	0,070	0,049	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	●	●	○
P.1.3	0,084	0,070	0,049	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	●	●	○
P.1.4	0,084	0,070	0,049	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	●	●	○
P.1.5	0,084	0,070	0,049	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	●	●	○
P.2.1	0,084	0,070	0,049	0,106	0,088	0,062	0,120	0,100	0,070	0,013	0,011	0,008	0,144	0,120	0,084	●	●	○
P.2.2	0,072	0,060	0,042	0,091	0,076	0,053	0,102	0,085	0,060	0,108	0,090	0,063	0,120	0,100	0,070	●	●	○
P.2.3	0,084	0,070	0,049	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	●	●	○
P.2.4	0,072	0,060	0,042	0,091	0,076	0,053	0,102	0,085	0,060	0,108	0,090	0,063	0,120	0,100	0,070	●	●	○
P.3.1	0,084	0,070	0,049	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	●	●	○
P.3.2	0,084	0,070	0,049	0,106	0,088	0,062	0,120	0,100	0,070	0,132	0,110	0,077	0,144	0,120	0,084	●	●	○
P.3.3	0,084	0,070	0,049	0,106	0,088	0,062	0,012	0,010	0,007	0,013	0,011	0,008	0,144	0,120	0,084	●	●	○
P.4.1	0,048	0,040	0,028	0,062	0,052	0,036	0,072	0,060	0,042	0,086	0,072	0,050	0,100	0,083	0,058	●	○	
P.4.2	0,048	0,040	0,028	0,062	0,052	0,036	0,072	0,060	0,042	0,086	0,072	0,050	0,100	0,083	0,058	●	○	
M.1.1	0,048	0,040	0,028	0,062	0,052	0,036	0,072	0,060	0,042	0,086	0,072	0,050	0,100	0,083	0,058	●	○	
M.2.1	0,048	0,040	0,028	0,062	0,052	0,036	0,072	0,060	0,042	0,086	0,072	0,050	0,100	0,083	0,058	●	○	
M.3.1	0,048	0,040	0,028	0,062	0,052	0,036	0,072	0,060	0,042	0,086	0,072	0,050	0,100	0,083	0,058	●	○	
K.1.1	0,114	0,095	0,067	0,144	0,120	0,084	0,168	0,140	0,098	0,192	0,160	0,112	0,204	0,170	0,119	●	●	●
K.1.2	0,114	0,095	0,067	0,144	0,120	0,084	0,168	0,140	0,098	0,192	0,160	0,112	0,204	0,170	0,119	●	●	●
K.2.1	0,084	0,070	0,049	0,104	0,087	0,061	0,120	0,100	0,070	0,144	0,120	0,084	0,156	0,130	0,091	●	●	●
K.2.2	0,084	0,070	0,049	0,104	0,087	0,061	0,120	0,100	0,070	0,144	0,120	0,084	0,156	0,130	0,091	●	●	●
K.3.1	0,084	0,070	0,049	0,104	0,087	0,061	0,120	0,100	0,070	0,144	0,120	0,084	0,156	0,130	0,091	●	●	●
K.3.2	0,084	0,070	0,049	0,104	0,087	0,061	0,120	0,100	0,070	0,144	0,120	0,084	0,156	0,130	0,091	●	●	●
N.1.1																		
N.1.2																		
N.2.1	0,116	0,097	0,068	0,158	0,132	0,092	0,174	0,145	0,102	0,204	0,170	0,119	0,216	0,180	0,126	●	●	
N.2.2	0,115	0,096	0,067	0,152	0,127	0,089	0,168	0,140	0,098	0,198	0,165	0,116	0,210	0,175	0,123	●	●	
N.2.3	0,115	0,096	0,067	0,152	0,127	0,089	0,017	0,014	0,010	0,198	0,165	0,116	0,210	0,175	0,123	●	●	
N.3.1	0,114	0,095	0,067	0,140	0,117	0,082	0,162	0,135	0,095	0,192	0,160	0,112	0,204	0,170	0,119	●	●	
N.3.2	0,114	0,095	0,067	0,140	0,117	0,082	0,162	0,135	0,095	0,192	0,160	0,112	0,204	0,170	0,119	●	●	
N.3.3	0,114	0,095	0,067	0,140	0,117	0,082	0,162	0,135	0,095	0,192	0,160	0,112	0,204	0,170	0,119	●	●	
N.4.1																		
S.1.1	0,035	0,029	0,020	0,044	0,037	0,026	0,054	0,045	0,032	0,064	0,053	0,037	0,068	0,057	0,040	●		
S.1.2	0,035	0,029	0,020	0,044	0,037	0,026	0,054	0,045	0,032	0,064	0,053	0,037	0,068	0,057	0,040	●		
S.2.1	0,035	0,029	0,020	0,044	0,037	0,026	0,054	0,045	0,032	0,064	0,053	0,037	0,068	0,057	0,040	●		
S.2.2	0,035	0,029	0,020	0,044	0,037	0,026	0,054	0,045	0,032	0,064	0,053	0,037	0,068	0,057	0,040	●		
S.2.3	0,035	0,029	0,020	0,044	0,037	0,026	0,054	0,045	0,032	0,064	0,053	0,037	0,068	0,057	0,040	●		
S.3.1	0,073	0,061	0,043	0,092	0,077	0,054	0,110	0,092	0,064	0,120	0,100	0,070	0,134	0,112	0,078	●		
S.3.2	0,047	0,039	0,027	0,060	0,050	0,035	0,072	0,060	0,042	0,086	0,072	0,050	0,091	0,076	0,053	●		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – S-Cut UNI – End mill – trochoidal milling

Index	Type long		52 521 ...															
			Ø DC (mm) =															
			6				8				10				12			
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1	300	45°	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041	0,19	0,15	0,11	0,047
P.1.2	300	45°	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041
P.1.3	290	45°	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041
P.1.4	280	45°	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041
P.1.5	250	45°	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041
P.2.1	280	45°	1,13	0,90	0,68	0,285	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041	0,19	0,15	0,11	0,047
P.2.2	270	45°	1,13	0,90	0,68	0,285	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041	0,19	0,15	0,11	0,047
P.2.3	240	45°	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041
P.2.4	210	45°	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041
P.3.1	230	45°	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041
P.3.2	210	40°	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041
P.3.3	190	40°	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041
P.4.1	180	40°	0,08	0,06	0,05	0,019	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,13	0,10	0,08	0,032
P.4.2	170	40°	0,08	0,06	0,05	0,019	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,13	0,10	0,08	0,032
M.1.1	160	40°	0,08	0,06	0,05	0,019	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,13	0,10	0,08	0,032
M.2.1	160	40°	0,08	0,06	0,05	0,019	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,13	0,10	0,08	0,032
M.3.1	150	40°	0,08	0,06	0,05	0,019	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,13	0,10	0,08	0,032
K.1.1	300	50°	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041	0,19	0,15	0,11	0,047
K.1.2	300	50°	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041	0,19	0,15	0,11	0,047
K.2.1	300	50°	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041	0,19	0,15	0,11	0,047
K.2.2	270	50°	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041
K.3.1	260	50°	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041
K.3.2	200	50°	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041
N.1.1																		
N.1.2																		
N.2.1	420	55°	0,13	0,10	0,08	0,032	0,14	0,11	0,08	0,035	0,15	0,12	0,09	0,038	0,18	0,14	0,11	0,044
N.2.2	320	55°	0,13	0,10	0,08	0,032	0,14	0,11	0,08	0,035	0,15	0,12	0,09	0,038	0,18	0,14	0,11	0,044
N.2.3	250	55°	0,11	0,09	0,07	0,028	0,13	0,10	0,08	0,032	0,14	0,11	0,08	0,035	0,16	0,13	0,10	0,041
N.3.1	300	50°	0,10	0,08	0,06	0,025	0,11	0,09	0,07	0,028	0,13	0,10	0,08	0,032	0,15	0,12	0,09	0,038
N.3.2	190	50°	0,10	0,08	0,06	0,025	0,11	0,09	0,07	0,028	0,13	0,10	0,08	0,032	0,15	0,12	0,09	0,038
N.3.3	270	50°	0,09	0,07	0,05	0,022	0,10	0,08	0,06	0,025	0,11	0,09	0,07	0,028	0,14	0,11	0,08	0,035
N.4.1																		
S.1.1	90	35°	0,04	0,03	0,02	0,009	0,05	0,04	0,03	0,013	0,06	0,05	0,04	0,016	0,08	0,06	0,05	0,019
S.1.2	90	35°	0,04	0,03	0,02	0,009	0,05	0,04	0,03	0,013	0,06	0,05	0,04	0,016	0,08	0,06	0,05	0,019
S.2.1	70	35°	0,04	0,03	0,02	0,009	0,05	0,04	0,03	0,013	0,06	0,05	0,04	0,016	0,08	0,06	0,05	0,019
S.2.2	70	35°	0,04	0,03	0,02	0,009	0,05	0,04	0,03	0,013	0,06	0,05	0,04	0,016	0,08	0,06	0,05	0,019
S.2.3																		
S.3.1	135	35°	0,04	0,04	0,03	0,011	0,08	0,06	0,05	0,019	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028
S.3.2	105	35°	0,05	0,04	0,03	0,013	0,08	0,06	0,05	0,019	0,09	0,07	0,05	0,022	0,11	0,09	0,07	0,028
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting depth corresponding to the cutting length

Index	52 521 ... Ø DC (mm) = 14				16				18				20				● 1st choice ○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MQL
	f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)						
P.1.1	0,21	0,17	0,13	0,054	0,23	0,18	0,14	0,057	0,24	0,19	0,14	0,060	0,25	0,20	0,15	0,063	○	●	○
P.1.2	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,21	0,17	0,13	0,054	0,24	0,19	0,14	0,060	○	●	○
P.1.3	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,21	0,17	0,13	0,054	0,24	0,19	0,14	0,060	○	●	○
P.1.4	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,21	0,17	0,13	0,054	0,24	0,19	0,14	0,060	○	●	○
P.1.5	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,21	0,17	0,13	0,054	0,24	0,19	0,14	0,060	○	●	○
P.2.1	0,21	0,17	0,13	0,054	0,23	0,18	0,14	0,057	0,24	0,19	0,14	0,060	0,25	0,20	0,15	0,063	○	●	○
P.2.2	0,21	0,17	0,13	0,054	0,23	0,18	0,14	0,057	0,24	0,19	0,14	0,060	0,25	0,20	0,15	0,063	○	●	○
P.2.3	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,21	0,17	0,13	0,054	0,24	0,19	0,14	0,060	○	●	○
P.2.4	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,21	0,17	0,13	0,054	0,24	0,19	0,14	0,060	○	●	○
P.3.1	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,21	0,17	0,13	0,054	0,24	0,19	0,14	0,060	○	●	○
P.3.2	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,21	0,17	0,13	0,054	0,24	0,19	0,14	0,060	○	●	○
P.3.3	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,21	0,17	0,13	0,054	0,24	0,19	0,14	0,060	○	●	○
P.4.1	0,15	0,12	0,09	0,038	0,15	0,12	0,09	0,038	0,16	0,13	0,10	0,041	0,18	0,14	0,11	0,044	●		
P.4.2	0,15	0,12	0,09	0,038	0,15	0,12	0,09	0,038	0,16	0,13	0,10	0,041	0,18	0,14	0,11	0,044	●		
M.1.1	0,15	0,12	0,09	0,038	0,15	0,12	0,09	0,038	0,16	0,13	0,10	0,041	0,18	0,14	0,11	0,044	●		
M.2.1	0,15	0,12	0,09	0,038	0,15	0,12	0,09	0,038	0,16	0,13	0,10	0,041	0,18	0,14	0,11	0,044	●		
M.3.1	0,15	0,12	0,09	0,038	0,15	0,12	0,09	0,038	0,16	0,13	0,10	0,041	0,18	0,14	0,11	0,044	●		
K.1.1	0,21	0,17	0,13	0,054	0,23	0,18	0,14	0,057	0,24	0,19	0,14	0,060	0,25	0,20	0,15	0,063	○	●	○
K.1.2	0,21	0,17	0,13	0,054	0,23	0,18	0,14	0,057	0,24	0,19	0,14	0,060	0,25	0,20	0,15	0,063	○	●	○
K.2.1	0,21	0,17	0,13	0,054	0,23	0,18	0,14	0,057	0,24	0,19	0,14	0,060	0,25	0,20	0,15	0,063	○	●	○
K.2.2	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,23	0,18	0,14	0,057	0,24	0,19	0,14	0,060	○	●	○
K.3.1	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,23	0,18	0,14	0,057	0,24	0,19	0,14	0,060	○	●	○
K.3.2	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,23	0,18	0,14	0,057	0,24	0,19	0,14	0,060	○	●	○
N.1.1																			
N.1.2																			
N.2.1	0,20	0,16	0,12	0,051	0,23	0,18	0,14	0,057	0,25	0,20	0,15	0,063	0,28	0,22	0,17	0,070	●	●	
N.2.2	0,20	0,16	0,12	0,051	0,23	0,18	0,14	0,057	0,25	0,20	0,15	0,063	0,28	0,22	0,17	0,070	●	●	
N.2.3	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,24	0,19	0,14	0,060	0,26	0,21	0,16	0,066	●	●	
N.3.1	0,18	0,14	0,11	0,044	0,20	0,16	0,12	0,051	0,23	0,18	0,14	0,057	0,25	0,20	0,15	0,063	●	●	
N.3.2	0,18	0,14	0,11	0,044	0,20	0,16	0,12	0,051	0,23	0,18	0,14	0,057	0,25	0,20	0,15	0,063	●	●	
N.3.3	0,16	0,13	0,10	0,041	0,19	0,15	0,11	0,047	0,21	0,17	0,13	0,054	0,24	0,19	0,14	0,060	●	●	
N.4.1																			
S.1.1	0,10	0,08	0,06	0,025	0,11	0,09	0,07	0,028	0,13	0,10	0,08	0,032	0,14	0,11	0,08	0,035	●		
S.1.2	0,10	0,08	0,06	0,025	0,11	0,09	0,07	0,028	0,13	0,10	0,08	0,032	0,14	0,11	0,08	0,035	●		
S.2.1	0,10	0,08	0,06	0,025	0,11	0,09	0,07	0,028	0,13	0,10	0,08	0,032	0,14	0,11	0,08	0,035	●		
S.2.2	0,10	0,08	0,06	0,025	0,11	0,09	0,07	0,028	0,13	0,10	0,08	0,032	0,14	0,11	0,08	0,035	●		
S.2.3																			
S.3.1	0,13	0,10	0,08	0,032	0,14	0,11	0,08	0,035	0,15	0,12	0,09	0,038	0,15	0,12	0,09	0,038	●		
S.3.2	0,13	0,10	0,08	0,032	0,14	0,11	0,08	0,035	0,15	0,12	0,09	0,038	0,15	0,12	0,09	0,038	●		
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

Cutting data standard values – S-Cut UNImax – End mill

Index	Type long		52 522 ..., 52 523 ...															
			Ø DC (mm) =															
			3		4		5		6		8		10		12		14	
			a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c (m/min)	$a_{p\,max.}$ x DC	f_z (mm)															
P.1.1	210	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
P.1.2	200	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
P.1.3	200	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
P.1.4	190	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
P.1.5	190	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
P.2.1	200	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
P.2.2	190	2.0	0.020	0.014	0.027	0.019	0.034	0.025	0.042	0.030	0.056	0.040	0.070	0.050	0.084	0.060	0.098	0.070
P.2.3	180	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
P.2.4	170	2.0	0.020	0.014	0.027	0.019	0.034	0.025	0.042	0.030	0.056	0.040	0.070	0.050	0.084	0.060	0.098	0.070
P.3.1	180	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
P.3.2	170	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
P.3.3	140	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
P.4.1	95	1.5	0.012	0.009	0.017	0.012	0.022	0.016	0.027	0.019	0.036	0.026	0.046	0.033	0.056	0.040	0.066	0.047
P.4.2	85	1.5	0.012	0.009	0.017	0.012	0.022	0.016	0.027	0.019	0.036	0.026	0.046	0.033	0.056	0.040	0.066	0.047
M.1.1	95	1.5	0.012	0.009	0.017	0.012	0.022	0.016	0.027	0.019	0.036	0.026	0.046	0.033	0.056	0.040	0.066	0.047
M.2.1	95	1.5	0.012	0.009	0.017	0.012	0.022	0.016	0.027	0.019	0.036	0.026	0.046	0.033	0.056	0.040	0.066	0.047
M.3.1	95	1.5	0.012	0.009	0.017	0.012	0.022	0.016	0.027	0.019	0.036	0.026	0.046	0.033	0.056	0.040	0.066	0.047
K.1.1	200	2.0	0.031	0.022	0.039	0.028	0.048	0.034	0.056	0.040	0.074	0.053	0.091	0.065	0.108	0.077	0.126	0.090
K.1.2	180	2.0	0.031	0.022	0.039	0.028	0.048	0.034	0.056	0.040	0.074	0.053	0.091	0.065	0.108	0.077	0.126	0.090
K.2.1	190	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
K.2.2	170	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
K.3.1	180	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
K.3.2	160	2.0	0.026	0.019	0.034	0.024	0.042	0.030	0.049	0.035	0.066	0.047	0.081	0.058	0.098	0.070	0.113	0.081
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	350	2.0	0.031	0.022	0.039	0.028	0.048	0.034	0.056	0.040	0.074	0.053	0.091	0.065	0.108	0.077	0.126	0.090
N.3.2	350	2.0	0.031	0.022	0.039	0.028	0.048	0.034	0.056	0.040	0.074	0.053	0.091	0.065	0.108	0.077	0.126	0.090
N.3.3	280	2.0	0.031	0.022	0.039	0.028	0.048	0.034	0.056	0.040	0.074	0.053	0.091	0.065	0.108	0.077	0.126	0.090
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Profiling with an a_e < 0.3xDC only possible under certain conditions!

Plunging angle for ramping and helical milling: 3°

Index	52 522 ..., 52 523 ...						● 1st choice ○ suitable		
	Ø DC (mm) =								
	16		18		20				
	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MQL
	f_z (mm)								
P.1.1	0.121	0.087	0.129	0.092	0.137	0.098	●	○	○
P.1.2	0.121	0.087	0.129	0.092	0.137	0.098	●	○	○
P.1.3	0.121	0.087	0.129	0.092	0.137	0.098	●	○	○
P.1.4	0.121	0.087	0.129	0.092	0.137	0.098	●	○	○
P.1.5	0.121	0.087	0.129	0.092	0.137	0.098	●	○	○
P.2.1	0.121	0.087	0.129	0.092	0.137	0.098	●	○	○
P.2.2	0.105	0.075	0.112	0.080	0.119	0.085	●	○	○
P.2.3	0.121	0.087	0.129	0.092	0.137	0.098	●	○	○
P.2.4	0.105	0.075	0.112	0.080	0.119	0.085	●	○	○
P.3.1	0.121	0.087	0.129	0.092	0.137	0.098	●	○	○
P.3.2	0.121	0.087	0.129	0.092	0.137	0.098	●	○	○
P.3.3	0.121	0.087	0.129	0.092	0.137	0.098	●	○	○
P.4.1	0.071	0.051	0.076	0.054	0.081	0.058	●		
P.4.2	0.071	0.051	0.076	0.054	0.081	0.058	●		
M.1.1	0.071	0.051	0.076	0.054	0.081	0.058	●		
M.2.1	0.071	0.051	0.076	0.054	0.081	0.058	●		
M.3.1	0.071	0.051	0.076	0.054	0.081	0.058	●		
K.1.1	0.134	0.096	0.143	0.102	0.151	0.108	●	●	●
K.1.2	0.134	0.096	0.143	0.102	0.151	0.108	●	●	●
K.2.1	0.121	0.087	0.129	0.092	0.137	0.098	●	●	●
K.2.2	0.121	0.087	0.129	0.092	0.137	0.098	●	●	●
K.3.1	0.121	0.087	0.129	0.092	0.137	0.098	●	●	●
K.3.2	0.121	0.087	0.129	0.092	0.137	0.098	●	●	●
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1	0.134	0.096	0.143	0.102	0.151	0.108	●	○	○
N.3.2	0.134	0.096	0.143	0.102	0.151	0.108	●	○	○
N.3.3	0.134	0.096	0.143	0.102	0.151	0.108	●	○	○
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									



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